Mediterranean Marine Science

Vol 6, No 1 (2005)

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doi: 10.12681/mms.193

Mediterranean Marine Science
Vol. 6/1, 2005, 51-73

Inventory of inshore polychaetes from the romanian coast (Black Sea)

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Abstract

A survey conducted in inshore waters along the Romanian coast of the Black Sea from 1994 to 2000, yielded 24 polychaete species belonging to 10 families as follows: Polynoidae (2), Phyllodocidae (2), Syllidae (3), Nereididae (5), Spionidae (5), Capitellidae (3), Nerillidae (1), Sabellidae (1), Serpulidae (1), and Spirorbidae (1). Polydora websteri (Hartman, 1943) is a new record for the Mediterranean and Black Sea region. P. cornuta (Bose, 1802) is first recorded in the Black Sea. Additionally, two other species, namely Harmothoe imbricata (Linnaeus, 1767) and Typosyllis hyalina (Grube, 1863), are new to the Romanian fauna. The systematic position of some species is discussed. The information on geographical distribution within the Mediterranean region of species found is also provided.

Keywords: Annelida; Polychaeta; Black Sea; Romanian coast; Inventory.

Introduction

Despite the fact that from a bionomical point of view the polychaete fauna of the Romanian coast of the Black Sea is relatively well documented (Borcea, 1926a, 1926b, 1928, 1931a, 1934a; Băcescu *et al.*, 1957, 1963, 1965a, 1965b, 1965c, 1967a, 1967b, 1971; Dumitrescu, 1957, 1962, 1963, 1973; Manoleli, 1967, 1969, 1973, 1980; Ţigănuş, 1986, 1988, 1992), information on the taxonomic problems of this group was provided for very few species (Dumitrescu, 1957; Codreanu & Mack-Fira, 1961; Surugiu, 2000a). The lack of thorough systematic papers on polychaetes of the Black Sea gave rise to much confusion in the literature, some species being cited under wrong or old names.

In addition, during the last three decades the zoobenthic communities of the Romanian Black Sea coast have been influenced by major anthropogenic stress, such as an increasing level of pollution and eutrophication and sediment disturbance.

The purposes of the present study, which is part of a doctoral thesis (SURUGIU, 2002), are: (1) to provide information on composition and distribution of the polychaete fauna from

the Romanian coast and (2) to elucidate the problematic taxonomic status of some species.

Materials and Methods

The material was collected between 1994 and 2000, from 79 stations, at 15 localities situated along the Romanian coast of the Black Sea (Fig. 1). Information on the sampling stations, such as locality, collecting date, coordinates, depth, types of substrate are listed in Table 1.

In the littoral zone samples were collected by hand. The sublittoral samples, at depths from 0.5 m to 18.5 m, were obtained by taking chunks of the substrate (pieces of rock, seaweed tufts, colonies of mussels, soft sediments, etc.) by free and SCUBA diving. Samples were screened through a 0.5 mm sieve and polychaetes retained were fixed in 10% formalin and preserved in 70% ethanol.

For the preliminary identifications the keys provided by Vinogradov & Losovskaya (1968) and Marinov (1977) have been used. Specification of the systematic status has been carried out, as far as possible, by means of recent revisions on major polychaete families (e.g. Barnich & Fiege, 2003; Pleijel & Dales, 1991; Licher, 1999; Blake, 1996; Fitzhugh, 1990, ten Hove & Weerdenburg, 1978, Rzhavsky, 1991 etc.). The taxonomic layout is based largely on systematization presented in Fauchald & Rouse (1997) and Rouse & Fauchald (1995, 1997, 1998).

For each species, selected synonyms with reference to the corresponding literature and

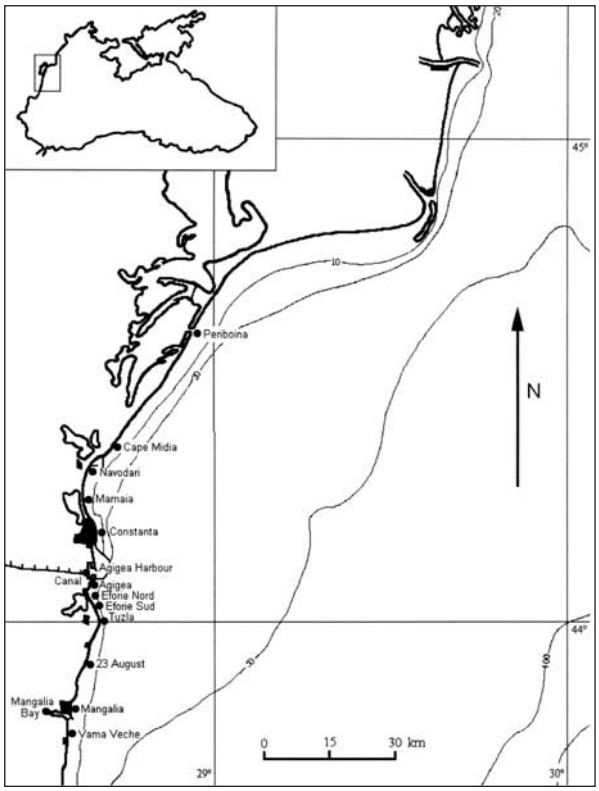

Fig. 1: Map of the Romanian littoral showing sampling stations.

Table 1
List of stations.

Station	Locality	Date	Latitude	Longitude	Depth	Substrate
1	Agigea	13-08-1994	44°04'56.2" N	28°38'29.1" E	0.5	rock
2	Agigea harbour	16-08-1994	44°05'52.8" N	28°38'31.0" E	0.5	muddy rock
3	Agigea	19-08-1994	44°05'18.0" N	28°41'00.0" E	18	mud
4	Agigea	20-08-1994	44°05'09.0" N	28°39'40.0" E	10	rock
5	Canal	17-12-1994	44°06'01.6" N	28°38'09.1" E	0.2	mud
6	Periboina	28-09-1995	44°38'51.6" N	28°57'51.4" E	3	fine sand
7	Periboina	28-09-1995	44°37'41.8" N	28°56'45.5" E	3	fine sand
8	Periboina	28-09-1995	44°36'28.5" N	28°56'02.0" E	3	fine sand
9	Periboina	28-09-1995	44°35'28.1" N	28°55'13.3" E	3	fine sand
10	Periboina	28-09-1995	44°34'03.9" N	28°54'16.0" E	3	fine sand
11	Agigea	24-05-1997	44°04'56.0" N	28°38'28.8" E	0	rock + algal detritus
12	Agigea	03-06-1997	44°04'56.2" N	28°38'29.1" E	1	rock
13	Vama Veche	06-06-1997	43°45'03.7" N	28°34'40.8" E	0.5	rock
14	Agigea	13-06-1997	44°04'56.2" N	28°38'29.1" E	1	rock
15	Agigea	26-06-1997	44°04'56.0" N	28°38'28.8" E	0	rock
16	Agigea	27-06-1997	44°04'56.2" N	28°38'29.1" E	1	sandy clayrock
17	Agigea	30-06-1997	44°04'56.2" N	28°38'29.1" E	1.5	rock
18	Agigea	02-07-1997	44°04'56.2" N	28°38'29.1" E	1.2	rock
19	Agigea	30-07-1997	44°04'56.0" N	28°38'28.8" E	0	rock
20	Agigea	01-08-1997	44°04'57.4" N	28°38'36.3" E	3.5	sandy clayrock
21	Agigea	01-08-1997	44°04'57.4" N	28°38'36.3" E	3.5	sand
22	Eforie Nord	01-08-1997	44°03'49.8" N	28°38'42.0" E	5	rock
23	Eforie Nord	01-08-1997	44°03'49.8" N	28°38'42.0" E	5	sand
24	Eforie Nord	05-08-1997	44°03'15.2" N	28°38'38.8" E	4	rock
25	Eforie Sud	05-08-1997	44°02'37.9" N	28°38'59.4" E	3	sand
26	Eforie Sud	05-08-1997	44°01'37.4" N	28°39'43.5" E	4.5	rock
27	Tuzla	05-08-1997	44°00'32.2" N	28°40'12.0" E	3	rock
28	Cape Midia	07-08-1997	44°21'07.8" N	28°41'42.9" E	0.5	black mud
M1	Mangalia Bay	09-08-1997	43°48'48.4" N	28°31'06.4" E	0.2	muddy rock
29	Agigea	25-08-1997	44°04'56.2" N	28°38'29.1" E	0.5	rock
30	Eforie Nord	26-09-1997	44°03'57.5" N	28°38'44.6" E	5	sand
31	Eforie Nord	26-09-1997	44°03'23.2" N	28°39'13.1" E	8	sand
32	Eforie Sud	26-09-1997	44°02'38.4" N	28°39'35.1" E	8	muddy rock
33	Eforie Sud	26-09-1997	44°01'48.4" N	28°40'29.5" E	16	mud
34	Tuzla	26-09-1997	44°00'30.3" N	28°40'42.8" E	8	rock
35	Agigea	27-09-1997	44°05'06.3" N	28°39'27.7" E	6	rock
36	Agigea	24-06-1998	44°04'56.0" N	28°38'28.8" E	0	rock
37	Agigea	25-06-1998	44°05'09.3" N	28°39'23.0" E	10	rock
38	Eforie Nord	25-06-1998	44°03'51.6" N	28°38'53.4" E	8	sand

(continued)

Table 1
(continued)

Station	Locality	Date	Latitude	Longitude	Depth	Substrate
39	Eforie Nord	25-06-1998	44°03'23.6" N	28°39'12.1" E	10	sand
40	Eforie Sud	25-06-1998	44°02'36.6" N	28°39'33.3" E	10	rock
41	Eforie Sud	25-06-1998	44°01'45.3" N	28°40'21.6" E	18.5	mud
42	Tuzla	25-06-1998	44°00'31.7" N	28°40'18.5" E	6	rock
43	Năvodari	26-06-1998	44°18'51.7" N	28°37'58.8" E	0	fine sand
44	Năvodari	26-06-1998	44°18'51.7" N	28°38'09.0" E	2	fine sand
45	Năvodari	26-06-1998	44°18'51.7" N	28°38'48.0" E	3	fine sand
46	Agigea	25-07-1998	44°04'56.0" N	28°38'28.8" E	0	coarse sand
47	Eforie Nord	19-08-1998	44°03'51.6" N	28°38'53.4" E	8	sand
48	Agigea	23-08-1998	44°04'56.0" N	28°38'28.8" E	0	coarse sand
49	Agigea	23-08-1998	44°05'18.0" N	28°41'00.0" E	17	mud
50	23 August	24-08-1998	43°55'23.2" N	28°38'08.8" E	4	rock
51	Eforie Nord	28-08-1998	44°03'22.0" N	28°38'53.4" E	6	sand
52	Eforie Sud	28-08-1998	44°02'49.1" N	28°39'11.3" E	9	rock
53	Eforie Sud	28-08-1998	44°01'47.3" N	28°39'46.0" E	5	rock
54	Eforie Sud	28-08-1998	44°01'47.3" N	28°39'46.0" E	5	algae
55	Tuzla	28-08-1998	44°00'47.9" N	28°40'41.1" E	8	rock
56	Agigea	29-08-1998	44°05'14.9" N	28°39'26.1" E	7	rock
57	Năvodari	31-08-1998	44°18'51.7" N	28°37'58.8" E	2.5	fine sand
58	Mamaia	31-08-1998	44°15'31.9" N	28°37'22.4" E	2.5	fine sand
59	Constanța	31-08-1998	44°10'55.6" N	28°39'29.0" E	4	sand
60	Agigea	01-09-1998	44°04'56.2" N	28°38'29.1" E	0	rock
61	Agigea	23-09-1998	44°04'46.9" N	28°38'24.0" E	0	coarse sand
62	Agigea	30-10-1998	44°04'46.9" N	28°38'24.0" E	0	coarse sand
63	Constanța	27-07-1999	44°10'45.0" N	28°39'31.0" E	0.7	sand
64	Tuzla	28-07-1999	43°59'30.0" N	28°40'06.0" E	0	rock
65	Agigea	05-08-1999	44°04'56.2" N	28°38'29.1" E	1	rock
M2	Mangalia Bay	07-08-1999	43°48'48.4" N	28°31'06.4" E	0.5	muddy rock
66	Canal	09-08-1999	44°05'61.6" N	28°38'09.1" E	3	muddy rock
67	Agigea harbour	09-08-1999	44°05'52.0" N	28°38'31.0" E	2	muddy rock
68	Mangalia	10-08-1999	43°49'15.9" N	28°35'20.6" E	0.3	rock
69	Vama Veche	10-08-1999	43°45'54.0" N	28°35'00.8" E	5	rock
70	Năvodari	12-08-1999	44°18'53.7" N	28°38'01.5" E	0.5	fine sand
71	Mamaia	12-08-1999	44°17'17.7" N	28°37'22.7" E	0	fine sand
72	Eforie Sud	13-08-1999	44°01'45.6" N	28°39'32.0" E	0.5	rock
M3	Mangalia Bay	23-04-2000	43°48'24.5" N	28°31'54.9" E	0.4	muddy rock
M4	Mangalia Bay	23-04-2000	43°48'47.6" N	28°31'07.9" E	0.5	mud
M5	Mangalia Bay	23-04-2000	43°48'45.1" N	28°31'32.7" E	0.1	muddy rock
73	Agigea	13-06-2000	44°04'56.2" N	28°38'29.1" E	0.5	limestone
74	Agigea harbour	16-09-2000	44°05'52.0" N	28°38'31.0" E	0.5	ship hull

figures are included. Additionally, the total number of individuals collected, followed by the locality name, the station number, number of specimens per station (in parenthesis), depth and substrate type are given. Geographical distribution within the Mediterranean region is also provided based on the records found in the relevant literature available. Remarks commenting on the taxonomic status of species are also included. The specimens are deposited in the Senckenberg Museum Frankfurt.

Results

Examination of 15,474 individuals collected during this study permitted us to identify only 24 species of the total of 81 polychaete species which have been reported in the Romanian Black Sea and Danube by different authors (Table 2). This small number of species found, compared to other studies in the same region, is probably due essentially to the sampling method of collecting a small amount of sediment or substrate by hand and to the fact that our research was carried at depth of less than 20 m. Taking into account the polychaete species which inhabit the depth below 20 m, this number will be greater, but will still remain smaller than some 30 years ago. Also it is related to the type of habitat sampled mostly belonging to the upper sublittoral zone and finally to the man-made impact which has increased compared to some 30 years ago (SURUGIU, 2002b).

Table 2
Check list of polychaete species reported from the Romanian coast.

Scolecida

Arenicolidae Johnston, 1835
- *Arenicola marina* (Linnaeus, 1758)
- *Arenicolides branchialis* (Audouin & M.-Edwards, 1833)

Capitellidae Grube, 1862
- *Capitella capitata* (Fabricius, 1780)
- *Capitella minima* Langerhans, 1880
- *Heteromastus filiformis* (Claparède, 1864)
- *Notomastus profundus* Eisig, 1887

Maldanidae Malmgren, 1867
- *Leiochone clypeata* Saint-Joseph, 1894

Opheliidae Malmgren, 1867
- *Ophelia bicornis* Savigny, 1818
- *Ophelia limacina* (Rathke, 1843)

Paraonidae Cerruti, 1909a
- *Aricidea claudiae* Laubier, 1967

Palpata, Aciculata, Phyllodocida, Aphroditiformia

Aphroditoidea Malmgren, 1867
- *Harmothoe extenuata* (Grube, 1840)
- *Harmothoe imbricata* (Linnaeus, 1767)
- *Harmothoe impar* (Johnston, 1839)

Pholoidae Kinberg, 1858
- *Pholoe synophthalmica* Claparède, 1868

Sigalionidae Kinberg, 1856
- *Sthenelais boa* (Johnston, 1833)

Pisionidae Ehlers, 1901
- *Pisione remota* (Southern, 1914)

Palpata, Aciculata, Phyllodocida, Nereidiformia

Nereididae Johnston, 1865
- *Namanereis littoralis* (Grube, 1872)
- *Nereis zonata* Malmgren, 1867
- *Hediste diversicolor* (O.F. Müller, 1776)
- *Neanthes succinea* (Frey & Leuckart, 1847)
- *Perinereis cultrifera* (Grube, 1840)
- *Platynereis dumerilii* (Audouin & M.-Edwards, 1833)

Syllidae Grube, 1850
- *Syllis gracilis* Grube, 1840
- *Typosyllis hyalina* (Grube, 1863)
- *Syllides longocirratus* (Oersted, 1845)
- *Trypanosyllis zebra* (Grube, 1860)
- *Pseudobrania clavata* (Claparède, 1863)
- *Exogone naidina* Oersted, 1845
- *Sphaerosyllis bulbosa* Southern, 1914

Nereidiformia *incertae sedis*
- *Microphthalmus fragilis* Bobretzky, 1870
- *Microphthalmus sczelkowii* Mecznikow, 1865
- *Microphthalmus similis* Bobretzky, 1870

(continued)

Table 2
(continiued)

Palpata, Aciculata, Phyllodocida unplaced

Glyceriformia Fauchald, 1977
Glycera alba (O.F. Müller, 1776)
Glycera tridactyla Schmarda, 1861
Nephtyidae Grube, 1850
Nephtys cirrosa Ehlers, 1868
Nephtys hombergii Savigny, 1818
Micronephthys stammeri (Augener, 1932)
Phyllodocidae Öersted, 1843a
Phyllodoce maculata (Linnaeus, 1767)
Nereiphylla paretti Blainville, 1828
Nereiphylla rubiginosa (Saint-Joseph, 1888)
Eteone picta Quatrefages, 1865
Eumida sanguinea (Oersted, 1843)
Pterocirrus macroceros (Grube, 1860)

Palpata, Aciculata, Eunicida

Dorvilleidae Chamberlin, 1919
Protodorvillea kefersteini (McIntosh, 1869)

Palpata, Aciculata unplaced

Nerillidae Levinsen, 1883
Nerilla antennata O. Schmidt, 1848

Palpata, Canalipalpata, Sabellida

Sabellariidae Johnston, 1865
Sabellaria taurica (Rathke, 1837)
Sabellidae Malmgren, 1867
Fabricia stellaris (Müller, 1774)
Manayunkia caspica Annenkova, 1929
Oriopsis armandi (Claparède, 1864)
Serpulidae Johnston, 1865
Ficopomatus enigmaticus (Fauvel, 1923)
Janua pagenstecheri (Quatrefages, 1865)
Pileolaria militaris (Claparède, 1868)
Pomatoceros triqueter (Linnaeus, 1767)
Serpula vermicularis Linnaeus, 1767
Vermiliopsis infundibulum (Philippi, 1844)

Palpata, Canalipalpata, Terebellida, Cirratuliformia

Ctenodrilidae Kennel, 1882
Ctenodrilus serratus (Schmidt, 1857)

Palpata, Canalipalpata, Terebellida, Terebelliformia

Ampharetidae Malmgren, 1867
Hypania invalida (Grube, 1860)
Hypaniola kowalewskii (Grimm, 1877)
Melinna palmata Grube, 1870
Pectinariidae Quatrefages, 1865
Pectinaria koreni (Malmgren, 1866)
Terebellidae Grube, 1850
Polycirrus jubatus Bobretzky *in* Annenklova, 1924
Terebellides stroemii M. Sars, 1835

Palpata, Canalipalpata, Spionida

***Magelona* Müller, 1858**
Magelona mirabilis (Johnston, 1865)
Magelona minuta Eliasson, 1907
Spionidae Grube, 1850
Aonides oxycephala (M. Sars, 1872)
Aonides paucibranchiata Southern, 1914
Malacocerus tetracerus (Schmarda, 1861)
Polydora ciliata (Johnston, 1838)
Polydora cornuta Bosc, 1802
Polydora limicola Annenkova, 1934
Polydora websteri Hartman, 1943
Prionospio steenstrupi Malmgren, 1867
Prionospio cirrifer Wirén, 1883
Pygospio elegans Claparède, 1863
Scolelepis cirratulus (Delle Chiaje, 1828)
Pseudomalacoceros cantabra (Rioja, 1918)
Spio decoratus Bobretzky, 1871
Streblospio benedicti Webster, 1879

Palpata, Canalipalpata unplaced

Polygordiidae Czerniavsky, 1881a
Polygordius neapolitanus Fraipont, 1882
Protodrilida Pettibone, 1982
Protodrilus flavocapitatus (Uljanin, 1877)
Saccocirrus papillocercus Bobretzky, 1871

Scolecida
Capitellidae Grube, 1862

1. Capitella capitata
(Fabricius, 1780)

Capitella capitata.–Uschakov, 1955: 328, fig. 121, C,D.–Marinov, 1977: 184-185, pl. XXVI, fig. 2.–Vinogradov & Losovskaya, 1968: 312, pl. XVII, fig. 1.–Manoleli, 1995: 190, fig. 25.29.–Hartmann-Schröder, 1996: 436-438, fig. 214.
Capitella capitata capitata.–Warren, 1976: 198-201.

Material examined. – 49 ind.: Năvodari, sta. 57(1), Mamaia, sta. 58(1), Agigea, sta. 12(1), Eforie Nord, sta. 30(13), Eforie Sud, sta. 26(2), 53(11), 72(1), Vama Veche, sta. 69(19), 0.5-5 m, sandy and hard substrata.

Distribution – A cosmopolitan species (Warren, 1976), reported on the Pacific coast of America, Gulf of Mexico (Hartman, 1951), Far Eastern seas (Uschakov, 1955), Atlantic, North Sea (Hartmann-Schröder, 1996), Western Mediterranean (Pérès, 1954; Bellan, 1964; Castelli *et al.*, 1995), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), Marmara Sea (Gillet & Ünsal, 2000), Bosphorus (La Greca, 1949; Rullier, 1963; Gillet & Ünsal, 2000), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea recorded throughout: Prebosphoric region (Gillet & Ünsal, 2000), Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1870; Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956, 1977, 1978; Vinogradov & Losovskaya, 1963), Romanian (Băcescu *et al.*, 1957, 1965a, 1967a; Dumitrescu, 1963, 1973; Manoleli, 1967; Tigănuş, 1982, 1986; Manoleli & Surugiu, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1963).

2. Capitella minima
Langerhans, 1880

Capitomastus minimus.–Băcescu *et al.*, 1957: 336, fig. 9, B.–Marinov, 1977: 185, pl. XXVI, fig. 4.–Vinogradov & Losovskaya, 1968: 312, pl. VII, fig. 3.
Capitella minima.–Hartmann-Schröder, 1996: 439-441, fig. 216.

Material examined. – 595 ind.: Periboina, sta. 6(5), 7(54), 8(4), 9(17), 10(48), Năvodari, sta. 57(9), 70(3), Mamaia, sta. 58(7), Agigea, sta. 37(7), 65(1), Eforie Nord, sta. 31(54), 38(25), 39(37), 47(186), 51(7), Eforie Sud, sta. 25(4), 26(7), 32(1), 33(51), 40(3), 41(25), 52(4), 53(16), Tuzla, sta. 42(2), 55(1), 23 August, sta. 50(14), Mangalia, sta. 68(3), 0.3-18.5 m, hard, sandy and muddy substrata.

Distribution – North-eastern Atlantic, North Sea (Hartmann-Schröder, 1996), Western Mediterranean (Bellan, 1964, Castelli *et al.*, 1995), Aegean Sea (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), Bosphorus (Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960), Red Sea.

In the Black Sea recorded on the Georgian coast (Komakhidze & Mazmanidi, 1998), Bay of Sevastopol (Jakubova, 1930), north-western part of the Black Sea (Vinogradov & Losovskaya, 1963; Losovskaya, 1978), Romanian (Băcescu *et al.*, 1957, 1963, 1965a, 1965b, 1965c, 1967a, 1967b; Gomoiu & Müller, 1962; Băcescu, 1963; Dumitrescu, 1963, 1973; Manoleli, 1967, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a).

3. Heteromastus filiformis
(Claparède, 1864)

?Capitella multioculata Perejaslavzeva, 1891: 25.
Heteromastus filiformis.–Vinogradov, 1931: 18-19, fig. 9.–Uschakov, 1955: 327, fig. 121, E.–Marinov, 1977: 183-184, pl. XXVI, fig. 3.–Vinogradov & Losovskaya, 1968: 311, pl. XVI, fig. 6.–Hartmann-Schröder, 1996: 441-443, fig. 217.

Material examined. – 76 ind.: Agigea, sta. 37(1), 56(1), Eforie Nord, sta. 31(2), 39(1), 47(3), Eforie Sud, sta. 40(34), 41(22), 52(2), Tuzla, sta. 34(9), Vama Veche, sta. 69(1), 7-18.5 m, hard, sandy and muddy substrata.

Distribution – Cosmopolitan species (Hartmann-Schröder, 1996), occurring on Atlantic and Pacific coasts of North America, Gulf of Mexico (Hartman, 1951), Far Eastern seas (Uschakov, 1955), North Sea (Hartmann-Schröder, 1996), English Channel, Western Mediterranean (Bellan, 1964, Castelli *et al.*, 1995), Eastern Mediterranean (Fauvel, 1937), Aegean Sea (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), Marmara Sea (Rullier,

1963; Gillet & Ünsal, 2000), Sea of Azov (Mordukhai-Boltovskoi, 1960).

Known in the Black Sea from: Prebosphoric region (Dumitrescu, 1960; Rullier, 1963), Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1930, 1931, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956, 1978, 1988; Vinogradov & Losovskaya, 1963), Romanian (Dumitrescu, 1957, 1963, 1973; Băcescu *et al.*, 1957, 1965a, 1965b, 1965c, 1967a; Manoleli, 1967; Surugiu & Manoleli, 1998/1999) and Bulgarian coast (Marinov, 1957a).

Remarks – Perejaslavzeva (1891) described the species *Capitella multioculata* from the Bay of Sevastopol. Vinogradov (1949), and later Marinov (1977), assigned this record to *Heteromastus filiformis* without examining the material identified by Perejaslavzeva. However, the original description of Perejaslavzeva is very brief and incomplete and does not permit even a generic assignment and type material is probably lost. Consequently, *Capitella multioculata* must be left as a nomen dubium.

Palpata, Aciculata, Phyllodocida, Aphroditiformia

Aphroditoidea Malmgren, 1867

4. ***Harmothoe imbricata***
(Linnaeus, 1767)

Polynoe granulosa.–Bobretzky, 1870: 192 [partim].
Polynoe incerta. –Bobretzky. 1881: 5-7, fig. 1.
?Harmothoe imbricata incerta La Greca, 1949: 156.
Harmothoe imbricata.–Uschakov, 1955: 154, fig. 38, A-E.–Vinogradov & Losovskaya, 1968: 264, pl. III, fig. 1.–Marinov, 1977: 72, pl. VI, fig. 2.–Hartmann-Schröder, 1996: 46-48, fig. 12.–Chambers & Muir, 1997: 104-105, fig. 26.–Barnich & Fiege, 2000: 1899-1900, fig. 5; 2003: 47-48, fig. 22A-D.

Material examined. – 2 ind.: Agigea, sta. 56(1), Vama Veche, sta. 69(1), 5-7 m, on hard substrate among mussels' byssuses.

Distribution – A widely distributed arctic-boreal species (Hartmann-Schröder, 1996), known in the Pacific Ocean (Uschakov, 1955), Arctic seas, north-western European coasts (Rasmussen, 1973; Hartmann-Schröder, 1996; Chambers & Muir, 1997), Western and Central Mediterranean (Bellan, 1964; Barnich & Fiege, 2000, 2003), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978; Castelli *et al.*, 1995), Aegean Sea (Barnich & Fiege, 2000; Simboura & Nicolaidou, 2001), Ionian Sea, Amvrakikos gulf (Simboura & Nicolaidou, 2001), Marmara Sea (Rullier, 1963), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea this species has been reported on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1881; Jakubova, 1930), north-western part of the Black Sea (Borcea, 1931; Losovskaya, 1956, 1978, 1988; Vinogradov & Losovskaya, 1963) and *Bulgarian coast* (Marinov, 1964; Müller, 1971). First record on the Romanian coast.

Remarks – Specimens from the Bosphorus strait found by La Greca (1949) and designated as *Harmothoe imbricata incerta* differ from *H. imbricata* by lack of macrotubercles and by different pigmentation of the elytra. However, our material presents a row of drop-like pointed macrotubercles near the posterior margin of the elytra.

5. ***Harmothoe impar***
(Johnston, 1839)

Polynoe granulosa.–Bobretzky, 1870: 189-193, figs. 1-4 [partim].
Polynoe reticulata.–Bobretzky, 1881: 3-5.
?Harmothoe (Polynoe) incesta.–Borcea, 1931a: 670, 688; 1937: 11.
Harmothoe reticulata.–La Greca, 1949: 156-157.–Marinov, 1977: 72-73, pl. VI, fig. 4.–Vinogradov & Losovskaya, 1968: 264, pl. III, fig. 2.–Manoleli, 1995: 183, fig. 25.3 A,B.
Harmothoe impar.–Rasmussen, 1973: 63-64.–Hartmann-Schröder, 1996: 48-50, fig. 13.–Chambers & Muir, 1997:

106-107, fig. 27.–Barnich & Fiege, 2000: 1906-1907, fig. 9; 2003: 48-49, fig. 23A-D.

Material examined. – 132 ind.: Agigea, sta. 37(12), 49(15), 56(3), Eforie Nord, sta. 24(2), 39(5), Eforie Sud, sta. 32(8), 33(35), 40(14), 41(9), 52(1), 54(3), Tuzla, sta. 34(10), 42(4), 55(5), 23 August, sta. 50(3), Vama Veche, sta. 69(3), 4-18.5 m, in the detritus and mud deposited in the interstices of the mussel colonies.

Distribution – Reported in the Barents Sea, British Channel (Chambers & Muir, 1997), North European (Rasmussen, 1973; Hartmann-Schröder, 1996) and African coasts of the Atlantic (Fauvel & Rullier, 1959), Western Mediterranean (Bellan, 1964; Castelli *et al.*, 1995), Eastern Mediterranean (Fauvel, 1937; Barnich & Fiege, 2000, 2003), Aegean Sea (Marinov, 1959b; Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea it is known in the Prebosphoric region (Dumitrescu, 1960), the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1870, 1881; Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956, 1978; Vinogradov & Losovskaya, 1963; Vinogradov *et al.*, 1967; Müller, 1968), Romanian (Dumitrescu, 1957, 1963, 1973; Băcescu, 1963; Băcescu *et al.*, 1963, 1965b, 1967a; Manoleli, 1967, 1969, 1973; Manoleli & Nalbant, 1976; Tigănuş, 1986, 1988, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Borcea, 1937; Marinov, 1957a, 1959a, 1966b).

Remarks –Authors working in the Black Sea, with the exception of Bobretzky (1870, 1881), recorded this species under the name of *H. reticulata*. Since Rasmussen (1973) synonymysed *H. reticulata* with *H. impar*, it must be referred to as *H. impar*.

According to Barnich & Fiege (2003) due to the confusion of *H. impar* with other species of *Harmothoe* all literature records of these species in the Mediterranean and the North East Atlantic are doubtful.

Borcea (1931a, 1937) have cited the species *Harmothoe (Polynoe) incesta* in the *Phyllophora* fields without giving any taxonomic details. As Vinogradov *et al.* (1967) mentioned that *H. reticulata* from 'Zernov's *Phyllophora* field' matches a homochromic colouration, brownish-red, similar with that of the algae, we tentatively consider specimens referred to *Harmothoe (Polynoe) incesta* to be *H. impar*.

Palpata, Aciculata, Phyllodocida, Nereidiformia
Nereididae Johnston, 1865

6. *Nereis zonata* Malmgren, 1867

Heteronereis bipartita Bobretzky, 1868: 148-150, fig. 31-36.
Nereis cylindrata.–Bobretzky, 1870: 207-210, fig. 31-38.
Nereis zonata.–La Greca, 1949: 165-166.–Uschakov, 1955: 212, fig. 66, k.–Dumitrescu, 1957: 122, pl. III, figs. 7-12.–Marinov, 1977: 107-108, pl. XII, fig. 2, pl. XXXVI, fig. 2.–Vinogradov & Losovskaya, 1968: 282-283: pl. VIII, fig. 6.–Manoleli, 1995: 185, fig. 25.8.–Hartmann-Schröder, 1996: 199-200.

Material examined. – 25 ind.: Agigea, sta. 14(3), 18(4), 35(2), 49(1), Eforie Nord, sta. 22(2), 24(1), Eforie Sud, sta. 25(1), 40(8), Tuzla, sta. 27(1), 42(1), 23 August, sta. 50(1), 1-17 m, on hard substrate.

Distribution – A widespread species occurring in the Persian Gulf, North Pacific (Uschakov, 1955), Barents Sea, Greenland Sea, Norwegian Sea, North Sea, British Channel, North Atlantic waters (Hartmann-Schröder, 1996), Mediterranean (Bellan, 1964), Adriatic Sea (Banse, 1959; Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea it is known on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part (Losovskaya, 1956; Vinogradov & Losovskaya, 1963), Romanian (Dumitrescu, 1957, 1962, 1973; Gomoiu & Müller, 1962; Băcescu *et al.*, 1963; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu

& Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1959a).

*7. **Neanthes succinea***
(Frey & Leuckart, 1847)

Nereis (Neanthes) succinea.–Annenkova, 1929b: 139.–La Greca, 1949: 166.–Dumitrescu, 1957: 122, pl. II, figs. 7-12.–Marinov, 1977: 111-112, pl. XVI, fig. 2.–Vinogradov & Losovskaya, 1968: 281, pl. VIII, fig. 2.–Hartmann-Schröder, 1996: 207-209, fig. 90.
Neanthes succinea.–Rioja, 1946: 205-206, fig. 1, 2.–Manoleli, 1995: 184, fig. 25.7 A, B.

Material examined. – 3301 ind.: Periboina, sta. 6(14), 7(32), 8(31), 9(56), 10(8), Năvodari, sta. 57(63), 70(1), Mamaia 58(27), 71(1), Constanţa, sta. 59(56), Danube – Black Sea Canal, sta. 5(36), 66(90), Agigea harbour, sta. 2(82), 67(348), Agigea, sta. 1(3), 3(17), 4(52), 12(8), 16(3), 18(6), 20(3), 21(14), 35(43), 37(96), 49(13), 56(219), 60(1), 65(92), Eforie Nord, sta. 22(6), 24(5), 31(17), 38(7), 39(19), 47(154), 51(73); Eforie Sud, sta. 32(29), 33(63), 40(174), 41(41), 52(27), 53(89), 72(10), Tuzla, sta. 27(6), 34(158), 42(85), 55(173); 23 August, sta. 50(337); Mangalia, sta. 68(7), Mangalia Bay, sta. M1(1), M2(35), M3(235), M4(97), M5(2), Vama Veche, sta. 69(36), at all depths investigated (0-18.5 m), on all types of substrata, preferably in soft detrital sediments (mud, muddy sand and muddy shell gravel).

Distribution – Cosmopolitan species (Hartman, 1951), mostly found in the brackish-water estuaries and lagoons from temperate and subtropical regions, both in boreal and austral hemispheres. It has been reported on the South African coast, El Salvador, Gulf of Mexico (Hartman, 1951), North Sea (Hartmann-Schröder, 1996), Baltic Sea (Rasmussen, 1973), British Channel, Atlantic Ocean (Fauvel & Rullier, 1959), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Marinov, 1959b; Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960; Stark, 1959).

In the Black Sea it is known on the Caucasian coast (Annenkova, 1929b), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part of the Black Sea (Vinogradov & Losovskaya, 1963; Losovskaya, 1956, 1963, 1978, 1988), Romanian (Dumitrescu, 1957, 1962, 1963, 1973; Băcescu & Dumitrescu, 1958; Gomoiu & Müller, 1962; Băcescu *et al.*, 1965a, 1965b, 1965c, 1967a; Manoleli, 1967, 1980; Müller et al., 1969; Manoleli & Nalbant, 1975; Tigănuş, 1982, 1986, 1988, 1992; Dumitrache, 1996/1997; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1959a, 1963).

Remarks – Fauvel (1937) and later Arvanitidis (2000) showed that in the Mediterranean under the name *Neanthes succinea*, individuals belonging to *Nereis lamellosa* Ehlers, 1868 have often been reported. The latter species closely resembles the former. As in all specimens collected by us notopodial homogomph falcigers in the posterior parapodia are missing and the pharyngeal area III is formed of a rectangular group of paragnaths disposed in 3-4 rows, they could clearly identified as *Neanthes succinea*.

*8. **Hediste diversicolor*** (O.F. Müller, 1776)

Nereis falsa.–Bobretzky, 1870: 210-211, fig. 24-25.
Nereis (Hediste) diversicolor.–Bobretzky, 1881: 10-11, fig. 2.
Nereis diversicolor.–Dumitrescu, 1957: 122, pl. III, figs. 1-6.–Marinov, 1977: 110-111, pl. XIII, fig. 1.–Vinogradov & Losovskaya, 1968: 282, pl. VIII, fig. 4.
Hediste diversicolor.–Manoleli, 1995: 185, fig. 25.9 A,B.–Hartmann-Schröder, 1996: 201-204, fig. 88.

Material examined. – 74 ind.: Năvodari, sta. 44(11), 45(2), Mamaia, sta. 58(4), Constanţa, 59(2), 63(4), Eforie Nord, sta. 47(36), 51(6), Eforie Sud, sta. 25(1), 53(7); Mangalia, sta. 68(1), 0.3-8 m, sandy substrate.

Distribution – An amphiboreal species (Hartmann-Schröder, 1996), known in the North Pacific (Hartman, 1960), Scandinavian and British coasts, North Atlantic coasts of Europe (Hartmann-Schröder, 1996) and America, Western Mediterranean (Bellan, 1964), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Marinov, 1959b; Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960); introduced

into the Caspian Sea (Birstein, 1956; Hartman, 1960; Khlebovich, 1963).

In the Black Sea the species inhabits almost all coastal lagoons and bays and penetrates deeply upward into the inferior courses of the rivers. It is known in the Prebosphoric region (Rullier, 1963), Georgian coast (Komakhidze & Mazmanidi, 1998), Santa-Anna and Feodosia Bays (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1870, 1881; Jakubova, 1930), in the north-western Black Sea (Losovskaya, 1956, 1963, 1978; Vinogradov & Losovskaya, 1963), Romanian (Borcea, 1924, 1926a, 1926b, 1931a, 1931b, 1934a, 1934b; Băcescu *et al.*, 1957; 1965a, 1965b, 1965c, 1967a; Dumitrescu, 1957, 1963, 1973; Băcescu & Dumitrescu, 1958; Gomoiu & Müller, 1962; Manoleli, 1967, 1980; Müller, 1968; Manoleli & Nalbant, 1975) and Bulgarian coasts (Borcea, 1937; Marinov, 1957a, 1963, 1966b).

9. ***Perinereis cultrifera*** (Grube, 1840)

Nereis cultrifera.–Bobretzky, 1870: 206-207.
Perinereis cultrifera.–Dumitrescu, 1957: 122, pl. I, figs. 1-7.–Marinov, 1977: 113, pl. XVI, fig. 1, pl. XXXVII, fig. 1.–Vinogradov & Losovskaya, 1968: 284, pl. IX, fig. 3.–Manoleli, 1995: 184, fig. 25.6.–Hartmann-Schröder, 1996: 211.

Material examined. – 2 ind.: Vama Veche, sta. 69(2), 5 m, hard substrate.

Distribution – Cosmopolitan species (Fauvel & Rullier, 1959), occurring in the Indian Ocean, Burma, Indonesia, Philippines, Pacific Ocean, South Chinese Sea, Yellow Sea, Japanese coasts, North Sea (Hartmann-Schröder, 1996), British Channel, Eastern Atlantic, Western Mediterranean (Pérès, 1954; Bellan, 1964), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea it is found in the Karadag region (Vinogradov, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part of the sea (Losovskaya, 1956; Vinogradov & Losovskaya, 1963), Romanian (Borcea, 1926b, 1931a, 1931b; Dumitrescu, 1957, 1973; Gomoiu & Müller, 1962; Băcescu *et al.*, 1963, 1965c; Manoleli, 1967, 1969; Tigănuş, 1991/1992) and Bulgarian coasts (Marinov, 1957a).

10. ***Platynereis dumerilii*** (Audouin & Milne-Edwards, 1833)

Nereis dumerilii.–Bobretzky, 1870: 201-206, figs. 26-30.
Platynereis dumerilii.–Dumitrescu, 1957: 122, pl. II, figs. 1-6.–Marinov, 1977: 114-116, pl. XIV, fig. 1, pl. XXXV, figs. 3-4.–Vinogradov & Losovskaya, 1968: 285, pl. IX, fig. 4.–Manoleli, 1995: 184, fig. 25.5 A,B.–Hartmann-Schröder, 1996: 211-214, fig. 92.

Material examined. – 445 ind.: Agigea, sta. 11(1), 14(7), 17(6), 18(1), 29(13), 35(27), 37(7), 49(12), 56(9), Eforie Nord, sta. 22(14), 24(6), Eforie Sud, sta. 32(2), 40(30), 41(10), 52(2), 53(30), Tuzla, sta. 27(3), 34(6), 42(20), 55(13), 23 August, sta. 50(215), Vama Veche, sta. 13(9), 69(2), 0-18.5 m, on hard substrate.

Distribution – Cosmopolitan species, commonly occurring in the Indian Ocean, Persian Gulf, Red Sea, Pacific Ocean, Sea of Japan, Gulf of Mexico (Hartman, 1951), North and Baltic seas (Hartmann-Schröder, 1996), British Channel, Atlantic waters of Europe (Rasmussen, 1973) and Africa (Fauvel & Rullier, 1959), Western Mediterranean (Bellan, 1964), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Banse, 1959; Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963).

In the Black Sea this species was recorded in the Prebosphoric region (Rullier, 1963), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Marcusen, 1867; Bobretzky, 1868, 1870; Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956, 1978; Vinogradov & Losovskaya, 1963), Romanian (Borcea, 1931a, 1931b, 1934b; Dumitrescu, 1957, 1962, 1963, 1973; Băcescu *et al.*, 1963, 1965a; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a).

Syllidae Grube, 1850

11. ***Syllis gracilis*** Grube, 1840

Syllis mixtosetosa Bobretzky 1870: 227-229, fig. 49-50.
Syllis gracilis.–Bobretzky, 1881: 14-15.–La Greca, 1949: 162.–Marinov, 1977: 89, pl. IX, fig. 4.–Vinogradov & Losovskaya, 1968: 272: pl. V, fig. 6.–Manoleli, 1995: 185, fig. 25.10.–Hartmann-Schröder, 1996: 150-151, fig. 65; Licher, 1999: 289-291, Abb. 10A.

Material examined. – 24 ind.: Eforie Sud, sta. 53(2), Tuzla, sta. 27(2), 23 August, sta. 50(1), Vama Veche, sta. 69(19), 3-5 m, epibiosis of rocks, macrophyte algae and in canals of the sponge *Dysidea fragilis.*

Distribution – A cosmopolitan species (Hartmann-Schröder, 1996) recorded in the Indian Ocean, Red Sea (Licher, 1999), Pacific coast of Mexico, British Channel, Atlantic coasts of Europe (Hartmann-Schröder, 1996) and Africa (Fauvel & Rullier, 1959), Mediterranean Sea (Bellan, 1964; Fauvel, 1937), Eastern Mediterranean (Licher, 1999), Adriatic Sea (Banse, 1959; Pozar-Domac, 1978), Aegean and Ionian Seas (Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963).

Cited in the Black Sea, on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1881; Jakubova, 1930), Romanian (Dumitrescu, 1962, 1973; Manoleli, 1969; Tigănuş, 1991/1992) and Bulgarian coasts (Marinov, 1957a, 1963).

12. ***Typosyllis hyalina*** (Grube, 1863)

Syllis velox Bobretzky.–1870: 225-227, figs. 46-48.
Syllis hyalina.–Bobretzky, 1881: 13-14.–Marinov, 1977: 91-92, pl. X, fig. 1, pl. XXXV, fig. 2.–Vinogradov & Losovskaya, 1968: 273: pl. VI, fig. 1.
Syllis (Typosyllis) hyalina.–La Greca, 1949: 163.
Typosyllis hyalina.–Hartmann-Schröder, 1996: 153-154, fig. 67; Licher, 1999: 199-205, Abb. 17O, 86.

Material examined. – 3 ind.: 23 August, sta. 50(3), 4 m, hard substrate.

Distribution – A cosmopolitan species (Hartmann-Schröder, 1996; Licher, 1999), reported in the Philippines, Australia, Pacific coast of Mexico, Magellan Strait, Norwegian coasts, British Channel, Atlantic (Hartmann-Schröder, 1996), Western Mediterranean (Bellan, 1964), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean and Ionian Seas (Marinov, 1959b, Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949).

In the Black Sea it is known on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1870, 1881; Jakubova, 1930) and Bulgarian coast (Marinov, 1966a). First record on the Romanian coast.

13. ***Grubeosyllis clavata*** (Claparède, 1863)

Grubea clavata.–Uschakov, 1955: 189, fig. 56, A, B.–La Greca, 1949: 163-164.–Marinov, 1977: 98-99, pl. XI, fig. 1, pl. XXXV, fig. 3.–Vinogradov & Losovskaya, 1968: 277: pl. VII, fig. 5.
Brania clavata.–Manoleli, 1995: 185, fig. 25.11.
Grubeosyllis clavata.–San Martin, 1991: 718: fig. 2a, b.

Material examined. – 1011 ind.: Constanţa, sta. 59(2), Agigea, sta. 12(71), 18(129), 29(19), 35(2), 37(8), 56(1), 61(1), 65(200), Eforie Sud, sta. 26(4), 40(1), 41(9), 53(11), 72(46), Tuzla, sta. 27(2), 23 August, sta. 50(177), Mangalia, sta. 68(51), Mangalia Bay, sta. M3(3), Vama Veche, sta. 13(12), 69(262), 0-18.5 m, in thin layer of coarse sand laid down on hard substrate.

Distribution – An amphiboreal species, known in the North Pacific (Uschakov, 1955), New England, Antilles, British Channel, Atlantic Ocean, western coast of Africa, Mediterranean (Bellan, 1964), Tyrrhenian Sea, Adriatic Sea (Banse, 1959; Pozar-Domac, 1978), Aegean Sea (Marinov, 1959b; Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949; Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea it is reported in the Prebosphoric region (Rullier, 1963), Karadag, Feodosia harbour and Novy Svet Bay (Vinogradov, 1949), north-western sector of the sea (Losovskaya, 1977), Romanian (Dumitrescu, 1957, 1962, 1963, 1973; Gomoiu & Müller, 1962; Băcescu *et al.*, 1963, 1965a; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1959a).

Remarks – Two other species of the subfamily have been recorded in the Black Sea: *Grubeosyllis limbata* and *Brania tenuicirrata*. The former differs from the species recorded above in that the terminal blade is a unidentate falciger, while in *G. clavata* it is bidentate. Bellan (1964) has observed that the secondary tooth of chaeta of *G. clavata* can be strongly worn-out as a result of friction with sand grains or even to be missing completely for some setae, in rest being bidentate. However, considerable differences exist between these species, which most probably have to do with their mode of life: *G. limbata* inhabits mostly soft bottoms (sand, muddy sand), whereas *G. clavata* prefers near-shore algal epibiosis. The other species, *B. tenuicirrata*, differs from *G. clavata* by the median position of the pharyngeal tooth and by the dorsal cirri of the first segment, which are much longer than the remaining.

Palpata, Aciculata, Phyllodocida unplaced

Phyllodocidae öersted, 1843a

14. ***Nereiphylla rubiginosa*** (de Saint-Joseph, 1888)

Phyllodoce tuberculata Bobretzky, 1868: 150-152, figs. 37-40.–La Greca, 1949: 159, figs. 3-4.–Vinogradov & Losovskaya, 1968: 260, pl. I, fig. 3.
Phyllodoce (Nereiphylla) tuberculata.–Marinov, 1977: 60-61, pl. IV, fig. 2, pl. XXXIV, fig. 2.
Nereiphylla rubiginosa.–Pleijel & Dales, 1991: 76-77, fig. 17A-D.
Genetyllis tuberculata.–Manoleli, 1995: 188, fig. 25.20.

Material examined. – 5 ind.: Agigea, sta. 14(1), Eforie Nord, sta. 24(1), Eforie Sud, sta. 53(1), Tuzla, sta. 42(1), Vama Veche, sta. 69(1), 1-6 m, among algae and mussel banks.

Distribution – British Channel, Atlantic coasts of Europe (Pleijel & Dales, 1991), Western Mediterranean (Bellan, 1964), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Bosphorus (La Greca, 1949), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea this species is known in the Prebosphoric region (Dumitrescu, 1960), Karadag (Vinogradov, 1949), Bay of Sevastopol (Bobretzky, 1868; Jakubova, 1930), north-western sector (Losovskaya, 1956, 1978, 1988; Vinogradov & Losovskaya, 1963), Romanian (Borcea, 1926a, 1926b, 1928, 1931a, 1934b; Dumitrescu, 1963, 1973; Băcescu, 1963; Băcescu *et al.*, 1963, 1965a, 1965b; Manoleli, 1967, 1969, 1973, 1976; Müller, 1968, Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Borcea, 1937; Marinov, 1957a, 1959a).

Remarks – Jakubova (1930) and later La Greca (1949) brought attention to the resemblance between *Ph. tuberculata*, described by Bobretzky in 1868 in the Bay of Sevastopol, and *Phyllodoce rubiginosa*, described by Saint-Joseph in 1888 from the North Atlantic. Unfortunately, type material of *Ph. tuberculata* is unavailable and the original description is very brief. Nevertheless, our material is in good agreement with both descriptions of Bobretzky (1868) and Pleijel & Dales (1991). Consequently, *P. tuberculata* should be considered as a synonym of *Nereiphylla rubiginosa*. In order to avoid further nomenclatural changes, Pleijel (pers. comm.) suggests that *P. tuberculata* should be left as a nomen dubium.

15. ***Eteone picta*** Quatrefages, 1865

E. striata Bobretzky 1868: 154-155, fig. 44-46.
E. armata.–Bobretzky, 1870: 242.
Eteone picta.–Vinogradov & Losovskaya, 1968: 262-263, pl. II, fig. 5.–Pleijel & Dales, 1991: 60-61, fig. 9A-C.
Eteone (Mysta) picta.–Marinov, 1977: 65-66, pl. V, fig. 1, pl. XXXIV, fig. 3.–Hartmann-Schröder, 1996: 111.
Mysta picta.–Manoleli, 1995: 188, fig. 25.21 A,B.

Material examined. – 8 ind.: Agigea, sta. 17(1), 20(1), Eforie Nord, sta. 24(1), 30(1), 47(1), Eforie Sud, sta. 25(3), 1.5-8 m, on sandy, rocky and clay substrata.

Distribution – English Channel, European coasts of the Atlantic (Pleijel & Dales, 1991; Hartmann-Schröder, 1996), Western Mediterranean (Pérès, 1954; Bellan, 1964), Aegean Sea and Ionian Seas (Arvanitidis, 2000;

Simboura & Nicolaidou, 2001), Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea it is known on the Caucasian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part (Losovskaya, 1956; Vinogradov & Losovskaya, 1963), Romanian (Dumitrescu, 1957, 1963, 1973; Băcescu *et al*., 1957, 1963, 1965a, 1965c, 1967a; Gomoiu & Müller, 1962; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1986; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1959a).

Palpata, Aciculata unplaced
Nerillidae Levinsen, 1883

16. ***Nerilla antennata*** O. Schmidt, 1848

Nerilla antennata.–Marinov, 1957b: 122, fig. 1; 1977: 239-241, pl. XXXIII, fig. 2.–Khlebovich, 1961: 130-131.–Vinogradov & Losovskaya, 1968: 335, pl. XXII, 3.–Hartmann-Schröder, 1996: 587-588, fig. 287.

Material examined. – 9 ind.: Eforie Sud, sta. 72(9), 0.5 m, interstitial in coarse sand.

Distribution – Cosmopolitan species (Hartmann-Schröder, 1996). Reported in the White Sea, Barents Sea (Khlebovich, 1961), Baltic Sea (Rasmussen, 1973), North Sea (Hartmann-Schröder, 1996), British Channel, Irish Sea, Mediterranean (Bellan, 1964, Castelli *et al.*, 1995), south-west Africa.

Cited in the Black Sea in the Bay of Sevastopol (Jakubova, 1930), Karadag region (Vinogradov, 1949), Romanian (Băcescu *et al.*, 1967b; Dumitrescu, 1973) and Bulgarian coasts (Marinov, 1957b, 1971).

Palpata, Canalipalpata, Sabellida
Sabellidae Malmgren, 1867

17. ***Fabricia stellaris***
(O.F. Müller, 1774)

Fabricia sabella.–Uschakov, 1955: 414, fig. 157, A-E.–Marinov, 1977: 215, pl. XXIX, fig. 4.–Vinogradov & Losovskaya, 1968: 326-327, pl. XIX, fig. 9.–Manoleli, 1995: 189, fig. 25.25.

Fabricia sabella caspica.–Annenkova, 1929a: 17-19, pl. III, figs. 5,6, pl. IV, figs. 13-15.

Fabricia stellaris stellaris.–Fitzhugh, 1990: 4, fig. 1.–Hartmann-Schröder, 1996: 553-555, fig. 270.

Material examined. – 226 ind.: Agigea, sta. 12(21), 29(36), 65(1), Vama Veche, sta. 13(6), 23 August, sta. 50(5), Mangalia, sta. 68(157), 0.3-4 m, in thin layer of coarse sand and detritus laid down on hard substrate.

Distribution – An arctic-boreal species, recorded in the North Pacific (Uschakov, 1955), Bering Sea, Kara Sea, White Sea, Barents Sea, Greenland Sea, Norwegian Sea, North Sea, Baltic Sea (Hartmann-Schröder, 1996), British Channel, North Atlantic, Western Mediterranean (Bellan, 1964, Castelli *et al.*, 1995), Eastern Mediterranean (Fauvel, 1937), Adriatic Sea (Pozar-Domac, 1978), Aegean and Ionian Seas (Arvanitidis, 2000, Simboura & Nicolaidou, 1991), Sea of Azov (Mordukhai-Boltovskoi, 1960), Caspian Sea (Annenkova, 1929a).

Known in the Black Sea on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Marcusen, 1867; Bobretzky, 1870; Jakubova, 1930), north-western part of the Black Sea (Glembotsky, 1939; Vinogradov & Losovskaya, 1963), Romanian (Gomoiu & Müller, 1962; Dumitrescu, 1962, 1963, 1973; Băcescu *et al*., 1963; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1966b).

Serpulidae Johnston, 1865

18. ***Ficopomatus enigmaticus*** (Fauvel, 1923)

Mercierella enigmatica.–Annenkova, 1929b: 139-140.–Marinov, 1960: 405-408, figs. 1, 2; 1977: 223-224, pl. XL, fig. 3.–Vinogradov & Losovskaya, 1968: 330, pl. XX, fig. 7.–Kühl, 1977: 99-103, abb. 1, 2.

Ficopomatus enigmaticus.–ten Hove & Weerdenburg, 1978: 114, figs. 2e-I, 3d, l-q, s, aa-bb, nn-vv, zz, 5c.–Hartmann-Schröder, 1996: 571-572, fig. 279.

Material examined. – 47 ind.: Danube – Black Sea Canal, sta. 66(4), Agigea harbour, sta. 74(43), Mangalia Bay, sta. M3 (empty tubes), 0-3 m, on hard substrate (ships hull, hydrotechnical constructions and mussel shells).

Distribution – Cosmopolitan species, known in the North Sea (Hartmann-Schröder,

1996), British Channel, Atlantic, in the Mediterranean (Fauvel, 1937; Castelli *et al.,* 1995), Aegean (Marinov, 1959b; Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Marmara Sea and Bosphorus (Rullier, 1963), Sea of Azov (Mordukhai-Boltovskoi, 1960), Caspian Sea (Bogoroditsky, 1963); also found in North and South America, Indian Ocean, South Africa, Australia, Hawaii and New Guinea.

In the Black Sea it was found in Gelendjik Bay, Lake Paleostomi and rivers flowing into it (Annenkova, 1929b), Poti harbour (Turpaeva, 1961), Constanţa harbour (Dumitrescu, 1962; Pitiş & Lăcătuşu, 1971), Varna and Mandrenskoto lakes, Varna and Balchik bays (Marinov, 1957a, 1960).

19. ***Janua pagenstecheri*** (Quatrefages, 1865)

Spirorbis (Dexiospira) pagenstecheri.–Vinogradov & Losovskaya, 1968: 333, pl. XXI, fig. 4.
Spirorbis (Dexiospira) pusilla.–Vinogradov, 1949: 80-81.–Losovskaya, 1956:5.–Vinogradov & Losovskaya, 1963: 10; 1968: 332, pl. XXI, fig. 3.–Vinogradov *et al.*, 1967: 198 (non Rathke, 1837).
Spirorbis pusilloides.–Vorobiov, 1949: 116.
Spirorbis pusilla.–Marinov, 1964: 83; 1977: 230, pl. XLI, fig. 1, pl. XXXII, fig. 2 (non Rathke, 1837).
Janua pagenstecheri.–Manoleli, 1995: 189, fig. 25.27.–Hartmann-Schröder, 1996: 583-584, fig. 285.–Rzhavsky, 1991: 37-39 (synonymy).

Material examined. – 183 ind.: Agigea, sta. 17(5), sta. 18(110), Tuzla, sta. 27(1), 23 August, sta. 50(67), 0.2-4 m, on mussels shells.

Distribution – Cosmopolitan species (Hartmann-Schröder, 1996), recorded in the Indian Ocean, Pacific Ocean (Rzhavsky, 1991), North and Baltic seas (Hartmann-Schröder, 1996), British Channel, Atlantic Ocean, Mediterranean (Bellan, 1964, Castelli *et al*., 1995), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000), Bosphorus (Rullier, 1963), Sea of Azov (Vorobiov, 1949; Mordukhai-Boltovskoi, 1960).

In the Black Sea this species has been reported in the Karadag and Sudak regions (Vinogradov, 1931, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956; Vinogradov & Losovskaya, 1963), on Romanian (Borcea, 1926a, 1931a, 1934b; Müller *et al.*, 1969; Manoleli, 1973; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Borcea, 1937; Marinov, 1964).

Palpata, Canalipalpata, Spionoida
Spionidae Grube, 1850

20. ***Spio decoratus*** Bobretzky, 1871

Spio decoratus Bobretzky, 1871: 256-257, figs. 74-77.–Giordanella, 1969: 325, figs, 1-3.–Dauvin, 1989: 169, fig. 1.
Spio filicornis.–Vinogradov, 1931:5.–Marinov, 1977: 153-155, pl. XXI, fig. 3.–Vinogradov & Losovskaya, 1968: 299-300, pl. XIII, fig. 5.–Manoleli, 1995: 187, fig. 25.15 (non O.F. Müller, 1776).

Material examined. – 967 ind.: Periboina, sta. 6(1), Năvodari, sta. 70(24), Mamaia, sta. 58(7), Constanţa, sta. 59(1), Agigea, sta. 21(10), 37(4), Eforie Nord, sta. 23(26), 30(203), 31(69), 38(9), 39(260), 47(86), Eforie Sud, sta. 25(145), 26(6), 41(87), 52(27), 54(1), Tuzla, sta. 42(1), 0.5-18.5 m, fine sand.

Distribution – Known from the French coast of the Channel (Dauvin, 1989), Western Mediterranean (Giordanella, 1969; Lardicci, 1990), Aegean Sea and Ionian Seas (Arvanitidis, 2000, Simboura & Nicolaidou, 2001), from the Black Sea (Bobretzky, 1870), Bosphorus (Rullier, 1963) and from the Sea of Azov (Mordukhai-Boltovskoi, 1960).

In the Black Sea reported at the Georgian littoral (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1931, 1949), the north-western sector of the Black Sea (Vinogradov & Losovskaya, 1963; Losovskaya, 1978, 1988), Romanian (Dumitrescu, 1957, 1963, 1973; Băcescu *et al.*, 1957, 1965a, 1965b, 1965c, 1967a, 1967b; Băcescu & Dumitrescu, 1958; Gomoiu & Müller, 1962; Manoleli & Nalbant, 1975; Manoleli, 1980; Tigănuş, 1982, 1986, 1988, 1991/1992, 1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coasts (Marinov, 1957a, 1963, 1966b).

Remarks – Careful examination of individuals, previously identified as *Spio filicornis* (O.F. Müller, 1776), from the Northern Aegean by Arvanitidis (1994),

showed that these individuals belong to *Spio decoratus*. Also Simboura & Nicolaidou (2001) for the polychaete species of Greece, mention that *Spio filicornis* is a boreal species probably not existing in the Mediterranean and confused with *Spio decoratus* or *Spio martinensis* Mesnil, 1896. The same observations have been made for individuals identified as *Spio filicornis* from other locations of the Mediterranean and from the French coasts of the Channel (Giordanella, 1969, Dauvin, 1989). Following the original description provided by Bobretzky (1871), we found that in all specimens examined the prostomium had an entire frontal edge and the neuropodial hooded hooks occurred from the 11th setiger, rarely from the 10th setiger. Also, hooded hooks were tridentate.

21. ***Polydora ciliata*** (Johnston, 1838)

Polydora cornuta.–Perejaslavzeva, 1891: 262-263 (non Bosc, 1802).

Polydora ciliata.–Uschakov, 1955: 271, fig. 94, E.–Marinov, 1977: 158-159, pl. XXI, fig. 2, pl. XXXVIII, fig. 4.–Codreanu & Mack-Firă, 1961: 489-490, fig. 9-11.–Manoleli, 1995: 186, fig. 25.14 A,B.–Vinogradov & Losovskaya, 1968: 301, pl. XIV, fig. 3.–Ramberg & Schram, 1983: 235-239, figs. 1-3.–Hartmann-Schröder, 1996: 314-315, fig. 142.

Material examined. – 1 ind.: 23 August, sta. 50(1), 4 m, hard substrate.

Distribution – Cosmopolitan species (Hartmann-Schröder, 1996), reported in Far Eastern seas (Uschakov, 1955), Barents Sea, North and Baltic seas (Hartmann-Schröder, 1996), British Channel, north and south Atlantic, Mediterranean (Pérès, 1954; Bellan, 1964), Adriatic Sea (Pozar-Domac, 1978), Aegean Sea (Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Red Sea, Mozambique, Senegal, Australia.

In the Black Sea recorded on the Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1949), Bay of Sevastopol (Jakubova, 1930), Romanian coast (Codreanu & Mack-Firă, 1961; Dumitrescu, 1962, 1973; Băcescu *et al.*, 1963, 1967a; Manoleli, 1967, 1969; Müller *et al.*, 1969; Tigănuş, 1991/1992; Surugiu & Manoleli, 1998/1999) and Bulgarian coast (Marinov, 1957a, 1959a, 1966b).

22. ***Polydora cornuta*** Bosc, 1802

Polydora ligni.–Hartman, 1951: 82.–Blake, 1971: 5-6, figs. 1-2.–Ramberg & Schram, 1983: 240-242, figs. 4, 5.–Hartmann-Schröder, 1996: 315-317, fig. 144.

Polydora cornuta.–Tena *et al.*, 1991: 32, fig. 3.–Blake, 1996: 171, fig. 4.28H.

Material examined. – 1111 ind.: Periboina, sta. 7(2), Cape Midia, sta. 28(3), Năvodari, sta. 57(21), Constanţa, sta. 59(1), Danube – Black Sea Canal, sta. 5(6), 66(11), Agigea harbour, sta. 2(1), 67(11), Agigea, sta. 12(8), 20(1), 21(49), 35(3), 37(24), 49(8), 56(15), Eforie Nord, sta. 22(11), 24(1), 30(8), 31(52), 39(12), 47(2), 51(1), Eforie Sud, sta. 32(1), 40(41), 41(28), 52(12), 53(12), Tuzla, sta. 27(3), 34(1), 42(16), 55(12), 23 August, sta. 50(108), Mangalia, sta. 68(4), Mangalia Bay, sta. M1(95), M2(29), M3(221), M5(225), Vama Veche, sta. 69(52), 0-18.5 m, black foetid mud, muddy rock, shell debris and sand.

Description – The species measures up to 20 mm long for 80 segments. Colour of living specimens pale-yellow with red blood vessels. Body without pigmentation. Tubes brownish-yellowish, made from fine sand grains and detritus, up to 20 mm long.

Prostomium anteriorly forked and flared laterally, prolonged posteriorly by a caruncle reaching the posterior end of setiger 3. Caruncle with an occipital antenna. Four oval-rounded eyes arranged more or less in a square. Palps long, when extended reaching setiger 19.

The first setiger only with capillary neurosetae. Setiger 5 somewhat larger than the adjacent segments, carrying 6-10 specialized setae and companion chaetae arranged in a single straight or slightly curved row. Major spines of setiger 5 with small distinct lateral tooth. Companion setae penicillate, closely adhering to major spines. Beginning from setiger 7 neuropodia presents 5-12 bidentate hooded hooks. Shaft of the hooks with a prominent constriction. Branchiae digitiform, long and thin, not fused with notopodial lobes, beginning from setiger 7 to the last 6-9 setigers.

The pygidium large, disk-like, with a dorsal notch.

Distribution – Atlantic and Pacific coasts of North America (Blake, 1996), northern Europe (Ramberg & Schram, 1983; Hartmann-Schröder, 1996), Australia and Western Mediterranean (Tena *et al.*, 1991). New record for the Black Sea.

Remarks – It is possible that polydorid specimens reported as *Polydora limicola* Annenkova, 1934 in the north-western part of the Black Sea (Losovskaya & Nesterova, 1964; Losovskaya, 1976, 1977, 1978) and on the Romanian coast (Manoleli & Nalbant, 1975; Manoleli, 1980; Tigănuş, 1982, 1986, 1988, 1992; Dumitrache, 1996/1997), are actually *P. cornuta*. Due to the impossibility of obtaining these specimens this hypothesis could not be verified for the moment.

23. ***Polydora websteri*** Hartman in Loosanoff & Engle, 1943

Polydora websteri.–Hartman, 1951: 81-82.–Blake, 1971: 6-8, fig. 3; 1996: 176, fig. 4.28, M-P.–Radashevsky, 1999: 110-112, fig. 1, A-F.

Material examined. – 157 ind.: Agigea, sta. 12(9), 18(2), 65(40), 73(106), 0.5-1.2 m, boring in limestone.

Description – The species is small, slender, measuring up to 20 mm long for 100 segments. Living animals light tan with red branchiae, palps and blood vessels. Body unpigmented.

The burrows are U-shaped, lined by a membranous sheath which is prolonged outside the gallery by a short muff.

Prostomium with anterior margin weakly incised, bearing a caruncle which extends posteriorly to setiger 2 or 3. Four poorly developed or almost non-existent eyes. Two long caducous palps, reaching approximately to setigers 10-12.

Setiger 1 has only capillary neurosetae and postsetal neuropodial lamellae. Modified setiger 5 much broader than adjacent ones, partially covering setiger 6, with a row of 5-6 pairs of major spines, alternating with lanceolate companion seta. Major spines of setiger 5 falcate with a lateral flange. From setiger 7 neuropodia present 6-11 hooded hooks in a vertical row. Hooded hooks with a constriction on the shaft and ending in a bifid tip in which the main fang is about at right angles to the shaft. Branchiae begin on setiger 7, reaching maximum length by setiger 9-10. The last 10-16 setigers lacking branchiae.

Pygidium cup-shaped with a dorsal notch.

Distribution – Known on the Atlantic and Pacific coasts of North America, Gulf of Mexico (Hartman, 1951), Hawaii, west coast of South America, south-east Australia (Blake, 1996). New species in the Mediterranean and Black Sea region.

24. ***Prionospio cirrifera*** Wirén, 1883

Prionospio cirrifera.–Vinogradov, 1931: 12-14, fig. 6.–Uschakov, 1955: 278.–Marinov, 1977: 159-160, pl. XXII, fig. 3, pl. XXXIX, fig. 1.–Vinogradov & Losovskaya, 1968: 302, pl. XIV, fig. 4.–Manoleli, 1995: 187, fig. 25.18.–Hartmann-Schröder, 1996: 329-330, fig. 149. – Sigvaldadottir, 1996: V2, fig. 9.
Minuspio cirrifera.–Fauchald, 1977: 24.

Material examined. – 4 ind.: Eforie Nord, sta. 39(1), Eforie Sud, sta. 40(2), Tuzla, sta. 42(1), 6-10 m, hard and sandy substrata.

Distribution – Cosmopolitan species, known in the Indian Ocean, Gulf of Mexico (Hartman, 1951), North Pacific (Uschakov, 1955), Arctic waters, North Sea (Hartmann-Schröder, 1996), Atlantic coasts of Europe, Western Mediterranean (Castelli *et al.*, 1995), Adriatic Sea (Pozar-Domac, 1978), Aegean and Ionian Seas (Arvanitidis, 2000; Simboura & Nicolaidou, 2001), Marmara Sea (Gillet & Ünsal, 2000).

Recorded throughout the Black Sea: Prebosphoric region (Dumitrescu, 1960; Gillet & Ünsal, 2000), Georgian coast (Komakhidze & Mazmanidi, 1998), Karadag region (Vinogradov, 1930, 1931, 1949), Bay of Sevastopol (Jakubova, 1930), north-western part of the Black Sea (Losovskaya, 1956, 1978, 1988; Vinogradov & Losovskaya, 1963), Romanian (Dumitrescu, 1963, 1973; Băcescu *et al.*, 1957, 1965a, 1965b, 1965c, 1967a; Băcescu, 1963; Müller, 1968; Manoleli, 1973;

Manoleli & Nalbant, 1975) and Bulgarian coasts (Marinov, 1957a, 1959a, 1963).

Acknowledgements

I should like to thank Drs. Ruth Barnich, Fredrik Pleijel, Vasily Radashevsky, Sashka Rzhavsky and Helmut Zibrowius for clarifying some aspects regarding certain polychaete taxa. Special thanks to Dr Mary Petersen and Dr Christos Arvanitidis for critical reading of the manuscript and for valuable comments. For critical comments and helpful suggestions I am deeply indebted to peer-reviewers Dr. Nomiki D. Simboura and Dr. Valentina Todorova.

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