Historia naturalis bulgarica, 21: 49-168, 2015

Species composition of the free living multicellular invertebrate animals (Metazoa: Invertebrata) from the Bulgarian sector of the Black Sea and the coastal brackish basins

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Abstract: A total of 19 types, 39 classes, 123 orders, 470 families and 1537 species are known from the Bulgarian Black Sea. They include 1054 species (68.6%) of marine and marine-brackish forms and 508 species (33.0%) of freshwater-brackish, freshwater and terrestrial forms, connected with water. Five types (Nematoda, Rotifera, Annelida, Arthropoda and Mollusca) have a high species richness (over 100 species). Of these, the richest in species are Arthropoda (802 species – 52.2%), Annelida (173 species – 11.2%) and Mollusca (152 species – 9.9%). The remaining 14 types include from 1 to 38 species. There are some well-studied regions (over 200 species recorded): first, the vicinity of Varna (601 species), where investigations continue for more than 100 years. The aquatory of the towns Nesebar, Pomorie, Burgas and Sozopol (220 to 274 species) and the region of Cape Kaliakra (230 species) are well-studied. Of the coastal basins most studied are the lakes Durankulak, Ezerets-Shabla, Beloslav, Varna, Pomorie, Atanasovsko, Burgas, Mandra and the firth of Ropotamo River (up to 100 species known). The vertical distribution has been analyzed for 800 species (75.9%) – marine and marine-brackish forms. The great number of species is found from 0 to 25 m on sand (396 species) and rocky (257 species) bottom. The groups of stenohypo- (52 species – 6.5%), stenoepi- (465 species – 58.1%), meso- (115 species – 14.4%) and eurybathic forms (168 species – 21.0%) are represented. The marine and marine-brackish species are divided into 162 zoogeographical categories, combined into 4 main groups and 16 subgroups. The main portion of the Black Sea fauna has an Atlantic-Mediterranean origin and represents the impoverished Atlantic-Mediterranean fauna (740 species – 70.2%). Cosmopolitan, Atlantic-Indian, Atlantic-Pacific, endemic and Caspian relict forms are represented. The benthic (115 species – 97.5%) and marine (114 species – 96.6%) forms of the Black Sea endemics (118 species – 11.2%) predominate. The brackish endemics (11 species – 9.3%) most often are Caspian relicts. The main portions of the Caspian relicts (41 species – 3.9%) are benthic brackish forms (38 species – 92.7%). The freshwater-brackish, freshwater and terrestrial forms, connected with water, are divided into 80 zoogeographical categories, combined into 2 groups and 5 subgroups. Typical for the coast is the prevalence of the species, distributed in Palaearctic and beyond it (296 species – 58.3%). Species, distributed only in Palaearctic but in more than one subregion (79 species – 15.5%) and species, distributed within one Palaearctic subregion (126 species – 24.8%) are represented – Eurosiberian (55 species – 10.8%) and Mediterranean (71 species – 13.9%). A short characteristic of the planktonic and benthic cenoses is done and some coastal basins are scrutinized. An attention is paid to the invasive immigrants that changed the Black Sea communities during the last 60 years. The species of economic and conservation importance are discussed.

Key words: Bulgarian Black Sea coast, invertebrates, species composition, zoogeography, invasive alien species

Introduction

Bulgarian Black Sea fauna has been studied for more than 100 years (Chichkoff 1907, 1908, 1912, 1924). A vast material of faunistic data, concerning Bulgarian Black Sea has been accumulated. During the last 50 years, the coast is under a drastic anthropogenic impact and large landscape changes. Considerable changes in the Black Sea cenoses are caused by some invasive species, introduced in the last 100 years (Cvetkov & Marinov, 1986; Konsulov, 1998; Gomoiu et al., 2002). The dynamic natures of

the fauna, economic and social importance of wildlife and biodiversity conservation require periodic updating of the faunistic diversity of Bulgaria.

The published catalogues of the Bulgarian Black Sea fauna (Valkanov, 1957a; Valkanov & Marinov, 1964; Marinov & Golemansky, 1989; Marinov, 1990; Konsulov & Konsulova, 1993) do not have a systematic character, and taxa of the genus and species group (the families are not presented) are in alphabetical order. These works are published in Bulgarian and the faunistic analyses there are too short. The published generalized studies in English by Konsulov (1998) and Konsulov & Konsulova (1998) are similar to the works of Marinov (1990) and Konsulov & Konsulova (1993). Some of the used names are out-of-date and need to be updated. There is a contemporary systematic view for some taxonomic groups, included in the monograph series Fauna of Bulgaria (Polychaeta – Marinov, 1977; Harpacticoida – Apostolov & Marinov, 1988), in survey papers (Mollusca – Wilke, 1996; Hubenov, 2005b, 2007a, 2007b) or in dissertations (Nematoda – Stoykov, 1980; Crustacea: Malacostraca – Uzunova, 2006). There is a lack of zoogeographical characteristic of the fauna except Polychaeta, Harpacticoida, Malacostraca and Mollusca. The submitted zoogeographical analyses of the groups mentioned above are done according to their origin or areography (different principle) and are difficult to compare. Commonly the benthos hydrobionts are scrutinized separately from the plankton forms. A generalized zoogeographical work on the Bulgarian Black Sea fauna lacks.

Approach, material and methods

The aim of this work is to present the Bulgarian marine invertebrate fauna as well as to analyze the taxonomic diversity, the level of study and some zoogeographical and ecological features of the Black Sea invertebrates.

The investigations of the Black Sea territory for the last two centuries are generalized in this work. The paper generalizes the works of Caspers (1951), Valkanov (1957a), Valkanov & Marinov (1964), Marinov & Golemansky (1989), Marinov (1990), Konsulov & Konsulova (1993, 1998), Konsulov (1998) and Golemansky (2007). Data from 832 publications and the dissertations of Konsulov (1991), Kamburska (2004), Todorova (2005), Uzunova (2006) and Trayanova (2008) are included. Currently some coastal wetlands have been investigated in connection with their management plans (Durankulak Lake, Shabla Lake, Pomorie Lake, Atanasovsko Lake and protected area Poda). These investigations are also included in the work.

The categories of type class and order are used (an exception is made for supertype Arthropoda because of the structure of the superior taxonomic categories). All water (marine, brackish and freshwater) and many terrestrial invertebrate animals, connected with the coast and coastal basins are included.

In the numbering of the localities (Table 1), for convenience, the old numbering used in catalogues of Valkanov (1957a), Valkanov & Marinov (1964) and Marinov & Golemansky (1989) is presented. In many cases, the information on the coastal basins, given in these publications is outdated (before 1957). Today, a part of the brackish basins along the coast do not exist in its original form. They are converted into bays, harbors, dams, have no connection with the sea or are drained. For most of the smaller basins there is a lack of present-day faunistic investigations. Twenty new localities, which have no equivalent in the previous catalogues, are included. The number of known species in the separate localities is presented as well. It shows mainly their level of study and to a less extent, the actual species diversity.

For the marine species, the depth to which they are established in the Bulgarian Black Sea is given (Table 2). Species, for which there are no data from the Bulgarian coast, data from other regions of the sea are presented. When information in the Bulgarian literature differs significantly from the one, reported for other parts of the sea, the respective foreign data for the Black Sea are presented, after the Bulgarian data. In freshwater Mollusca, the presented depth refers to the whole country.

For species that inhabit both fresh and salt waters, an areographical categorization for seas and freshwater basins is presented. The categorization for the freshwaters is given in brackets (Table 2). Some taxa, distributed both in the sea and freshwaters (Supercosmopolitan) are analyzed both to the marine and freshwater forms. The brackish species are included to marine or freshwater forms according to the fact whether they are marine-brackish or freshwater-brackish. When the reports of species distribution are discrepant, a second categorization is presented. An attention is paid to the immigrants and invasive forms that had changed considerably the Black Sea communities in XX century.

There is no unanimity among the experts about the zoogeographical status of the Black Sea, which is either considered as an independent subregion or is unified with the Mediterranean Sea (and Lusi-

Table 1. Taxa localities (Symbols: * – highly altered habitat to the time of collection of the material; [ ] – old geographical names and old data, before 1957)

Locality	Number	Old number	Number of species
Sea localities			
Durankulak [Blatnitsa] (Durankulak north – Durankulak Lake – Krapets)	**1**	1	131
Shabla (Shabla Lake – Shabla Tuzla – Cape Shabla)	**2**	2	153
Cape Kaliakra (Rusalka – Bolata – Cape Kaliakra)	**3**	3	230
Kavarna (Cape Chairburun – Cape Chirakman – Cape Kalkanburun)	**4**	4	138
Balchik (Balchik Tuzla – Balchik)	**5**	5	172
Batova (Albena – Kranevo)	**6**	6	141
Varna (Golden Sands – Evksinograd – Varna – Cape Galata – Pasha Dere River)	**7**	7	601
Kamchiya (Cape Ilandzhik – Camping Ray – Kamchiya River – Shkorpilovtsi)	**8**	8	139
Byala (Cape Cherni – Byala – Dvoynitsa River – Obzor)	**9**	9	128
Cape Emine (Irakli – Cape Emine – Cocketrice sandy bank)	**10**	10	176
Nesebar (Elenite – Sunny Beach – Nesebar – Ravda)	**11**	11	256
Pomorie (Aheloy – Pomorie – Camping Evropa – Cape Lahna)	**12**	12	220
Burgas (Saraphovo – Burgas – Kraymorie – Park Rosenets – Cape Chukalya)	**13**	13	264
Sveta Anastasiya Island [Bolshevik Island]	**14**	14	136
Chernomorets (Cape Atiya – Chernomorets – Cape Chervenka [Cape Hrisotira])	**15**	15	134
Sozopol (Camping Gradina – Sozopol – Kavatsite – Dyuni)	**16**	15	274
Cape Maslen Nos (Alepu Marsh – Ropotamo River – C. Maslen Nos – Stomoplo Marsh)	**17**	16	184
Primorsko (Stomoplo Marsh – Primorsko – Dyavolska Reka River)	**18**	17	133
Kiten [Urdoviza] (International Youth Centre – Kiten – Karaagach River – Lozenets)	**19**	18	133
Tsarevo [Michurin, Vasiliko] (Cape Arapya – Tsarevo – Varvara)	**20**	19	177
Ahtopol (Varvara – Achtopol – Veleka River)	**21**	20	143
Sinemorets (Sinemorets – Silistar River – Rezovo)	**22**	20	140
Zostera overgrowths (0-6 m)	**23**		45
Rocky sublittoral, *Cystoseira* and other algae, *Mytilus* (from 0.5-1 m to 15-25 m)	**24**		257
Sandy sublittoral (1-25 m); clean sand – to 17 m, with *Branchiostoma* – to 20 m	**25**		396
Coastal silt (from 15-20 m to 30-40 m); dominated by *Melinna* – to 25-30 m	**26**		115
Mytilus silt (from 15-20 m to 60-80 m)	**27**		148
Phaseolina silt (from 65 m to 140-180 m)	**28**		104
Black Sea, pelagic in front of the Bulgarian coast	**29**		55
Localities along the sea coast			
Lithotelms, Shabla – Cape Kaliakra, Varna	**32**	21	15
Lithotelms, Ravda, Sozopol – Cape Maslen Nos	**33**	22	40
Basins of Varna Aquarium	**34**	25	11
Subterranean (ground) waters of sandy beach, interstitial, mesopsamal	**35**	26	146
Sunny Beach, coastal zone, sand bottom and floating algae	**36**	29	4
Arkutino, coastal zone	**37**	27	4
Camping (Residence) Perla, coastal zone, sand bottom and floating algae	**38**	30	4
Kiten, coastal zone, sand bottom and floating algae	**39**	28	5
Lozenets, coastal zone	**40**	31	4
Small saltwater marshes along the coast	**41**	72	8
Small freshwater marshes along the coast	**42**	73	26
Mouths of small streams	**43**	74	3
Temporary salty puddles and floods around the coastal basins	**44**	79	4
Rocks along the entire coast, rocky supralittoral	**45**	76	14
Algae washed ashore along the coast, supralittoral	**46**	77	23
Salty soils around coastal basins	**47**	78	28

Table 1. Continued

Locality	Number	Old number	Number of species
Terrestrial coastal zone with halophilic plants (to 50-100 m from the sea)	**48**	75	24
Sea coastal zone; littoral (medio- or pseudolittoral)	**49**		24
Rocky littoral (medio- or pseudolittoral, enteromorpha zone)	**50**		16
Sandy littoral (medio- or pseudolittoral)	**51**		64
Sandy supralittoral	**52**		8
Springs and wells with brackish water along the coast, Durakulak – Cape Kaliakra	**53**		1
Springs along the coast, Sozopol – Cape Maslen Nos	**54**		2
Coastal basins (lakes, swamps, firths and river floods)			
Durankulak [Blatnitsa] Lake: [0-5‰, 3.4 km^2, depth 4 m], 1-4‰, average salinity – 2‰	**58**	41	113
Ezerets Lake: [1-2‰, average salinity – 1.6‰], 0.58-0.79‰, 0.72 km^2, depth 9.0 m	**59**	42	101
Shabla Lake: [0.1-2‰, 0.6-1.6‰], 0.52-0.60‰, 0.79 km^2, depth 9.5 m	**60**	42	137
*Schabla Tuzla: [10-30‰], 22-200‰, 0.19 km^2, depth 0.6 m	**61**	43	17
Nanevska Tuzla [Tauk Liman]: 1-90‰ (often about 20‰) 0.10 km^2, depth 0.3 m	**62**		3
*Bolata River Mouth: 0.1‰	**63**	44	13
*Balchik Tuzla: [80-150‰], 35-160‰, 0.14 km^2, depth 0.5-0.8 m	**64**	45	7
Batova River Mouth and Swamp: 0.03-6‰, depth 0.5-1 m,	**65**	46	9
*Golden Sands Marshes: [0-60‰]	**66**	47	7
*Sindel [Sultanlar] Swamp: [0‰]	**67**	48	6
*Beloslav [Devnya, Gebedzhe] Lake: 0.1-15.6‰, 3.90 km^2, depth 3.5 m, sea canal – 1923	**68**	49	160
*Varna Lake: [5-14‰], 6.5-8-16.8‰, 17.40 km^2, depth 19 m, sea canals – 1909, 1976	**69**	50	264
Pasha Dere [Chatal Dere, Novata Voda] River Mouth: [0-7‰]	**70**	51	10
Kamchiya River Mouth – Swamps: [0.4-0.7‰], average 0.1‰	**71**	52	53
Fandakliyska Reka [Shkorpilova] River Mouth: [0.1‰]	**72**	53	11
*Dvoynitsa [Cherta, Suha Kamchiya] River Mouth	**73**		8
*Hadzhiyska River Mouth [Nesebar Marsh]: [1-10‰]	**74**	54	30
Aheloy River Mouth	**75**		9
Pomorie Lake: 30-70 to 140‰, 8.50 km^2, depth 1.4 m	**76**	55	106
Atanasovsko Lake: 1-250‰, average 50-60‰, 16.90 km^2, depth 0.3-0.8 m	**77**	56	113
*Burgas [Vaya] Lake: [9-20‰], 1.8-45‰, average 10.6‰, 27.60 km^2, depth 1.3 m	**78**	57	89
*Mandra Dam [Mandra Lake to 1963]: [0.1-12‰, max. 30‰, 14.00 km^2, depth 1.1-5 m]	**79**	58	94
Uzungeren-Poda Complex: 0.1-32‰, 3.12 km^2	**80**		80
Tsiganski Skelet Marsh [Chengene Skele Marsh]: [7-20‰]	**81**	59	11
Alepu Marsh: 4-11-27‰ (usually 3.5-7.2‰), 0.14 km^2, depth 0.6-1 m	**82**	60	14
Arkutino Marsh: 0.1-1‰, 0.03 km^2, depth 0.5 m	**83**		24
Ropotamo River Mouth: 5-15‰	**84**	61	97
Stomoplo Marsh: [2-25‰], 1.5-4‰, 6-14‰, 0.06 km^2, depth 0.5 m	**85**	62	20
*Dyavolsko Blato Swamp: [1-20‰], 6-14‰, 0.80 km^2, depth 1 m	**86**	63	78
*Dyavolska Reka River Mouth: depth 4 m	**87**		10
Karaagachka Reka [Kitenska, Oryashka] River Mouth and Swamp: [5-15‰]	**88**	64	68
Tsarevska Reka [Michurinska (small)] River: [3‰]	**89**	65	10
Izgrevsko Dere [Michurinska Reka (great)] River: [5-10‰]	**90**	66	14
Puddles and mouths of streams between Tsarevo and Ahtopol	**91**	67	12
Veleka River Mouth: [0-0.5‰]	**92**	68	59
Butamyata [Potamyata] River Mouth: [12‰]	**93**	69	22
Silistar River Mouth: [5-15‰]	**94**	70	25
Rezovska Reka [Rezvaya] River Mouth: [0-1.45‰]	**95**	71	30
Black Sea coastal lakes and swamps	**96**		71

tanean Atlantic subregion). The zoogeographical scheme used here (Table 5) is based on the works of Guryanova (1964), De Lattin (1967), Golikov & Starobogatov (1968, 1972), Starobogatov (1970), Mordukhay-Boltovskoy (1972), Golikov (1982), Nesis (1982), Riedl (1983), Bănărescu (1990), Abbott & Dance (1991), Elder & Pernetta (1991), Bruyne (2003), Hook (2008), Earle & Glover (2009). The zoogeographical categorization of species is done on the basis of data of their distribution, taken from the literature and the newest electronic issues (Tables 2, 5 and 6).

The presented ecological data (Table 2) are taken from the Bulgarian literature. Only if there are no data from Bulgaria, foreign data are included for the corresponding species. The conservation value of taxa is determined regarding to their populations inhabiting Bulgaria. For local endemics, 100% of their populations are localized in Bulgaria, therefore they are given the highest conservation category (world importance). This category also includes regional endemics because of their restricted distribution and species from the IUCN Red List. Taxa of European importance include Black Sea endemics as well as the species from Bern Convention and Habitats Directive. Relicts and rare taxa (if not listed under other category) form the group of national importance. The species, included in Black Sea Red Data Book (Dumont et al., 1999), Red Data Book of Bulgaria (Biserkov & Golemanski, 2011), European and IUCN Red List are marked.

The literature references (Table 2) do not include all publications addressed to the corresponding species from the Bulgarian coast (to 9 references quoted). Most often the first record of taxa is given, its inclusion in catalogues and some new or important literature data. Under updating of the names and specifying of the species distribution, some electronic issues are used: Antarctic Invertebrates, CLEMAM (Check List of European Marine Mollusca), DAISIE (Delivering Alien Invasive Species Inventories for Europe), EOL (Encyclopedia of Life), ERMS (European Register of Marine Species), EUNIS biodiversity database, Fauna Europaea, Global Invasive Species Database, Global Names Index, ITIS (Integrated Taxonomic Information System), Marine Planktonic Copepods, Marine Species Identification Portal, MarLIN (The Marine Life Information Network), NARMS (North Atlantic Register for Marine Species), NeMys, NEOBANIS (European Network on Invasive Alien Species), PESI (A Pan-European Species directories Infrastructure), PlanktonNet Image, OBIS (Ocean Biogeographic Information System), The World of Copepods, World Polychaeta Database, WoRMS (World Register of Marine Species).

Unexplored territories and literature data

Despite the prolonged hydrobiological investigations and good knowledge of the Bulgarian Black Sea fauna as a whole, unexplored areas still remain. The possible reasons for this fact are as follows: lack of specialists on many taxonomic groups; great loading of the specialists with environmental or conservation projects, therefore the time for faunistic research is insufficient; periodic standard surveys of the fixed number of monitoring stations, a relative remoteness of natural science centers; a poor attendance by many zoologists in comparison with other regions or change in coastal communities as a result of anthropogenic impact. Most of the literature data related to these regions are fragmentary, outdated, concern separated systematic groups or are scattered in different works which are not specially referred to them.

Today, the most poorly investigated territories in regard to many groups are the southern coast (south of Cape Maslen Nos) and the coastal zone with a depth less than 10 m, where the oceanographic ships rarely enter. Some of the coastal basins were explored long ago so the investigations do not reflect the recent condition of their fauna.

Weaknesses in the literature data which limit the obtaining of equivalent information for the comparison of the territories include: different levels of study of individual taxa; insufficient research of many groups in the corresponding areas; a lack of exact localities for the part of the recorded species; existence of rich synonymy; outdated data; a lack of generalized investigations for most of the groups; significant differences in the number of taxa in the separate areas; unexplored territories; prolonged periods of data accumulation for most regions; predominance of ecological studies versus those of fauna; independent review of benthos and plankton forms. These weaknesses lead to the following 5 problems:

1. Continuous supplementation of an existing historical list of fauna. As a result, species diversity in a given area is higher than in reality.

2. Incomparability of data in terms of time periods. Data comparisons between two areas very often cover different periods as it is not possible to study all taxonomic groups and territories simultaneously.

3. Incomparability of benthos – plankton data. Many studies are look at either benthos only or

plankton only, despite the fact that most taxa have both a benthic and planktonic stages.

4. Incomplete reporting of anthropogenic influences, successional and landscape changes on the composition of the communities along the coast. A number of well-studied brackish basins in the past no longer exist or have changed.

5. Prioritization of research in areas under monitoring or environmental protection legislation.

Abbreviations used

Taxa: [ ] – names and synonyms under which the species are recorded for Bulgaria

Distribution: **1-29** – Localities in Black Sea (**1-10** – North Black Sea, **11-22** – South Black Sea), **32-54** – Localities along the coast, **58-96** – Coastal basins, **figures** – numbers of the localities in Table 1 [dash before the figure (-7, -12) indicates the latter as maximum depth, dash after the figure (7-, 12-) indicates the latter as minimum depth], **?** – uncertain data or lack of data, * – outdated information and significantly altered habitat versus time of collection of the material

Zoogeographical categories (the abbreviations in brackets refer to the freshwater and terrestrial species): **aam** – Arctic-Atlantic-Mediterranean, **aami** – Arctic-Atlantic-Mediterranean-Indian, **aamip** – Arctic-Atlantic-Mediterranean-Indo-Pacific, **aaminp** – Arctic-Atlantic-Mediterranean-Indo-North Pacific, **aamni** – Arctic-Atlantic-Mediterranean-North Indian, **aamswp** – Arctic-Atlantic-Mediterranean-Southwest Pacific, **aanambp** – Arctic-Antarctic-Atlantic-Mediterranean-Boreal Pacific, **aanamip** – Arctic-Antarctic-Atlantic-Mediterranean-Indo-Pacific, **aannam** – Arctic-Antarctic-North Atlantic-Mediterranean, **ab** – Amphiboreal, **abam** – Arctic-Boreal Atlantic-Mediterranean, **abambp** – Arctic-Boreal Atlantic-Mediterranean-Boreal Pacific, **abap** – Arctic-Boreal Atlantic-Pontian, **abapbp** – Arctic-Boreal Atlantic-Pontian-Boreal Pacific, **abapnep** – Arctic-Boreal Atlantic-Pontian-Northeast Pacific, **ace** – Arctic-Circumeuropean, **acem** – Arctic-Circumeuropean-Mauritanian, **acmnz** – Arctic-Celtic-Mediterranean-New Zealand, **acp** – Arctic-Celtic-Pontian, **adep** – Adriatic-Aegean-Pontian, **adp** – Adriatic-Pontian, **adpc** – Adriatic-Pontian-Caspian, **am** (**am**) – Atlantic-Mediterranean, **ami** – Atlantic-Mediterranean-Indian, **aminp** – Atlantic-Mediterranean-Indo-North Pacific, **aminwp** – Atlantic-Mediterranean-Indo-Northwest Pacific, **aminz** – Atlantic-Mediterranean-Indo-New Zealand, **amip** – Atlantic-Mediterranean-Indo-Pacific, **amiswp** – Atlantic-Mediterranean-Indo-Southwest Pacific, **amiwp** – Atlantic-Mediterranean-Indo-West Pacific, **amj** – Atlantic-Mediterranean-Japonic, **amnei** – Atlantic-Mediterranean-Northeast Indian, **amnep** – Atlantic-Mediterranean-Northeast Pacific, **amni** – Atlantic-Mediterranean-North Indian, **amnp** – Atlantic-Mediterranean-North Pacific, **amnz** – Atlantic-Mediterranean-New Zealand, **amp** – Atlantic-Mediterranean-Pacific, **amrs** – Atlantic-Mediterranean-Red Sea, **amrsp** – Atlantic-Mediterranean-Red Sea-Pacific, **amswp** – Atlantic-Mediterranean-Southwest Pacific, **amwi** – Atlantic-Mediterranean-West Indian, **amwp** – Atlantic-Mediterranean-West Pacific, **anam** – Arctic-North Atlantic-Mediterranean, **anaminp** – Arctic-North Atlantic-Mediterranean-Indo-North Pacific, **anamip** – Arctic-North Atlantic-Mediterranean-Indo-Pacific, **anamnep** – Arctic-North Atlantic-Mediterranean-Northeast Pacific, **anamnp** – Arctic-North Atlantic-Mediterranean-North Pacific, **anamp** – Arctic-North Atlantic-Mediterranean-Pacific, **anamrs** – Arctic-North Atlantic-Mediterranean-Red Sea, **anap** – Arctic-North Atlantic-Pontian, **anapnep** – Arctic-North Atlantic-Pontian-Northeast Pacific, **anclm** – Antarctic-Celtic-Lusitanian-Mediterranean, **anpip** – Antarctic-Pontian-Indo-Pacific, **antami** – Antarctic-Atlantic-Mediterranean-Indian, **antamip** – Antarctic-Atlantic-Mediterranean-Indo-Pacific, **antamp** – Antarctic-Atlantic-Mediterranean-Pacific, **ap** – Atlantic-Pontian, **api** – Atlantic-Pontian-Indian, **apswp** – Atlantic-Pontian-Southwest Pacific, (**ase**) – Atlantic-South European, (**atm**) – Afrotropical-Mediterranean, **baap** – Boreal-Antiboreal Atlantic-Pontian, **bam** – Boreal Atlantic-Mediterranean, **bambp** – Boreal Atlantic-Mediterranean-Boreal Pacific, **bami** – Boreal Atlantic-Mediterranean-Indian, **bamnep** – Boreal Atlantic-Mediterranean-Northeast Pacific, **bamswp** – Boreal Atlantic-Mediterranean-Southwest Pacific, **bap** – Boreal Atlantic-Pontian, **bapbp** – Boreal Atlantic-Pontian-Boreal Pacific, **bapp** – Boreal Atlantic-Pontian-Pacific, **cacpnz** – Carolinian-Celtic-Pontian-New Zealand, **calm** – Carolinian-Lusitanian-Mediterranean, **calp** – Carolinian-Lusitanian-Pontian, **cb** – Circumboreal, **cbm** – Circumboreal-Mediterranean, **cbma** – Circumboreal-Mediterranean-Australian, **cclm** – Carolinian-Celtic-Lusitanian-Mediterranean, **ccp** – Carolinian-Celtic-Pontian, **ce** – Circumeuropean, **cem** – Circumeuropean-Mauritanian, **cg** – Circumglobal, **clm** – Celtic-Lusitanian-Mediterranean, **clmi** – Celtic-Lusitanian-Mediterranean-Indian, **clmm** – Celtic-Lusitanian-Mediterranean-Mauritanian,

clmnei – Celtic-Lusitanian-Mediterranean-Northeast Indian, **clmnwi** – Celtic-Lusitanian-Mediterranean-Northwest Indian, **clmnz** – Celtic-Lusitanian-Mediterranean-New Zealand, **clmrs** – Celtic-Lusitanian-Mediterranean-Red Sea, **clmwi** – Celtic-Lusitanian-Mediterranean-West Indian, **clp** – Celtic-Lusitanian-Pontian, **clpnz** – Celtic-Lusitanian-Pontian-New Zealand, **cm** – Celtic-Mediterranean, **cp** – Celtic-Pontian, **cpc** – Celtic-Pontian-Caspian, **cpj** – Celtic-Pontian-Japonic, **cpnei** – Celtic-Pontian-Northeast Indian, **cpnz** – Celtic-Pontian-New Zealand, **cpwp** – Celtic-Pontian-West Pacific, (**cse**) – Central and South European, (**csee**) – Central and Southeast European, (**cseea**) – Central and Southeast European-Anatolian, (**cseeit**) – Central and Southeast European-Iran-Turanian, (**csena**) – Central and South European-North African, **cst** – Circumsubtropical, (**dp**) – Disjunct Palaearctic, (**e**) – European, (**ea**) – European-Australian, **eam** – East Atlantic-Mediterranean, **eami** – East Atlantic-Mediterranean-Indian, **eamip** – East Atlantic-Mediterranean-Indo-Pacific, **eamiswp** – East Atlantic-Mediterranean-Indo-Southwest Pacific, **eamp** – East Atlantic-Mediterranean-Pacific, **eamrs** – East Atlantic-Mediterranean-Red Sea, **eamswi** – East Atlantic-Mediterranean-Southwest Indian, **eamwi** – East Atlantic-Mediterranean-West Indian, (**ean**) – European-Anatolian, (**Eb**) – Balkan endemic, (**Ebg**) – Bulgarian endemic, (**eca**) – European-Central Asian, (**eit**) – European-Iran-Turanian, (**El**) – Local Bulgarian endemic, **em** (**em**) – East Mediterranean, (**emca**) – East Mediterranean-Central Asian, (**ena**) – European-North African, (**Ep**) – Pontian endemic, **ep** – Aegean-Pontian, (**Er**) – Regional Bulgarian endemic, (**esca**) – Eurosiberian-Central Asian, (**et**) – European-Turanian, (**ewca**) – European-West Central Asian, (**h**) – Holarctic, (**ha**) – Holarctic-Australian, **ham** – Holatlantic-Mediterranean, (**hat**) – Holarctic-Afrotropical, (**hata**) – Holarctic-Afrotropical-Australian, (**hn**) – Holarctic-Neotropical, (**hna**) – Holarctic-Neotropical-Australian, (**hnat**) – Holarctic-Neotropical-Afrotropical, (**hnata**) – Holarctic-Neotropical-Afrotropical-Australian, (**hno**) – Holarctic-Neotropical-Oriental, (**hnoa**) – Holarctic-Neotropical-Oriental-Australian, (**ho**) – Holarctic-Oriental, (**hoa**) – Holarctic-Oriental-Australian, (**hoes**) – Holoeurosiberian, **hom** (**hom**) – Holomediterranean, (**hop**) – Holopalaearctic, (**hpt**) – Holarctic-Paleotropical, (**hpta**) – Holarctic-Paleotropical-Australian, (**hptn**) – Holarctic-Paleotropical-Neotropical, **i** – introduced species (immigrants), **j** – Japanese, **K (k)** – Cosmopolitan, **kclm** – Caribbean-Celtic-Lusitanian-Mediterranean, **klm** – Caribbean-Lusitanian-Mediterranean, **kmm** – Caribbean-Mediterranean-Mauritanian, **lm** – Lusitanian-Mediterranean, **lmi** – Lusitanian-Mediterranean-Indian, **lmm** – Lusitanian-Mediterranean-Mauritanian, **lmmg** – Lusitanian-Mediterranean-Mauritanian-Guinean, **lmmwi** – Lusitanian-Mediterranean-Mauritanian-West Indian, **lmnei** – Lusitanian-Mediterranean-Northeast Indian, **lmnz** – Lusitanian-Mediterranean-New Zealand, **lmsa** – Lusitanian-Mediterranean-South African, **lmwi** – Lusitanian-Mediterranean-West Indian, **lmwiwp** – Lusitanian-Mediterranean-West Indo-West Pacific, **lmwp** – Lusitanian-Mediterranean-West Pacific, **lp** – Lusitanian-Pontian, **m** – Mediterranean, (**mca**) – Mediterranean-Central Asian, **miwp** – Mediterranean-Indo-West Pacific, **mj** – Mediterranean-Japonic, **mmgt** – Mediterranean-Mauritanian-Guinean-Tasmanian, **mni** – Mediterranean-North Indian, **mnz** – Mediterranean-New Zealand, **mrs** – Mediterranean-Red Sea, (**mwca**) – Mediterranean-West Central Asian, (**na**) – North American, **nam** – North Atlantic-Mediterranean, **namep** – North Atlantic-Mediterranean-East Pacific, **nami** – North Atlantic-Mediterranean-Indian, **namim** – North Atlantic-Mediterranean-Indo-Malayan, **naminz** – North Atlantic-Mediterranean-Indo-New Zealand, **namip** – North Atlantic-Mediterranean-Indo-Pacific, **namiwp** – North Atlantic-Mediterranean-Indo-West Pacific, **namj** – North Atlantic-Mediterranean-Japonic, **namnei** – North Atlantic-Mediterranean-Northeast Indian, **namnep** – North Atlantic-Mediterranean-Northeast Pacific, **namni** – North Atlantic-Mediterranean-North Indian, **namnp** – North Atlantic-Mediterranean-North Pacific, **namnz** – North Atlantic-Mediterranean-New Zealand, **namp** – North Atlantic-Mediterranean-Pacific, **namrs** – North Atlantic-Mediterranean-Red Sea, **namrsnep** – North Atlantic-Mediterranean-Red Sea-Northeast Pacific, **namsp** – North Atlantic-Mediterranean-South Pacific, **namsep** – North Atlantic-Mediterranean-Southeast Pacific, **namswp** – North Atlantic-Mediterranean-Southwest Pacific, **namwi** – North Atlantic-Mediterranean-West Indian, **namwp** – North Atlantic-Mediterranean-West Pacific, **nap** – North Atlantic-Pontian, **napnei** – North Atlantic-Pontian-Northeast Indian, **neamal** – Northeast Atlantic-Mediterranean-Aleutian, **neamep** – Northeast Atlantic-Mediterranean-East Pacific, **neaminz** – Northeast Atlantic-Mediterranean-Indo-New Zealand, **neamj** – Northeast Atlantic-Mediterranean-Japonic, **neamnp** – Northeast Atlantic-Mediterranean-North Pacific, **neamnz** –

Northeast Atlantic-Mediterranean-New Zealand, **neamswp** – Northeast Atlantic-Mediterranean-Southwest Pacific, **neamwp** – Northeast Atlantic-Mediterranean-West Pacific, (**nem**) – Northeast Mediterranean, (**nemit**) – Northeast Mediterranean-Iran-Turanian, **nm** (**nm**) – North Mediterranean, (**nmwca**) – North Mediterranean-West Central Asian, **nz** – New Zealand, (**om**) – Oriental-Mediterranean, (**omca**) – Oriental-Mediterranean-Central Asian, (**omcaa**) – Oriental-Mediterranean-Central Asian-Australian, **p** – Pontian, (**pat**) – Palearctic-Afrotropical, (**pata**) – Palearctic-Afrotropical-Australian, **pc** – Pontian-Caspian, **pca** – Pontian-Caspian-Aral, **pinz** – Pontian-Indo-New Zealand, (**pm**) – Pontomediterranean, **pnep** – Pontian-Northeast Pacific, (**po**) – Palearctic-Oriental, (**poa**) – Palearctic-Oriental-Australian, (**ppt**) – Palearctic-Paleotropical, (**ppta**) – Palearctic-Paleotropical-Australian, (**ptm**) – Paleotropical-Mediterranean, (**ptmca**) – Paleotropical-Mediterranean-Central Asian, (**ptsp**) – Paleotropical-South Palearctic, **R** – relict, **Rc** – Caspian relict, (**se**) – South European, (**see**) – Southeast European, (**seea)** – Southeast European-Anatolian, (**seep**) – Southeast European-Pontian, (**seepc**) – Southeast European-Pontian-Caspian, **Sf** – subfossil, **SK (sk)** – Subcosmopolitan, **tam** – Tropical Atlantic-Mediterranean, (**tp**) – Transpalaearctic, (**tpo**) – Transpalaearctic-Oriental, **vck** – Virginian-Carolinian-Caribbean, **vclm** – Virginian-Celtic-Lusitanian-Mediterranean, (**wces**) – West and Central Eurosiberian, (**wcp**) – West and Central Palaearctic, (**wcpo**) – West and Central Palaearctic-Oriental, (**wes**) – West Eurosiberian, (**wesa**) – West Eurosiberian-Anatolian, (**wp**) – West Palearctic, (**wpat**) – West Palearctic-Afrotropical, (**wppt**) – West Palearctic-Paleotropical, **+** – species known only from shells, **•** – occurrence of endemic taxa, **?** – probable category.

Ecological data: **ar** – argillophilous, **α** – α-mesosaprobic, **α-β** – α-β-mesosaprobic, **β** – β-mesosaprobic, **B** – brackish, **BA** – Barcelona Convention, **BC** – Bern Convention, **bt** – benthos, **co** – commensal, **CR** – critically endangered, **cr** – crenobiont, **cs** – coastal silt, **DD** – data deficient, **E** – European importance, **eb** – eurybathic, **ec** – ectoparasite, **eh** – euryhaline, **EN** – endangered, **ep** – epibathic, **epi** – epibiont, **epp** – epipelagic, **et** – eurythermal, **eu** – eurybiont, **EX** – Extinct, **gw** – ground-water, **ha** – halophilous or halobiont, **hb** – hypobathic, **HD** – Habitats Directive, **if** – interstitial fauna, **is** – invasive species, **L** – freshwater, **l** – littoral zone (medio-, pseudolittoral, intertidal), **LC** – least concern, **LR** – lower risk, **lr** – rocky littoral, **ls** – sandy littoral, **lt** – rocks or lithophilous, **M** – marine, **mb** – mesobathic, **mc** – *Mytilus* cenosis, **ms** – *Mytilus* silt, **N** – national importance, **NE** – not evaluated, **NT** – near threatened, **o** – oligosaprobic, **p** – plankton, **pa** – parasite, **pe** – pelophilous, **ph** – algae overgrowth or phytophilous, **phc** – *Phyllophora* coenosis, **phs** – *Phaseolina* silt, **po** – potamophilous, **pp** – pelagic, **ps** – sand or psammophilous, **r** – rare, **rh** – rhithrophilous, **ro** – rocky, **s** – silt, **sb** – stenobathic, **sep** – stenoepibathic, **sg** – shells and sand with shells, **shb** – stenohypobathic, **sl** – sublittoral zone (infra- and circalittoral, subtidal), **slc** – *Cystoseira* sublittoral, **slr** – rocky sublittoral, **sls** – sandy sublittoral, **sp** – supralittoral zone (supratidal), **spr** – rocky supralittoral, **sps** – sandy supralittoral, **sw** – stagnant water, **T** – terrestrial, **th** – thermophile, **TL** – terrestrial forms connected with water, **tx** - trogloxene, **VU** – vulnerable, **W** – world importance, **x** – xenosaprobic, **zc** – *Zostera* cenosis, **‰** – limiting freshwater level for marine and salinity level for the freshwater forms, **( )** – rarely exception, **▪** – Black Sea Red Data Book, **▲** – Red Data Book of Bulgaria, **⬥** – European and IUCN Red List.

Results and Discussion

A total of 19 types, 39 classes, 123 orders, 470 families and 1537 species have been known from the Bulgarian Black Sea (Table 3). These taxa include 1054 species (68.6%) marine and marine-brackish forms and 508 species (33.0%) freshwater-brackish, freshwater and terrestrial forms, connected with water. A small number of supercosmopolitan forms (17 species), inhabitants of the marine, freshwater and terrestrial cenoses are scrutinized to both two groups. Five types (Nematoda, Rotifera, Annelida, Arthropoda and Mollusca) have a high species composition (over 100 species). Of these, the richest in species are Arthropoda (802 species – 52.2%), Annelida (173 species – 11.2%) and Mollusca (152 species – 9.9%). The rest 14 types include from 1 to 38 species. The Bulgarian fauna comprises about 70% of the known 2000-2200 species from the Black Sea and Azov Sea (Tables 2 and 3). For individual taxa this percentage varies considerably and depends on the level of study. The species composition varies depending on whether the authors considered only marine and marine-brackish forms or include freshwater-brackish, freshwater and terrestrial forms, related to water. The rich in brackish basins Ukrainian and Russian Black Sea coast is considerably superior to the Bulgarian coast in brackish taxa.

Most marine invertebrates have been established throughout the Bulgarian Black Sea coast.

Table 2. Register of the marine, brackish, freshwater and terrestrial Invertebrate free-living fauna from the Bulgarian Black Sea coast

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
PORIFERA					
Demospongiae					
Hadromerida					
Clionaidae					
Pione vastifica (Hancock, 1849) [*Cliona pontica*, *C. stationis*, *Vioa grantii*]	7-16, 27	-42	namwp	M, bt, mb, mc	32, 249, 389
Suberitidae					
Suberites carnosus (Johnston, 1842) [*Halichondria*, *S. domuncula*]	3, 7, 16, 34	6-180	am	M, bt, eb, ms, phs	32, 249, 389
Suberites prototypus Czerniavsky, 1880 [*Prosuberites brevispinus*, *P. epiphytum*]	7, 27, 28	3-90	● p	M, bt, eb, ms, phs	32, 84, 249, 389
Halichondrida					
Halichondriidae					
Halichondria panicea (Pallas, 1766) [*H. grossa*, *Spongia*]	7	2-65	K	M, bt, eb, lt, ■	32, 114, 249, 389
Poecilosclerida					
Microcionidae					
Clathria cleistochela (Topsent, 1925) [*Microciona*]	7	0-5	lmm, ? i	M, bt, ? is	84, 249, 389
Tedaniidae					
Tedania anhelans (Lieberkühn, 1859) [*T. nigrescens*, *Haliclona*, *Reniera digitata*]	5, 6, 23, 24	-22	? amp	M, bt, ep, ph	32, 67, 249, 389
Coelosphaeridae					
Lissodendoryx variisclera (Swartschewsky, 1905) [*L. dictyonoides*]	7	8-26	● p	M, bt, ep, lt	32, 249, 389
Crellidae					
Crella gracilis (Alander, 1942) [*Kowalewskyella*, *Yvesia*]	3	14-60	cp	M, bt, eb, lt	32, 249, 389
Mycalidae					
Mycale syrinx (Schmidt, 1862) [*Esperia lorenzii*, *E. muscoides*]	7, 34	0-87	lmm	M, bt, eb, ro, s	32, 249, 389
Haplosclerida					
Petrosiidae					
Petrosia ficiformis (Poiret, 1789) [*P. clavata*, *P. dura*, *Reniera boutschinskii*]	3, 5, 24	-40	kmm	M, bt, mb, slc, slr	32, 249, 389
Chalinidae					
Chalinula limbata (Montagu, 1818) [*Halichona*, *Haliclonissa*, *Pachychalina*]	7		clmm	M, bt	32, 249, 389
Haliclona aquaeductus (Schmidt, 1862) [*H. alba*, *Adocia*, *Reniera*]	5, 11, 12, 13, 34	-100	lm	M, bt, eb, ro	32, 249, 389
Haliclona cinerea (Grant, 1826) [*H. palmata*, *Adocia*, *Reniera*, *Spongia*]	5	-75	aamip	M, bt, eb, phc	32, 249, 389
Haliclona flavescens (Topsent, 1893) [*Reniera*]	7	-35	hom	M, bt, ro	84, 249, 389
Haliclona grossa (Schmidt, 1864) [*Adocia*, *Reniera*]	12, 13		em	M, bt	32, 249, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Haliclona implexa (Schmidt, 1868) [*H. informis*, *Adocia*, *Reniera curiosa*]	1, 2, 3, 4, 5	-85	mmgt	M, bt, eb, ro	32, 249, 389
Haliclona inflata (Schmidt, 1868) [*Adocia*, *Reniera*]	5, 7, 12, 13		adp	M, bt	32, 389
Haliclona irregularis (Czerniavsky, 1880) [? *Ulosa stuposa*, ? *Haliclonissa digitata*]	24, 49	-22	? ● p, ? clm	M, bt, zc	32, 249, 389
Haliclona simulans (Johnston, 1842) [*Adocia densa*, *Isodictya pallida*, *Reniera*]	5		clmm	M, bt	32, 249, 389
Haliclona tubulifera (Swartschewsky, 1905) [*Adocia*, *Reniera*]	3		● p	M, bt	32, 249, 389
Spongillidae					
Ephydatia fluviatilis (Linnaeus, 1759)	34, *68		(hpta)	L, 2.5‰, bt	32, 374, 389
Dendroceratida					
Dysideidae					
Dysidea fragilis (Montagu, 1818) [*Spongia*, *Spongelia*]	1, 2, 3, 4, 5, 7	-40	clmm	M, bt, mb, ps, ro	32, 84, 389
CALCAREA					
Leucosolenida					
Sycettidae					
Sycon ciliatum (Fabricius, 1780) [*S. coronata*]	23, 24, 27, 28, 49, 50	0-180	aamswp	M, bt, eb, ph, ro	198, 249
CNIDARIA					
Hydrozoa					
Capitata					
Hydridae					
Hydra viridissima Pallas, 1766 [*Chlorohydara*]	71, 88, 93		(k)	L, 5‰, bt	374, 389
Cladonematidae					
Cladonema radiatum Dujardin, 1843	12		amip	M, bt-p	91, 249, 389
Corymorphidae					
Corymorpha nutans Sars, 1835 [*C. sarsi*]	7	10-100	anam	M, bt-p, eb, r	160, 249, 333, 389
Corynidae					
Coryne pusilla (Gaertner, 1774)	11, 16		namwp	M, bt-p	91, 389
Sarsia tubulosa (Sars, 1835) [*S. mirabilis*, *Coryne*, *Syncoryne*]	7, 16, 49		aanambp	M, bt-p	249, 319, 352, 389
Moerisiidae					
Odessia maeotica (Ostroumoff, 1896) [*Ostroumovia*, *Pontia*, *Moerisia*]	7, 71, 78		lm, ? Rc	M-B, 25‰, bt-p, ■	297, 299, 300, 319, 373, 374, 376, 383
Moerisia inkermanica Paltschikowa-Ostroumowa, 1925 [*Ostroumovia*]	*69, 71, *79, 84, 88		amip	M-B-L, 40‰, bt-p	249, 317, 374, 376, 386, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Protohydridae					
Protohydra leuckarti Greeff, 1870 [*P. squamata*]	*79, 96	0-1	cbm	M, 7‰, bt	249, 378, 389
Leptothecata (Conica)					
Aglaopheniidae					
Aglaophenia pluma (Linnaeus, 1767)	7, 16	0-100	amwp	M, bt, eb	91, 249, 295, 389
Kirchenpaueriidae					
Kirchenpaueria halecioides (Alder, 1859) [*Plumularia*]	7, 24		SK	M, bt, eb	249, 389
Blackfordiidae					
Blackfordia virginica Mayer, 1910 [*Campanulina pontica*]	71, *79, 84, *86, 88		nami, i	M, 7‰, bt-p, sl, is	160, 249, 374, 389
Campanulinidae					
Opercularella lacerata (Johnston, 1847) [*Campanulina tenuis*]	7	0-20	bam	M, bt, ep	249, 295, 389
Phialella quadrata (Forbes, 1848) [*Campanulina repens*]	29, 49	-10	amip, ? SK	M, bt-p, ep	249
Sertulariidae					
Sertularella polyzonias (Linnaeus, 1758)	3, 7, 12, 16	0-100	SK, ? K	M, bt, eb	67, 91, 249, 295, 389
Filifera					
Bougainvilliidae					
Garveia franciscana (Torrey, 1902) [*Bougainvillia megas*, *Perigonimus*]	*69, 84		cst, amip, i	M, bt, eh, l, is	102, 249, 252, 295
Bougainvillia muscus (Van Beneden, 1844) [*B. ramosa*, *Perigonimus*]	7		amip, ? SK	M, bt-p	249, 295, 389
Oceaniidae (Clavidae)					
Clava multicornis (Forskål, 1775) [*C. squamata*]	7		bam	M-B, bt, mc, ro	295, 389
Cordylophora caspia (Pallas, 1771) [*C. lacustris*]	58, *68, *69, *78, *79, 84, 88, 93, 94, 96		namnz, i, Rc, ? SK	B, eh, 0.1-20‰, bt	84, 249, 374, 389
Eudendriidae					
Eudendrium ramosum (Linnaeus, 1758) [*Tubularia*]	7	-10	SK	M, bt, eb	249, 298, 389
Eudendrium cf. *merulum* Watson, 1985	7	0-1, 15	amiswp	M, bt, ro, r	321
Hydractiniidae					
Hydractinia carnea Sars, 1846 [*Podocoryna*]	5, 7, *69	0-70	amwp	M, 12‰, bt-p, eb	67, 84, 249, 317, 319, 331, 374, 389
Rathkeidae					
Rathkea octopunctata (Sars, 1835)	7, 29		cbma, (? i)	M-B, p (bt), c	160, 249, 319, 389
Limnomedusae (Limnopolypae)					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Microhydrulidae					
Microhydrula pontica Valkanov, 1965			clm	M, 10-20‰, bt	391, 392
Olindiasidae (Olindiidae)					
Craspedacusta sowerbyi Lankester, 1880 [*C. ryderi*]	34		(k), i	L, is, bt-p	386, 389
? *Olindias phosphorica* (Delle Chiaje, 1841)	96		lm	M, p, r	281
? *Maeotias marginata* (Modeer, 1791) [*M. inexpectata*]			clm	M-B, p	281
Proboscoida					
Campanulariidae					
Orthopyxis integra (MacGillivray, 1842) [*Campanularia integriformis*]	7, *69	1-60	amip, ? K	M, bt, eb, r	249, 295, 374, 389
Campanularia volubilis (Linnaeus, 1758) [*C. v.* var. *urceolata*, *C. urceolata*]	11, 12, 16	5-100	amp	M, bt, eb	91, 249, 389
Clytia hemisphaerica (Linnaeus, 1758) [*C. johnstoni*, *Campanularia*]	3, 11, 12, 16	0-15	amp, ? SK	M, bt-p, ph, ro	67, 91, 249, 389
Gonothyraea loveni (Allman, 1859) [*Laomedea*, *Obelia*]	3, 7	0-30	bamswp, ? K	M, bt, ep-mb	68, 249, 295, 389
Hartlaubella gelatinosa (Pallas, 1766) [*Laomedea bicuspidata*, *Obelia*]	7		amp	M, bt, r	84, 249, 389
Laomedea angulata Hincks, 1861 [*Obelia*]	7, *69		am	M, 12‰, bt, r	84, 249, 389
Obelia longissima (Pallas, 1766) [*Laomedea*]	7	0-100	SK	M, bt-p, eb	84, 160, 249, 389
SCYPHOZOA					
Semaeostomeae					
Ulmaridae					
Aurelia aurita (Linnaeus, 1758)	1-22, 29, 69, 84, 88	0-100	K	M, p	91, 160, 287, 319, 374, 389
Rhizostomeae					
Rhyzostomatidae					
Rhizostoma pulmo (Macri, 1778)	1-22, 29, *69		namrs	M, p	91, 160, 287, 319, 374, 389
Stauromedusae					
Kishinouyeidae					
Lucernariopsis campanulata Lamouroux, 1815 [*Lucernaria*]	12, 21, 24	0-20	clm	M, bt, ep, slc, ph	91, 249, 389
ANTHOZOA: HEXACORALIA					
Actiniaria					
Actiniidae					
Actinia equina (Linnaeus, 1758) [*A. e.* var. *zonata*]	1-22, 24, 69	0-38	eamiwp	M, bt, ep, lr, slr, sg	31, 91, 249, 295, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Diadumenidae					
? *Diadumene lineata* (Verrill, 1869) [? *Actinothoe clavata*]	24, 49	0-15	SK, i	M-B, bt, 0.5-35‰, is	355
Sagartiidae					
Actinothoe clavata (Ilmoni, 1830) [*A. angulicoma*, *Cyliste viduata*]	7, 12, 13, 16, 25, 26, 69	1-20	clm	M, bt, ep, mc, sg, s	84, 91, 249, 295, 389
Ceriantharia					
Cerianthidae					
Pachycerianthus solitarius (Rapp, 1829) [*Cerianthus vestitus*]	2	60-175	lm	M, bt, shb, phs	249
CTENOPHORA					
Atentaculata					
Beroida					
Beroidae					
Beroe ovata Bruguière, 1789	1-22, 29		amiwp, i	M, p, is	160, 162, 200
TENTACULATA					
Cydippida					
Pleurobrachiidae					
Pleurobrachia rhodopis Chun, 1879 [*P. pileus*, *P. rhdodactyla*]	7, 10-17, 29, *69	0-100	● p	M, p, eb	91, 317, 319, 374
Lobata					
Bolinopsidae					
Bolinopsis vitrea (L. Agassiz, 1860)	3, 7, 29		cst, amip, ? i	M, p	292, 355
Mnemiopsis leidyi A. Agassiz, 1865 [*Leucothea multicornis*, *Mnemia maccradyi*]	1-22, 29, 69	0-25	vck, ? K, i	M, p, is, sb	65, 160, 194, 195, 196, 197, 199, 201
PLATHELMINTHES					
Turbellaria					
Acoela					
Convolutidae					
Convoluta hypparchia Pereyaslawzewa, 1893 [*C. festiva*]	7, *69, *79		m	M, bt	84, 374
Otocelididae					
Otocelis rubropunctata (Schmidt, 1852) Diesing, 1862	7, 25, 26	-18	neamj	M, bt, pe-ps, ep	386
Tauriididae					
Taurida fulvomaculata (Ax, 1959) [*Convoluta*]	7		m	M, bt, ep, ps	392
Macrostomida					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Macrostomidae					
Macrostomum appendiculatum (O. Fabricius, 1826)	77		clm	? B-L, 50‰, bt, eh	374, 389
Polycladida					
Leptoplanidae					
Leptoplana tremellaris (Müller, 1774) Örsted, 1843	5, *69, 84, *86		ce	M, bt	67, 374
Prosthiostomidae					
Prosthiostomum siphunculus (Delle Chiaje, 1818) Lang, 1884	3		clm	M, bt	67, 389
Stylochidae					
Stylochus tauricus Jakubova, 1909 [*Stycoplana*]	5		m	M, bt	67, 389
Rhabdocoela					
Dalyelliidae					
Gieysztoria expedita (von Hofsten, 1907) [*Dalyellia*]	*68, 71, 76, *86, 88		(pat)	L, 12‰, bt	374, 389
Karkinorhynchidae					
Baltoplana valkanovi Ax, 1959	7		m	M, 12‰, bt	392
Polycystididae					
Acrorhynchides reprobatus (Pereyaslawzewa, 1892) Strand, 1928 [Graff, 1905]	*69		m	M, bt	374, 389
Gyratrix hermaphroditus Ehrenberg, 1831 [*Gyrator*]	*68, *69, 71		SK	M-L, 5‰, bt, eh	374, 389
Polycystis naegellii Kölliker, 1845	7, 24		clm	M, bt	203, 252
Rogneda minuta Uljanin, 1870 [*Polycystis*]	*69		clm	M, 12‰, bt, ph-ps	374, 389
Rogneda polyrhabdota Ax, 1959	7		m	M, bt	392
Promesostomidae					
Promesostoma marmoratum (Schultze, 1851) v. Graff, 1882	*69, *79		bam	M, 8‰, bt	374, 389
Seriata					
Coelogynoporidae					
Coelogynopora biarmata Steinböck, 1924	7, 25, 51	1-2	clm, ? bam	M, bt, sep, sls, ps, eh	203, 249, 388, 389
Coelogynopora tenuiformis Karling, 1966	7, 25, 51		pnep	M, bt, sls, ps, r	203, 252
Monocelididae					
Archilina endostyla Ax, 1959	7, 25, 51	0.5-2	m	M, bt, sep, sls, ps	203, 252
Monocelis longiceps (Dugès, 1830)	*69		clm	M, 2‰, bt	374, 389
Pseudomonocelis ophiocephala (Schmidt, 1861), Meixner, 1943	7, 25, 51	1-2	m	M, bt, sep, sls, ps	203, 252
Otoplanidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Archotoplana holotricha Ax, 1956	6, 7, 51		m, ? cm	M, bt, ep, sls, ps	203, 252
Otoplana bosporana Ax, 1959	7		m	M, bt, ep, sls, ps	392
Parotoplanella progermaria Ax, 1956	6, 7, 51	0-1	m, ? lm	M, bt, sep, ls, sls, ps	203, 252
Postbursoplana fibulata Ax, 1955	6, 7, 25	2	m, ? lm	M, bt, sep, sls, ps	203, 252
Postbursoplana pontica Ax, 1959	7		● p	M, bt	392
Pseudosyrtis subterranea (Ax, 1951) Ax, 1956 [*Otoplana*]	7, 35		clm	M-B, bt, sep, ls, ps	389
Triporoplana synsiphonioides Ax, 1956	7, 25, 51	0.5	lm	M, bt, sep, sls, ps	203, 252
Dendrocoelidae					
Dendrocoelum lacteum (Müller, 1774)	58, *68		(h)	L, 2‰, bt, ph	206, 374, 389
Dugesiidae					
Dugesia polychroa (Schmidt, 1861) [*Planaria*]	*68		(h)	L, 0.5‰, bt	374, 389
NEMERTINI					
Anopla					
Palaeonemertini					
Cephalothricidae					
Cephalothrix arenaria Hylbon, 1957			clm	M, bt, ps	249
Cephalothrix linearis (Rathke, 1799) [*C. bioculata*]	27, 28	40-120	bam	M, bt, shb, s	249
Cephalothrix rufifrons (Johnston, 1837)	27, 28	40-120	clm	M, bt, shb, s	249
Tubulanidae					
Carinina heterosoma G. I. Müller, 1965	26, 27	5-70	● p	M, bt, s, ep-mb	249
Heteronemertini					
Cerebratulidae					
Cerebratulus marginatus Renier, 1804	27, 28	40-120	abambp	M, bt, phs, shb, s	249
Cerebratulus ventrosulcatus Bürger, 1892	26, 27, 28	6-120	m	M, bt, s, eb	249
Lineidae					
Lineus bilineatus (Renier, 1804)			bambp	M, bt, sl	249
Lineus ruber (O. F. Müller, 1774)	49		nam	M, bt, sl, mc, ro	249
Ramphogordius lacteus Ratke, 1843 [*Lineus*]	*69	2-65	clp, ? clm	M, bt, mb-eb	249, 374, 389
Notospermus geniculatus (Delle Chiaje, 1828) [*Lineus*]			lmnz	M, bt	249
Micrura fasciolata Ehrenberg, 1828	1-22, 27, 28	18-125	clm	M, bt, mb-eb, s	249
Pontolineus arenarius Müller et Scripcariu, 1964	25	8-16	● p	M, bt, sep, sls, ps	249

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Pussylineus gabriellae Corrêa, 1956			m	M, bt	249
Enopla					
Hoplonemertini					
Amphiporidae					
Amphiporus bioculatus McIntosh, 1874			bap, ? bam	M, bt	249
Amphiporus lactifloreus (Johnston, 1828)			bam	M, bt, sl	249
Zygonemertes maslovskyi (Czerniavsky, 1880)	50		● p	M, bt, lr	249
Cratenemertidae					
Nipponnemertes pulchra (Johnston, 1837) [*Amphiporus*]			baap	M, bt	249
Emplectonematidae					
Emplectonema gracile (Johnston, 1837) [*Eunemertes*]	3, 24	0-10	bambp	M, bt, ep, ro	67, 249, 389
Ototyphlonemertidae					
Ototyphlonemertes antipai G. I. Müller, 1968	51	0.2-1	● p	M, bt, ls, sep	249
Tetrastemmatidae					
Prostoma graecense (Böhmig, 1892) [*Tetrastemma*]	*68, *69		(sk)	L-B, 1‰, bt	374, 389
Tetrastemma bacescui G. I. Müller, 1962	5, 24	0.5-8	● p	M, bt, lr, slr, ep	249
Tetrastemma candidum (O. F. Müller, 1774) [*Prostoma*]	3, 5	0-55	anamp	M, bt, mb	67, 249, 389
Tetrastemma coronatum (Quantrefages, 1846)	26, 27	4-40-120	clm	M, bt, s, hb-eb	249
Tetrastemma longissimum Bürger, 1895 [? nom. dubium]			clm	M, bt	249
Tetrastemma melanocephalum (Johnston, 1837)	3, 5, 27	40-70	neaminz	M, bt, s, mb-eb	67, 249
Tetrastemma vermiculus (Quantrefages, 1846) [*Prostomatella*]	24	0-40	nam	M, bt, slr, mb	249
GASTROTRICHA					
Chaetonotoidea					
Chaetonotidae					
Aspidiophorus mediterraneus Remane, 1927	7, 51	0.5-2	namsep	M, bt, sep, ls, eh	315, 389, 390
Chaetonotus maximus Ehrenberg, 1831	24, 35, 49		K	M (B-L), bt, eh, l, ls	249
Chaetonotus similis Zelinka, 1889	96		(k)	L-B, 8-18‰, bt	249
Halichaetonotus decipiens Remane, 1829 [*Chaetonotus*]	7, 35		nam	M, gw, ls	315, 389
Halichaetonotus marinus (Giard, 1904) [*Chaetonotus pleuracanthus*]	16, 35		clm	M, gw, ls, r	249, 389
Heterolepidoderma marinum Remane, 1926	16 , 51		clm	M, bt, l, sl	249, 389
Xenotrichulidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Heteroxenotrichula pygmaea Remane, 1934 [*Xenotrichula*]	7, 35		nap, ? SK	M, gw, ls, eh	249
Xenotrichula intermedia Remane, 1934 [*X. beauchampi*]	12, 16, 18, 35		nam, ? SK	M, gw, if, ls, eh	249, 389, 390
Macrodasyoidea					
Dactylopodolidae					
Dendrodasys ponticus Valkanov, 1957	7, 35		pm	M, gw, if, ls	249, 389, 390
Macrodasyidae					
Macrodasys africanus Remane, 1950 [*M. a.* var. *ponticus* Valkanov, 1957]	7, 25, 35, 51	0-2	api	M, ep, gw, ls	249, 315
Thaumastodermatidae					
Acanthodasys aculeatus Remane, 1927	16, 25, 51	0-6	namni	M, bt, ep, ls, sls	315, 389, 390
Turbanellidae					
Turbanella cornuta Remane, 1925	7, 25, 35, 51	0-6	clm	M, bt, eh, ep, ls, sls	249, 389, 390
Turbanella pontica Valkanov, 1957	7, 35, 51		• p	M (B), gw, ps, ls	249, 315, 390
NEMATODA (NEMATA)					
Adenophorea					
Enoplida					
Anoplostomatidae					
Anoplostoma viviparum (Bastian, 1865)	7, 25, 27, 28	10, 120	kclm	M, bt, sl, ps-s, ms-phs	121, 344
Anticomidae					
Anticoma acuminata (Eberth, 1863) Stekhoven, 1950	7		aminz	M, bt	121
Enchelidiidae					
Symplocostoma ponticum Filipjev, 1918	7, 25	12-40-	m	M, bt, mb, sl, ps-s	252, 347
Symplocostoma tenuicolle (Eberth, 1863) [*S. longocolle*]	7, 23, 24, 25, 76		amswp	M, bt, eb, slc-zc, ps-s	121, 341, 344
Polygastrophora hexabulba (Filipjev, 1918)	16, 25	8-9	mnz, ? amnz	M, bt, ep, sl, ps	252, 341, 344
Eurystomina ornata (Eberth, 1863)	7, 16, 24		bam	M, bt, ph	341, 344
Eurystomina assimilis (de Man, 1876)	7, 23, 24, 25, 27		namrs	M, bt, ph	121, 341, 344
Enoplidae					
Enoplus littoralis Filipjev, 1918	1-22, 35, 46, 49, 51	0.2-0.4	clm	M, bt, l, ps, gw	341, 344
Enoplus maeoticus Filipjev, 1916	1-22, 35, 51		em, ? m	M, bt, l, ps, gw	344
Enoplus quadridentatus Berlin, 1853 [*E. euxinus*, *E. hirtus*]	7-16, 24, 25	4, 80	clm	M, bt, ep, slc, ph, ps-s	121, 344, 389
Enoplus schulzi Gerlach, 1952	7, 13, 35		cp	M, bt, l, gw, if	363
Ironidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Trissonchulus benepapillosus (Schulz, 1935) [*Dolicholaimus*, *Syringolaimus*]	7, 35		namni	M, bt, l, gw, if	362, 386, 389
Trissonchulus oceanus Cobb, 1920 [*Dolicholaimus nudus*]	7, 35		cm	M, bt, l, gw, if	362
Dolicholaimus platonovae Stoikov, 1979	7, 35, 51		● p	M, bt, l, ls, ps, gw	343, 344
Syringolaimus caspersi Gerlach, 1951	7, 76		cp	M, bt, eh-70‰, s, sls	121, 344, 389
Leptosomatidae					
Leptosomatides euxinus Filipjev, 1918	3, 28	25-, 200	cp	M, bt, shb, s-phs	252, 347
Leptosomatum sabangense Steiner, 1915 [*L. bacillatum*, *Phanoglene*]	10, 28	0-10-90	aanamip	M, bt, eb, phs, s	252, 338, 344
Leptosomatum punctatum (Eberth, 1863)	3, 28	60-100	m	M, bt, hb, s-phs	252, 347
Pseudocella saveljevi (Filipjev, 1927) [*Enoploides*]	7, 25, 51		cp	M, bt, l, ls, sls	344
Oncholaimidae					
Viscosia cobbi Filipjev, 1918	16, 20, 25	8-10, 150	clm	M, bt, ep-eb, sls, s	252, 338, 344
Viscosia glabra (Bastian, 1865)	7, 25	5-10, 120	cclm	M, bt, ep-eb, sls, ps	121, 344
Viscosia minor Filipjev, 1918	7, 25		● p	M, bt, sls, ps, r	344
Pontonema zernovi (Filipjev, 1916) [*Oncholaimus vulgaris*, *Parancholaimus*]	25, 27	-60, 150	● p	M, bt, eb-mb, ps, s	341, 344
Oncholaimellus mediterraneus Stekhoven, 1942	13, 35		cm, ? clm	M, bt, l, ps, gw, if	362
Oncholaimus brevicaudatus Filipjev, 1918	7, 35, 51	230	calm	M, bt, l, sl, ps, gw	340, 344
Oncholaimus campylocercoides De Koninck & Schuurmans Stekhoven, 1933	2, 35, 51	80-150	cclm	M, bt, l, ls, ps, gw	121, 340, 344
Oncholaimus conicauda Filipjev, 1929	7, 35, 51	0.3-1	clmnwi	M, bt, 12‰, l, ps, gw	252, 341, 344
Oncholaimus dujardinii de Man, 1878	3, 7, 25, 35, 51	0-8, -230	namnz	M, bt, mb, ls, sls, gw	121, 344
Oxystominidae					
Oxystomina clavicauda (Filipjev, 1918)	16, 25	20	● p	M, bt, ep, sls, ps	341, 344
Oxystomina elongata (Bütschli, 1874) [*Oxystomatina*]	7, 25	10-25	cclm	M, bt, ep, sls, ps, s, ar	341, 344
Halalaimus ponticus Filipjev, 1922	3, 28	68, -100	● p	M, bt, hb, s-phs	252, 347
Nemanema filiforme (Filipjev, 1918) [*Oxystoma*]	10, 27	40	em	M, bt, mb, sl, pe, s, ps	252, 347
Rhabdodemaniidae					
Rhabdodemania pontica Platonova, 1965	27, 28	30-150	● p	M, bt, shb, ms, phs	344
Thoracostomopsidae					
Enoploides amphioxi Filipjev, 1918	25	8-9	em	M, bt, eb, eu, ps-pe	341, 344
Enoploides alexandrae Uzunov, 1974	6, 7, 35	0.8	● p	M, bt, l, ps, gw, r	344, 361
Enoploides brevis Filipjev, 1918	28	75-120	● p	M, bt, shb, phs, ms	344
Enoploides cirrhatus Filipjev, 1918 [*Brachionus*]	7, 12, 16, 25, 27, 28	0-60	cp	M, bt, eb, l, sl, eu	341, 344

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Enoploides fluviatilis Mikoletzky, 1923 [*Brachionus*]	58, 59, 60		? p	M-B, bt, 0.5-2‰	338
Enoploides hirsutus Filipjev, 1918	10, 27, 28	4-100	● p	M, bt, sl, eb, eu, s	252, 344
Mesacanthion conicum (Filipjev, 1918) [*Enoplolaimus*]	7, 25, 27, 28	80	● p	M, bt, sl, eu, ps-pe	252, 347
Oxyonchus dubius (Filipjev, 1918) [*Enoplolaimus*]	17, 28		em	M, bt, sl, phs	252, 347
Tobrilidae					
Tobrilus gracilis (Bastian, 1865) [*Trilobus*]	*68, *79, 88		(e)	L, bt, 3‰	374, 389
Tripyloididae					
Tripyloides marinus (Bütschli, 1874)	7, 23, 28, 33	0-100	bam	M, bt, eb, eu, l, sl, s	121, 389
Bathylaimus australis Cobb, 1894 [*B. assimilis*, *B. ponticus*]	7, 25		am, ? ham	M, bt, ps	121, 344
Bathylaimus cobbi Filipjev, 1922	10, 25, 27, 28	-100	● p	M, bt, eb, ms, phs, ps	341, 344
Bathylaimus filipjevi Stoikov, 1976 ?	7, 35	0.4	● p	M, bt, ps, ls, gw	340, 344
Dorylaimida					
Dorylaimidae (Qudsianematidae)					
Dorylaimus otmanliensis Uzunov, 1974	13		● p	M, bt, l, ps, gw, if	361
Dorylaimus stagnalis Dujardin, 1845	58, 59, 60		(e)	L, bt, 0.5-2‰	337
Eudorylaimus carteri (Bastian, 1865)	58, 59, 60		(e)	L-T, bt, 0.5-2‰	337
Eudorylaimus filipjevi (Gerlach, 1951) [*Dorylaimus*]	7, 24		● Er, p	M, bt, sl, ph	121
Crocodorylaimus flavomaculatus (von Linstow, 1876) [*Laimidorus*]	58, 59, 60		(e)	L, bt, 0.5-2‰	337
Chromadorida					
Ceramonematidae					
Pselionema annulatum (Filipjev, 1922) [*Ceratonema*, *Steineria*]	3, 28	80-100	namsp	M, bt, shb, phs	252, 347
Chromadoridae					
Chromadorina bioculata (Schultze, 1857) [*Chromadora*]	*68		cp, (csee)	M-L, bt, 1‰	374, 389
Chromadora nudicapitata (Bastian, 1865) [*Ch. quadrilineata*]	7, 24		amnz	M, bt, slc, ps	121
Chromadorita demaniana Filipjev, 1922	25	80	cp, ? clp	M, bt, sl, ps	121, 389
Chromadorita leuckarti (de Man, 1876)	7	-15, -140	cp	M, bt, ep, sl, ps	121, 344, 389
Dichromadora cephalata (Steiner, 1916) [*Chromadora cricophana*]	7, 12, 25, 35, 51	0-2	clpnz	M, bt, eh, l, sl, ps, gw	252, 338, 344
Hypodontolaimus balticus (Schneider, 1906)	11, 35		bap	M, bt, l, sl, ps, gw	252, 362
Neochromadora poecilosomoides (Filipjev, 1918) [*Chromadora*, *Dichromadora*]	7, 51	-140	clm, ? vclm	M, bt, l, ps, slc, zc	252, 347
Neochromadora sabulicola (Filipjev, 1918) [*Chromadora*]	3, 7, 10, 20, 24, 25	120	p, ? cp	M, bt, eb, pe, ph, ps	252, 342, 344
Ptycholaimellus ponticus (Filipjev, 1922) [*Hypodontolaimus*]	7, 25, 35, 51	0.6-1, 50	clm, ? cclm	M, bt, l, sl, ps, gw, r	344

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Spilophorella euxina Filipjev, 1918	7, 25	150	em	M, bt, sl, ps, eb	121, 389
Cyatholaimidae					
Cyatholaimus gracilis (Ebert, 1863) [*C. demani*]	7-16, 24, 25, 26, 27, 28	-100, 120	clm	M, bt, eb, ph, ps, s, r	121, 344
Paracanthonchus caecus (Bastian, 1865) [*P. abnormis*, *Cyatholaimus*]	3, 7, 10, 13, 20, 27, 35	0-73, 150	namnz	M, bt, eb, eu, ph, ps, s	342, 344, 362
Ethmolaimidae					
Ethmolaimus multipapillatus Paramonov, 1926	76		● p	M, bt, eh-70‰,	121, 389
Desmodoridae					
Acanthopharynx similis (Algén, 1932) [*Desmodora*, ? *Sabatieria ornata*]	11, 35		pinz	M, bt, l, ps, gw, if	362
Chromaspirina pontica Filipjev, 1918	16, 25		cm	M, bt, sls, slc, zc, ps	252, 341, 344
Desmodora pontica (Filipjev, 1922)	3, 10, 25, 27, 28		clm	M, bt, eb, eu, ps, pe, r	252, 344
Prodesmodora circulata (Micoletzky, 1913)	58, 59, 60		lm, (e)	M-B, bt, 0.5-2‰	337
Metachromadora arenaria Stoikov, 1979	25	8-9	● p	M, bt, ep, ps, sls	343
Metachromadora cystoseirae Filipjev, 1918 [? Gerlach et Riemann, 1973]	24		● p	M, bt, sl, slc	252, 347
Metachromadora macroutera Filipjev, 1918	16, 25	8-9, 35	● p	M, bt, ep-mb, sl, sls	252, 338, 344
Onyx perfectus Cobb, 1891	7, 25	15-17	clm	M, bt, ep, sl, sls	252, 347
Spirinia parasitifera (Bastian, 1865) [? *S. zosterae* Filipjev, 1918]	7, 24	3.5	namim	M, bt, ep, sls, slc, zc	252, 344
Spirinia sabulicola (Filipjev, 1918)	3, 10, 17, 27, 28		● p	M, bt, eu, ms, phs, r	252, 344
Desmoscolecidae					
Desmoscolex laevis Kreis, 1938 [*D. minutus*]	7, 78	1-100	namim	M, bt, eb, eh, s, phs	252, 344, 347
Tricoma bacescui (Paladian & Andriescu, 1963) [*Desmoscolex*, *Qadricoma*]	28	75-120	● p	M, bt, shb, phs, r	252, 344
Epsilonematidae					
Bathyepsilonema pustulatum Gerlach, 1952 [*Epsilonema pustulatum ponticum*]	7, 35, 51	0.2-0.6	cm, ? clm	M, bt, l, ls, gw, r	252, 344
Leptolaimidae					
Camacolaimus pontolittoralis Uzunov, 1977	11, 35		● p	M, bt, ls, gw	362
Meyliidae					
Quadricoma eurycricus (Filipjev, 1922) [*Desmolorenzenia*, *Desmoscolex*]	10, 11, 25, 28	5-90	● p	M, bt, eb, sls, phs	252, 344, 347
Quadricoma loricata Filipjev, 1922 [*Tricoma*]	10, 28	50-100	● p	M, bt, hb, phs, s	252, 344
Quadricoma steineri Filipjev, 1922 [*Tricoma euxinica*]	7, 25	-50	● p	M, bt, mb, ps-pe	252, 347
Monoposthiidae					
Monoposthia costata (Bastian, 1865)	23, 24, 25		ami	M, bt, ep, l, sl, ph	252, 344, 347
Nudora steineri (Steiner, 1921)	13, 35		cp	M, bt, l, gw, if, ps	252, 362

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Selachinematidae					
Choanolaimus psammophilus de Man, 1880	11, 35		clm	M, bt, l, gw, if, ps	252, 362
Halichoanolaimus dolichurus Ssaweljev, 1912 [*Hypodentolaimus filicauda*]	7, 24	1-4, 140	clm	M, bt, slc, ph, phs, r	252, 344
Halichoanolaimus robustus (Bastian, 1865) [*H. clavicauda*]	7, 25	6-10, 150	neaminz	M, bt, sep, sls, ps	252, 338, 344
Monhysterida					
Axonolaimidae					
Axonolaimus ponticus Filipjev, 1918	1-22, *68, 71, *78, *79, 84, 88, 93, 94	0-100	clm	M, bt, eh-1-20‰, sl, eb, eu, ps, pe, ph	121, 338, 344, 374, 389
Axonolaimus setosus Filipjev, 1918	7, 24, 25	-40	clm	M, bt, mb, ps, pe, slc	252, 344
Comesomatidae					
Comesoma stenocephalum Filipjev, 1918	3, 7, 10, 20, 27, 28		● p	M, bt, ms, phs, sls, eu	252, 344
Sabatieria abyssalis (Filipjev, 1918)	10, 27, 28	50-100	mni	M, bt, hb, ms, phs, pe	252, 338, 344
Sabatieria celtica Southern, 1914 [*S. cupida*]	7, 25, 26, 76	8	amnep, ? ce	M, bt, sls, s, ps, pe	252, 338, 344
Sabatieria pulchra (Schneider, 1906) [*S. vulgaris*]	24, 25	6-10	aam	M, bt, ep, sl, ps, ph	252, 338, 344
Linhomoeidae					
Paralinhomoeus filiformis (Filipjev, 1918) [*Linchomoeus*]	25, 28	20-100	cp	M, bt, hb, sls, phs	252, 347
Paralinhomoeus tenuicaudatus (Bütschli, 1874) [*P. ostraearum*]	7, 25, 76		clm	M, bt, sls, ps, phs, r	252, 344
Terschellingia longicaudata de Man, 1907 [*T. antonovi*]	7, 10, 25, 26		aamni	M, bt, hb, pe, ph, ps	252, 338, 344
Terschellingia pontica Filipjev, 1918	7, 26, 27, 28	15-100	● p	M, bt, eb, sl, s, pe	252, 341, 344
Monhysteridae					
Monhystera ampullocauda Paramonov, 1926	51		● p	M, bt, ps, ls	344
Monhystera collaris Filipjev, 1922	7, 26		p	M, bt, sl, pe, s, (sls), r	252, 344
Monhystera filiformis Bastian, 1865	7, 76		clm, ? K	M, bt, eh-0-70‰, eu	3, 121, 344, 389
Monhystera parva (Bastian, 1865) [*M. antarctica*, *M. heteroparva*, *M. kessinensis*]	7		amni	M, bt	121, 389
Monhystera rotundicapitata Filipjev, 1922	7, 24	-10	● p	M, bt, ep, sls, slc	252, 342, 344
Sphaerolaimidae					
Sphaerolaimus macrocirculus Filipjev, 1918	10, 25, 27, 28	59	clm	M, bt, hb, s, pe, (ps)	252, 342, 344
Sphaerolaimus ostreae Filipjev, 1918 [*S. maeoticus*]	7, 25, 27	59	em, ? cm	M, bt, mb, ps, pe, r	252, 341, 344
Xyalidae					
Daptonema oxycerca (de Man, 1888) [*Monhystera*, *Theristus*]	7, 25		bam	M, bt, sep, sls	121, 389
Paramonhystera elliptica Filipjev, 1918 [*P. setosa*, *Leptogastrella*]	7, 25		lm, ? clm	M, bt, sl, ps, pe, ph	121, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Theristus littoralis Filipjev, 1922	35, 46		● p	M, bt, l, sp, gw, if	252, 363
Theristus longicaudatus Filipjev, 1922	17, 20, 25		ccp	M, bt, sls, ps	525, 344
Mononchida					
Mononchidae					
Mononchus truncatus Bastian, 1865	58, 59, 60		(e, ? k)	L, 0.5-2‰, bt	337
Secernentea					
Diplogasterida					
Diplogastridae					
Diplogaster rivalis (Leyding, 1854)	*68, *69, 93		(e)	L, 3‰	374, 375, 389
Rhabditida					
Rhabditidae					
Rhabditis marina Bastian, 1865	11, 35		namnz, (e)	M (L), bt, l, gw, if	252, 362
Tylenchida					
Criconematidae					
Mesocriconema xenoplax (Raski, 1952)	48, 76		(ea, ? ha)	T	119
CEPHALORHYNCHA					
Kinorhyncha					
Cyclorhagida					
Centroderidae					
Centroderes spinosus (Reinhard, 1881) [*Echinoderes*]	1-22	-128	lm	M, bt, shb, phs, pe	229, 249
Echinoderidae					
Echinoderes agigens Bacescu, 1968 [*E. dujardinii*]	1-22, 24, 25, 35	1-8, 80	m	M, bt, ep, gw, if, s, slr	229, 249
Homalorhagida					
Pycnophyidae					
Pycnophyes kielensis Zelinka, 1928	25, 26	15-	clm	M, bt, sl, ps-pe, s	229, 249
Pycnophyes ponticus (Reinhard, 1881) [*Echinoderes*]	1-22, 26, 27	10-40	m	M, bt, mb, s, pe	229, 249
ROTIFERA (ROTATORIA)					
Eurotatoria					
Adinetida					
Adinetidae					
Adineta barbata Janson, 1893	96		(sk)	L, l	209, 374

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Adineta vaga (Davis, 1873)	96		(k)	L, 10‰	106, 209, 389
Philodinida					
Habrotrochidae					
Habrotrocha angusticollis (Murray, 1905)	96		(k)	L	209, 373
Philodinidae					
Philodina citrina Ehrenberg, 1832	59, 60, *68		(k)	L, 2.3‰, l, ph	209, 280, 374, 389
Philodina roseola Ehrenberg, 1832 [*Ph. cinnabarina*]	33, 60, 96		lmnz, (k)	M-L, l, p, ph	106, 209, 389
Rotaria citrina (Ehrenberg, 1838)	96		(sk)	L-B, l	209
Rotaria rotatoria (Pallas, 1766) [*Rotifer vulgaris*]	*68, *79, *86, 96		(k), ? lmnz	L-B, 10‰, l, ph	209, 374, 389
Rotaria tardigrada (Ehrenberg, 1832)	49		? lm, (k)	L-B, 18‰, p, l, ph	146, 209
Ploima					
Asplanchnidae					
Asplanchna girodi de Guerne, 1888	78		(k)	L-B, p	209, 293
Asplanchna priodonta Gosse, 1850	77, 78, 79		? ace, (k)	L, 17.3‰, p, eu, sw	192, 193, 209, 293
Asplanchna sieboldii (Leydig, 1854)	59, 60		(k)	L, 5‰, p	280
Brachionidae					
Anuraeopsis fissa Gosse, 1851 [*A. hypelasma*]	60, *69, 71		? lmnz, (k)	L-B, 5‰, p	209, 280, 374, 389
Brachionus angularis Gosse, 1851	58, 59, 60, *68, *69, 77, 78, 79, 80, 96		ham, (k)	L-B, 5‰, p, sw	193, 209, 280, 293, 374, 389
Brachionus bennini Leissling, 1924	78		(sk)	L, p, sw	209, 293
Brachionus budapestinensis Daday, 1885 [*B. similis*]	96		(ppta, ? k)	L, sw	209
Brachionus calyciflorus Pallas, 1776 [*B. amphiceros*, *B. dorcas*, *B. pala*]	58, 59, 60, *68, *69, 71, 77, 78, 79, 80, 96		? ham, (k)	L, 5‰, p, sw	160, 190, 193, 209, 278, 293. 374, 389
Brachionus diversicornis (Daday, 1883)	58, 78		clm, (sk)	L, p, sw	209, 278, 293
Brachionus falcatus Zacharias, 1898	59		(? sk)	L, p, sw	280
Brachionus forficula Wierzeyski, 1891	60		(ppta)	L, p, sw	280
Brachionus leydigii Cohn, 1862	59, 60, 96		(ppta)	L, p, sw	209, 280
Brachionus plicatilis Müller, 1786 [*B. mülleri*]	29, 33, 49, 58, 62, 64, *68, *69, 76, 77-*79, 84, *86, 88		ham, (k)	M-B, 6-20‰, eh, p	105, 106, 190, 207, 374, 389
Brachionus quadridentatus Hermann, 1783 [*B. bakeri*]	58-60, *68, 77, *86, 92, 96		ham, (k)	L, 3-16‰, l, p	209, 278, 280, 374, 389
Brachionus rubens Ehrenberg, 1838	69, 96		? kclm, (sk)	L, p	160, 209, 373

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Brachionus urceolaris Müller, 1773	58, 60, *68, 77-80, 96		bam, (k)	L, 4.3-15‰, eh, p	190, 209, 293, 374, 389
Kellicottia longispina (Kellicott, 1879)	60		ace	L, p, sw	279, 280
Keratella cochlearis (Gosse, 1851) [*Anuraea*]	7, 58, 59, 60, *68, *69, 77, 78, 79, 80		anamnp, (sk)	L-B, 10-16‰, eh, p, sw	193, 209, 278, 280, 293, 317, 319, 389
Keratella cruciformis (Thompson, 1892)	29, 96		clp, (h)	B-M, p	209, 212
Keratella hiemalis Carlin, 1943	58, 60, 96		(hnat)	L, sw	209, 280
Keratella irregularis (Lauterborn, 1898)	60, 96		(hnat, ? h)	L, sw	209, 280
Keratella quadrata (Müller, 1786) [*Anuraea aculeata*]	58-60, *68, 71, 77, 78-80, 92		ace, (k)	L, 0.5-6‰, p, sw	190, 252, 278, 280, 374, 389
Keratella tecta (Gosse, 1851)	59, 78		cpwp, (k)	L, p, sw	209, 293
Keratella testudo (Ehrenberg, 1832)	60, 96		lm, (hat)	L, p, sw	209, 280
Keratella tropica (Apstein, 1907)	58, 59, 60		lm, (k), i	L-B, is, p, sw	209, 210, 280
Keratella valga (Ehrenberg, 1834)	58, 59, 77, 79, 80, 96		lm, (k)	L-B, p, sw	193, 209, 278
Notholca acuminata (Ehrenberg, 1832) [*N. bipalium* var. *acuminata*]	60, *69, 77-*79, 85, *86, 88		neamj, (pat)	L-B, 0.1-18‰, p, sw	209, 258, 280, 374
Notholca labis Gosse, 1887	77		neamj, (dp)	L, 25-54‰, p, eh	258
Notholca squamula (Müller, 1786) [*Brachionus*]	58, 60		lmnz, (? k)	L-B, 2‰, p, sw	209, 252, 278, 280
Notholca striata (Müller, 1786) [*Brachionus*]	33, *69, *78		neamwp, (hna)	M-B-L, 10-13‰, p	105, 106, 374, 389
Dicranophoridae					
Dicranophorus bulgaricus Althaus, 1957	16, 35		● p	M, bt, ps, gw, if	2, 209, 249, 392
Dicranophorus forcipatus (Müller, 1786) [*Cercaria*, *Notommata*]	60, 96		bam, (k)	L-B, bt, l, ph	209, 280
Dicranophorus rostratus (Dixon-Nuttall & Freeman, 1902) [*Diglena coenura*]	*69		bam, (h)	L, 3‰, l	374, 389
Encentrum arenarium Althaus, 1957	16, 35		● p	M, bt, l, ps, gw, if	2, 209, 249, 392
Encentrum marinum (Dujardin, 1841) [*Furcularia*]	13, 32, 33, 35		cacpnz, (h)	M-B-L, 30‰, l, sp, if	106, 188, 209, 249, 389, 392
Encentrum psammophilum Althaus, 1957	7, 35		clp	M, bt, l, ps, gw, if	2, 209, 249, 392
Encentrum striatum Althaus, 1957	7, 34, 35		calp	M, bt, l, ps, gw, if	2, 209, 249, 392
Encentrum valkanovi Althaus, 1957	7, 35		● p	M, bt, l, ps, gw, if	2, 111, 209, 249, 392
Euchlanidae					
Euchlanis dilatata Ehrenberg, 1832	59, 60, *68, *79		namep, (k)	L, 2.5‰, p, ph, sw	209, 374, 389
Euchlanis lyra Hudson, 1886	60		(? hnata)	L, 0.8‰, p, sw	280

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Euchlanis oropha Gosse, 1887	59		(e, ? k)	L, 0.8‰, p, sw	280
Euchlanis pyriformis Gosse, 1851	77		(e, ? sk)	L, p, sw	258
Tripleuchlanis plicata (Levander, 1894)	59		namnep, (sk)	B-L, 0.8‰, p, sw	280
Lecanidae					
Lecane althausi Rudescu, 1960	35		(? sk)	L-B, l, ps, gw, if	209, 249
Lecane closterocerca (Schmarda, 1859)	58, 59, 60		cpnz, (sk)	L-B, 0.8-2‰, p, sw	209, 280
Lecane copeis (Harring & Myers, 1926) [*Monostyla*]	96		(hn)	L, p, sw	209, 372, 373
Lecane cornuta (Müller, 1786) [*Monostyla*]	*68, *69		(hn)	L, 3‰, l, ph, sw	249, 374, 389
Lecane furcata (Murray, 1913) [*Monostyla*]	58, 59, 60		(sk)	L, p, sw	209, 280
Lecane lamellata (Daday, 1893) [*Monostyla*]	76, *86, 88		(h)	L-B, 1-12‰, p	374, 389
Lecane luna (Müller, 1776) [*Cathypna*]	60, *68, *79		namnz, (? k)	L-B, 2‰, p	209, 280, 374, 389
Lecane lunaris (Ehrenberg, 1832)	59		(k)	L-B, 0.5-2‰, p	280
Lepadellidae					
Lepadella ovalis (O. F. Müller, 1786)	33		nam, (k)	L-B-M, 12‰, l	106, 209, 389
Lepadella patella (O. F. Müller, 1773) [*Metopidia oblonga*, *Squamella*]	59, 60, *68, 76, 96		antamp, ? sk	L-B, 2‰, p	209, 280, 374, 389
Lepadella pontica Althaus, 1957	7, 35		• p	M, bt, ps, sls	2, 249
Colurella adriatica Ehrenberg, 1831 [*Colurus leptus*]	13, 33, 58, 59, 60, *68, *69, *79, *86, 88, 90, 93, 94		namswp, ? SK, (k)	M-B-L, 15‰, p, l	106, 188, 209, 280, 374, 389
Colurella colurus (Ehrenberg, 1831) [*Monura loncheres*, *Colurus*]	13, 33, 35, *69, 76, *86, 88, 96		namswp, ? K, SK, (k)	M-B-L, 5-15‰, bt-p, l, gw, if	104, 106, 188, 209, 374, 389
Colurella marinovi Althaus, 1957	7, 16, 34		• p	M, bt, 12‰, l, ps	2, 209, 249, 389
? *Colurella monodactilos* Althaus, 1957 [? undetermined ciliate]	7, 25		• p	M, bt, 12‰, l, ps	2, 249, 392
Colurella obtusa (Gosse, 1886)	96		clmnz, (k)	M-B-L, p, sw	209
Colurella uncinata (Müller, 1773) [*Colurus bicuspidatus*, *Brachionus*]			namnz, (k)	M-L, 9‰, p, l, ph	209
Squatinella longispinata (Tatem, 1867) [*Stephanops*]	96		(hoa)	L-B, p	209, 373
Lindiidae					
Lindia tecusa Harring & Myers, 1922 [*Halodigma*, *Halolindia*]	49, *69		clp	M, 12-13‰, bt, l	111, 209, 249, 374
Microcodidae					
Microcodon clavus Ehrenberg, 1830	96		(h, ? k)	L, p, sw	209, 373, 374, 389
Mytilinidae					
Mytilina ventralis (Ehrenberg, 1830) [*Salpina*]	59, 60, 96		(hno)	L-B, p, 0.8‰, sw, l	209, 280

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Notommatidae					
Monommata aequalis (Ehrenberg, 1830) [*Notommata*]	*68, 96		(hnoa)	L, 1‰, p, sw	209, 372, 373, 389
Cephalodella auriculata (O. F. Müller, 1773) [*Diaschiza lacinulata*]	*68, 96		(hnoa)	L-B, bt, l, ph, sw	209, 249, 374
Cephalodella catellina (O. F. Müller, 1786)	33, 59, 60, *69, 96		K, (k)	L-B, 12‰, eh, bt, l	105, 107, 209, 249
Cephalodella gibba (Ehrenberg, 1830) [Furcularia]	96		lm, (k)	L, p	209, 389
Cephalodella hoodii (Gosse, 1886) [*Diaschiza*]	96		(ho)	L, p, ph	209, 372
Cephalodella reimanni Donner, 1950	79, 96		(hop)	L	209, 373, 374
Cephalodella ventripes (Dixon-Nuttall, 1901)	59, 60		(hna)	L, p, sw	209, 280
Proalidae					
Proales commutata Althaus, 1957	7, 35		• p	M, bt, ps	2, 209, 249
Proales halophila Remane, 1929 [*P. globulifera halophilus*]	7, 35		clp	M-B, bt, l, ps, gw, if	104, 209, 249
Proales reinhardti (Ehrenberg, 1834) [*Furcularia*]	13, 35		clp	M, bt-p, ps, ph, gw, if	188, 209, 212, 314
Proales similis de Beauchamp, 1907	32, 33		p, (hpta)	M-B, 10‰, bt, l	106, 209, 249, 389
Synchaetidae					
Synchaeta baltica Ehrenberg, 1834	*69		namnz	M-B, 12‰, p	317, 389
Synchaeta cecilia Rousselet, 1902	59, 60, *69		bamswp	M-B, 0.5-12‰, p	105, 209, 280, 317, 374, 389
Synchaeta gyrina Hood, 1887	33		clp	M-B, 12‰, p	106, 389
Synchaeta neapolitana Rousselet, 1902	29		clmnz	M, p	109, 194, 201, 209
Synchaeta oblonga Ehrenberg, 1831	77		bam, (k)	L, 1.8‰, p	258
Synchaeta pectinata Ehrenberg, 1832	7, 59, 60, 76, 77, 80		amnz, (sk)	M-B-L, eh, p	209, 280, 319
Synchaeta pontica Rodewald-Rudescu, 1960 ?	29		• p	M, 14‰, p	109, 111, 201, 209
Synchaeta stylata Wierzejski, 1893	*68, *69		namnz, (k)	B-L, 10‰, p, l	105, 209, 374, 389
Synchaeta tavina Hood, 1893	33		clp, (ha)	M-B, 12‰, p, l	106, 389
Synchaeta tremula (O. F. Müller, 1786)	*69		namnz, (k)	M-B-L, p, eh, l	105, 209, 389
Synchaeta vorax Rousselet, 1902	7, 13, 29, *69, 76, 77, 78, 80		clm, (h)	M-B, 12‰, p	105, 190, 191, 249, 289, 317, 389, 398
Polyarthra dolichoptera Idelson, 1925 [*P. platyptera*]	59, 60, *68, 71, 77, *79, 78, 88, 96		clm, (k)	L-B, 0.8‰, p, β	209, 280, 293, 374
Polyarthra longiremis Carlin, 1943	58, 60		(sk)	L, 0.8‰, p	209, 278, 280
Polyarthra major Burckhardt, 1900	78		(sk)	L, p	209, 293
Polyarthra remata Skorikov, 1896	59, 78, 79, 80		clp, (sk)	L-B, 16.8‰, p, β	192, 193, 252, 280

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Polyarthra vulgaris Carlin, 1943	58, 78, 79, 80		clm, (k)	L-B, 0.5‰, p, β	192, 209, 278, 293
Ploesoma hudsoni (Imhof, 1891)	77		clm, (e)	B-L, 24-58‰, p, eh	258
Trichocercidae					
Trichocerca agnatha Wulfert, 1939	78		(pata)	L, p	209, 293
Trichocerca mucosa (Stokes, 1896) [*Mastigocerca*]	78, 96		(h)	L, p	209, 293
Trichocerca musculus (Hauer, 1937) [*Diurella*]	60		(hata)	L, p, sw	209, 280
Trichocerca porcellus (Gosse, 1851)	96		namnz, (k)	B-L, p	209
Trichocerca pusilla (Jennings, 1903) [*Rattulus*]	58, 78		namnz, (k)	B-L, 2‰, p	209, 278, 293
Trichocerca similis (Wierzejski, 1893)	59		neamnz, (k)	L, 0.5-0.8‰, p	209, 280
Trichocerca stylata (Gosse, 1851)[*Monocerca*]	58		K, (k)	L, 2‰, p	209
Trichocerca tenuior (Gosse, 1886) [*Diurella*]	*68		(k)	L, 1‰, p	209, 374, 389
Trichotriidae					
Trichotria tetractis (Ehrenberg, 1830) [*Dinocharis*]	96		namnz, (k)	M-B-L, p	209
Macrochaetus subquadratus (Perty, 1850) [*Dinocharis*, *Polychaetus*]	96		(k)	L-B, p	209, 373
Flosculariida					
Conochilidae					
Conochilus hippocrepis (Schrank, 1803) [*Linza*]	96		(k)	L-B, p	209
Trichosphaeridae					
Filinia longiseta (Ehrenberg, 1834) [*Triarthra*]	58, 59, 60, 77, 79, 80		clm, (k)	L-B, 0.8-15‰, p, sw	193, 252, 278, 280
Filinia terminalis (Plate, 1886) [*Triarthra*]	59, 60		clm, (k)	L-B, 0.8‰, p, sw	209, 280
Flosculariidae					
Beauchampia crucigera (Dutrochet, 1812) [*Cephalosiphon candidus*, *Rotifer*]	79		(e, ? k)	L-B, p	209, 373
Hexarthridae					
Hexarthra fennica (Levander, 1892) [*Pedalia*]	33, *69, *74, *78, 88		amswp, (k)	M-B, 5-50‰, p, eh	105, 106, 317, 389
Hexarthra mira (Hudson, 1841) [*Pedalion*]	59, 60, 77, 80, 96		namnz, (k)	M-B-L, p, eh	209, 280
Hexarthra oxyuris (Sernov, 1903) [*Pedalia*]	7, *69		(k)	L-B, 10-15‰, p, eh	317, 319, 389
Testudinellidae					
Testudinella clypeata (Müller, 1786) [*Brachionus*, *Pterodina clipeata*]	29, 32, 33, *78, *79		clm, (h)	M-B, 7-19.5‰, bt, p	106, 201, 374, 389
Testudinella obscura Althaus, 1957	7, 35		calm	M, bt, ps, gw, if	2, 209, 249
Testudinella patina (Hermann, 1783)	59, 77		amnz, (k)	M-L, 0.8‰, p-bt, l, s	280
Pompholyx complanata Gosse, 1851	59, 60, 78		(e, ? k)	L, 0.5-0.8‰, p	280, 293

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
ANNELIDA					
Polychaeta				plankton larvae	
Phyllodocida					
Phyllodocidae					
Phyllodoce maculata (Linnaeus, 1767)	25, 27, 28	0-100	abambp	M, bt, eb, pe, ms, phs	245, 249
Phyllodoce mucosa Örsted, 1843	3-8, 13, 25, 28, 69	15-100	anamnep	M, bt, eb, ps-pe, ms	219, 245, 249, 389
Genetyllis tuberculata (Bobretzky, 1868) [*Phyllodoce rubiginosa*]	2, 5, 7, 11, 12, 13, 16, 24, 27	0-70	lm, ? em, ? p	M, bt, eh, mb, slc, ms	67, 91, 84, 219,389
Nereiphylla rubiginosa (Saint-Joseph, 1888) [*Phyllodoce rubiginosa*]	69	2.5-10	clm	M, bt, ps-pe	358
Eulalia viridis (Johnston, 1829) [*Phyllodoce*]	11, 13, 24	0-30	anamip	M, bt, ep, slc, slr, mc	91, 245, 249
Eumida sanguinea (Örsted, 1843) [*Eulalia*]	6, 7, 24, 25, 69	1-25	amip	M, bt, eh, ep, ps-s-ph	84, 219, 245, 249, 358, 374
Sige macroceros (Grube, 1860) [*Eulalia*, *Pterocirrus*]	11, 12, 24	0-23	namnp	M, bt, ep, ph, slr, ps	91, 245, 249, 389
Mysta picta (Quatrefages, 1865) [*Eteone armata*]	13, *69, 25	1-5, 25	clm	M, bt, sep, ps-pe-mc	84, 91, 219, 235, 245, 249, 389
Pseudomystides limbata (Saint-Joseph, 1888) [*Mystides*]	6, 25	1	anclm	M, bt, sep, ps, ph, r	219, 245, 249, 389
Hesionura coineaui (Laubier, 1962) [*Eteonides*, *Mystides*]	25, 35	-15	namnep	M, bt, sep, ps, gw	180, 226, 245, 249
Polynoidae					
Harmothoe extenuata (Grube, 1840) [*Lagisca*]	25, 26	0-35, 50	anamnep	M, bt, mb, ps-pe, phc	245, 249
Harmothoe imbricata (Linnaeus, 1767)	24, 25, 69, 76	0-25, 70	anaminp, ? K	M, bt, mb, slr, ps, s	84, 180, 245, 358
Harmothoe impar (Johnston, 1839)	7, 69	2.5-18	anam	M, bt, ep	358
Harmothoe reticulata (Claparède, 1870)	7, 12, 24, 25, 27	0-80	clm	M, bt, mb, ph-pe-ps	84, 91, 219, 245
Malmgreniella lunulata (Delle Chiaje, 1830) [*Harmothoe*]	76		amnep	M, bt, eh, s	119, 396
Polynoe scolopendrina Savigny, 1822	11, 12, 13, 23, 24	0-10	clm	M, bt, ep, slr, slz, r	91, 245
Pholoidae					
Pholoe inornata Johnston, 1839 [*Ph. synophthalmica*]	7, 24, 25, 26	5-30, 130	ace	M, bt, eb, slr, sls, s	84, 180, 245, 249
Sigalionidae					
Sthenelais boa (Johnston, 1833) [*Sigalion*]	13, 23, 24, 25	0-3	amiwp	M, bt, sep, sls, slz	245, 249
Pisionidae					
Pisione remota (Southern, 1914) [*Praegeria*]	7, 17, 19, 35, 51	0-0.50	namrsnep	M, bt, ls, ps, gw	226, 245, 249
Hesionidae					
Hesionides arenaria Friedrich, 1937	7, 11, 25, 35, 51	0-10	aminwp	M, bt, sep, sls, ps, gw, ■	114, 219, 245, 249, 387, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Microphthalmus fragilis Bobretzky, 1870	7, 13, 25, 35, 51	0-10	vclm	M, bt, sep, ls, sls	219, 245, 249, 389
Microphthalmus sczelkowii Metschnikow, 1865	7, 25, 27	10-30, 70	namnp	M, bt, ep, sls, ms	234, 245, 252
Microphthalmus similis Bobretzky, 1870	13, 25, 51	0-10	nam	M, bt, sep, l, sls, slr	219, 245, 249, 389
Syllidae					
Haplosyllis spongicola (Grube, 1855) [*Syllis*]	17, 24, 50		K	M, bt, ep, ph, l, sl, r	221, 245, 249, 392
Syllis gracilis Grube, 1840	7, 24, 25, 50	1-17	K	M, bt, sep, ph, lt, sls	219, 245, 249, 389
Syllis hyalina Grube, 1863	7, 24, 25	-30	K	M, bt, ep, ps, ph, r	234, 245, 249, 392
Syllis prolifera Crohn, 1852	7, 11, 13, 24, 25	0-12	K	M, bt, ep, slr, mc, sls	91, 219, 245, 249
Amblyosyllis formosa (Claparède, 1863) [*Pterosyllis*]	69, 84		aminwp, ? K	M, bt	102, 247, 249, 252
Streptosyllis varians Webster & Benedict, 1887	11, 25	5-10	bap	M, bt, sep, sls, ps	245, 249, 392
Syllides longocirratus (Örsted, 1845)	7, 20, 49	0.5-17	namip	M, bt, sep, slr, r	221, 245, 249, 392
Nudisyllis pulligera (Krohn, 1852) [*Pionosyllis*]	11, 24, 25, 26, 27	0-60	clm	M, bt, mb, ph, ps, s	221, 245, 392
Neopetitia amphophthalma (Siewing, 1956) [*Petitia*]	7, 16, 17, 35, 51		cst	M, bt, 4-7‰, ls, gw	238, 245, 249, 252
Salvatoria clavata (Claparède, 1863) [*Grubea*]	2, 3, 5, 7, 8, 24, 69	0-17	amrs, ? K	M, bt, ep, ph, slr	84, 219, 245, 249
Salvatoria limbata (Claparède, 1868) [*Grubea*]	7, 25, 68		clm, ? clmrs	M, bt, ps-pe, ph	219, 245, 389
Salvatoria tenuicirrata (Claparède, 1864) [*Grubea*]	13, 24	1-30	klm	M, bt, ep, slr-ph	91, 245, 389
Sphaerosyllis bulbosa Southern, 1914	1-22, 25, 26, 27, 28	5-105	nam	M, bt, eb, ps-pe	221, 245, 249, 392
Sphaerosyllis hystrix Claparède, 1863	10, 13, 17	17-47	SK	M, bt, eb, ps, pe, et	356
Exogone naidina Örsted, 1845 [*E. gemmifera*, *Paedophylax claviger*]	12, 13, 25, 26, 27	0-70, 213	SK	M, bt, eb, ps-s, sg, ph	91, 221, 245, 389
Nereididae					
Nereis pelagica Linnaeus, 1758	7, 24		aaminp	M, bt, eb, slr, ph	84, 245, 249, 389
Nereis rava Ehlers, 1864	7, 24	8	lm	M, bt, ep, slr, ph	84, 245, 249, 389
Nereis zonata Malmgren, 1867	2, 7, 24, 25, 26, 27, 69	0-60	anamnp, ? K	M, bt, mb, mc-ph-ps	84, 245, 249, 358
Hediste diversicolor (O. F. Müller, 1776) [*Nereis*]	2, 3, 5-7, 10-13, *68, *69, *74, 77, *78, *79, 84, *86, 88, 92, 93, 94	0-90	anam	M, bt, eh-0.5-36‰, eb, s, pe-ps, eu	67, 84, 91, 219, 245, 358, 374, 389
Alitta succinea (Frey & Leuckart, 1847) [*Neanthes*, *Nereis*]	7, 13, 16, 24, 27, 68, 69, 77	0-10, 30	amip	M, bt, eh, ep, mc-s-ps	84, 219, 245, 374
Perinereis cultifera (Grube, 1840)	7, 16, 23, 24, 25	0-30	amip	M, bt, ep, lt, ps, slz	84, 91, 245, 249
Platynereis dumerili (Audouin & Milne-Edwards, 1834)	3, 7, 13, 16, 24, 25, 27, 69	0.5-50	amip	M, bt, mb, ph, lt, s	67, 84, 91, 245, 358

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Nemanereis pontica (Borbretzky, 1872) [*N. quadriticeps*, *Lycastopsis*]	46, 51	0-0.5, 90	nam	M, bt, sps-zc, s-ps	234, 245, 249
Nephthyidae					
Micronephtys stammeri (Augener, 1932)	1-22, 25, 26	0-40, 80	adp	M, bt, mb, ps, ps-pe	226, 245, 249, 392
Nephtys cirrosa (Ehlers, 1868)	7, 9, 25, 76	0-28, 100	clm	M, bt, ep, sls, ps	84, 245, 249, 358
Nephtys hombergii Savigny in Lamarck, 1818	2-8, 13, 17, *69, 76	0-184	clm	M, bt, eh-6‰, eb, eu	67, 84, 91, 245, 358
Glyceridae					
Glycera alba (O. F. Müller, 1776)	2, 3, 5, 7, 8, 25, 26, *69	0-40	namiwp	M, bt, mb, sls, ps-pe	84, 245, 249, 389
Glycera convoluta Keferstein, 1862	5-22, 25, 26, 27, 69	0-40	eamip	M, bt, mb, sls, ps-pe	221, 245, 249, 358
Glycera gigantea Quatrefages, 1866 [*G. decorata*]	7, 25, *69	0-30	clmi	M, bt, ep, sls, ps	84, 221, 245, 249
Glycera tesselata Grube, 1840	7, 11, 12, 13		amip	M, bt	247, 252, 255, 288
Glycera unicornis Savigny in Lamarck, 1818 [*G. rouxii*]	7, 11, 12, 13		eamip	M, bt	247, 249, 252, 288
Goniadidae					
Goniadella bobrezkii (Annenkova, 1929) [*Goniada*]	11, 25	8, 13-26	clm	M, bt, ep, sls, ps	221, 245, 248, 392
Eunicida					
Eunicidae					
Eunice vittata (Delle Chiaje, 1828)	11, 12, 13, 23, 24, 25	1-25	amip	M, bt, ep, ro, ps, zc, s	91, 245, 249, 389
Lysidice ninetta Audouin & Milne-Edwards, 1833	6, 7, 11, 12, 13, 24	0-30, 40	amip	M, bt, ep-mb, slr	84, 91, 245, 389
Dorvilleidae					
Protodorvillea kefersteini (McIntosh, 1869) [*Staurocephalus*]	7, 8, 13, 23, 24, 25	1.5-20	anam	M, bt, sep, zc, ro, ps-s	219, 245, 249, 389
Dorvillea rubrovittata (Grube, 1855) [*Staurocephalus*]	11, 12, 13, 24, 25	0-5, 40	anamrs	M, bt, mb, sls, ro, r	91, 245, 249, 389
Schistomeringos rudolphi (Delle Chiaje, 1828) [*Staurocephalus*]	23, 24, 25	3-25	amp	M, bt, ep, sls, zc, sg	234, 245, 249
Orbiniida					
Orbiniidae					
Orbinia latreillii (Audouin & Milne-Edwards, 1833) [*Aricia*]	11, 25		clm	M, bt, ep, sls, r	221, 245, 249, 392
Paraonidae					
Aricidea claudiae Laubier, 1967 [*A. jeffreysii*]	1-3, 5,7, 13, 17, 25, 27, 28, 69	5-92, 200	klm	M, bt, eb, s, ps-pe, sg	178, 180, 219, 226, 230, 245, 358, 389
Paradoneis harpagonea (Storch, 1967) [*Cirrophorus*, *Paraonis fulgens*]	11, 25, 27	15-44	ep, ? lm	M, bt, mb, ps, s	178, 180, 221, 230, 245, 249, 392
Spioniida					
Spionidae					
Scolelepis ciliata (Keferstein, 1862)	7, 16, 17, 51	0.5	clm	M, bt, sep, ps, sls, r	221,245, 392

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Scolelepis squamata (Müller, 1806) [*Nerine cirratulus*]	7, 25, 51	0-20	amip	M, bt, sep, ps, ls, sls	319, 245, 249, 389
Pseudomalacoceros tridentata (Southern, 1914) [*Nerinides*]	7, 25	3-	klm	M, bt, sep, ps, sls	84, 219, 245, 389
Aonides paucibranchiata Southern, 1914 [*A. ornatus*]	4, 7-13, 25, 27, 28	5-125	ham	M, bt, eb, ps, sg, s	180, 219, 245, 358
Spio filicornis (O. F. Müller, 1776)	7, 25, 26, 68, 69	0-30	abambp	M, bt, ep, ps-pe	84, 245, 358, 389
Pygospio elegans Claparède, 1863	7, 25, 26, 27, 69	0-70	anamnp	M, bt, eb, ps-pe	219, 245, 358, 389
Polydora ciliata (Johnston, 1838)	7, 68, 69, 76, 84	27	aanamip	M, bt, ep, ro, mc	219, 245, 249, 389
Polydora cornuta Bosc, 1802	7, 13, 68, 69	0.1-32	amp, i	M, bt, ep, s, ps, sg, is	358
Dipolydora quadrilobata (Jacobi, 1883)	24, 49		bapbp, i	M, bt, is	355
Prionospio cirrifera Wirén, 1883	7, 9, 13, 25, 26, 27, 69	5-84	aamip	M, bt, eb, sg, s	219, 222, 226, 249
Prionospio malmgreni Claparède, 1868	6, 23, 25	4-20	aamip	M, bt, eb, ps, sg, zc, r	180, 219, 226, 245
Streblospio shrubsolii (Buchanan, 1890)	7, 68, 69, *78, *79	12	clm	M-B, bt, eh, s, ps-pe	219, 245, 358, 389
Magelonidae					
Magelona papillicornis F. Müller, 1858	7, 11, 18, 25, 69	-23	amip	M, bt, ep, ps	221, 226, 245, 249
Magelona rosea Moore, 1907	7, 11, 18, 25	4-28	nam	M, bt, ep, ps, ps-s	219, 180, 245, 392
Cirratulidae					
Cirriformia tentaculata (Montagu, 1808) [*Audouinia*]	23, 25	0-20	amiswp	M, bt, ep, ps, sg, zc, r	245
Caulleriella bioculata (Keferstein, 1862) [*Cirratulus viridis*, *Heterocirrus*]	7, 13, 25	5-25	namp	M, bt, ep, ps-sg	91, 226, 245, 389
Opheliida					
Opheliidae					
Ophelia bicornis Savigny, 1918	2, 6, 7, 19, 21, 25, 51	0.5-1.5	bam	M, bt, sep, l-sl, ps, ■	236, 245, 249, 389
Ophelia limacina (Rathke, 1843)	7, 11, 12, 25	10-37	abapnep	M, bt, ep, sl, ps	221, 236, 245, 249
Polyophthalmus pictus (Dujardin, 1839)	13, 24, 50	0-10	amip	M, bt-p, sep, ph-lt	91, 222, 245, 389
Capitellida					
Capitellidae					
Notomastus latericeus M. Sars, 1851			aanamip	M, bt, eu	245, 249
Notomastus profundus (Eisig, 1887)	1-8, 28	65-	clm, ? clmrs	M, bt, shb, phs	219, 245, 249, 389
Heteromastus filiformis (Claparède, 1864)	1-8, 13, 17, 25, 27, 28, 59, 69	0-16-200	aamip	M, bt, eb, pe, ms, phs	84, 245, 249, 358
Capitella capitata (Fabricius, 1780)	4-7, 25, 26, *69	0-30, 80	aamip	M, bt, ep, ps-pe	84, 245, 249, 358
Capitella minima Langerhans, 1880 [*Capitomastus*]	7, 13, 25, 26, 69	5-110	aam	M, bt, eb, ps, pe, sg	245 349, 358, 389
Capitellides giardi Mesnil, 1897	7, 25		bam	M, bt, sep, ps	177, 219, 245, 249

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Arenicolidae					
Arenicola marina Lamarck, 1801	7, 12, 25, 51, 84		bamnep	M, bt, ep, ps, ls	219, 226, 245, 249
Arenicolides branchialis (Audouin & Milne-Edwards, 1833) [*Arenicola grubii*]	25	1.5-12	lm	M, bt, sep, sg	245, 249
Maldanidae					
Clymene collaris (Claparède, 1868) [*Praxylla*]	13, 23, 25	2-30	lm	M, bt, ep, ps-s, sg, zc	91, 226, 245, 249
Leiochone leiopygos (Grube, 1860) [*Clymenura clypeata*]	7, 25, 26, 69	0-35	clm	M, bt, ep, ps, ps-pe	84, 219, 226, 245, 249, 358, 289
Ctenodrilida					
Ctenodrilidae					
Zeppelina dentata Monticelli, 1897 [nomen dubium ?]	13		lm	M, bt	252
Parergodrilidae					
Stygocapitella subterranea Knöllner, 1934	7, 35		bamswp	M, ls, gw, r	221, 245, 249, 387
Terebellida					
Sabellariidae					
Sabellaria taurica (Rathke, 1837) [*S. spinulosa*, *Centrocorone*]	7, 12, 13, 24	-30	lm, ? clm	M, bt, ep, sl, sg	84, 91, 219, 222, 245, 249, 389
Pectinariidae					
Lagis koreni Malmgren, 1866 [*Pectinaria*]	7, 11, 13, 25, 26, 27, 69	0-30, 50	clm	M, bt, mb, ps-pe, ms, sg, s	84, 91, 219, 226, 245, 249, 358, 389
Ampharetidae					
Melinna palmata Grube, 1870	2-7, 13, 17, 26, 27, 28, *69	15-200	clmnwi	M, bt, eh, eb, s, ps-pe, sg	67, 84, 178, 219, 245, 249, 358
Hypania invalida (Grube, 1860)	59, 60	2-5, 40	cp, ? pc, Rc	M-B, bt, 0.5-0.8‰, s, sg	206, 245, 249, 252, 320, 386
Trichobranchiidae					
Terebellides stroemii Sars, 1835	2, 3, 7, 10, 11, 13, 16, 17	36-200	aanamip, ? K	M, bt, eb-hb, s, phs	67, 84, 91, 178, 245
Terebellidae					
Polycirrus jubatus Bobretzky, 1869	7, 12, 16, 25, 51	0-30	● p	M, bt, ep, sg, ps-pe	91, 226, 245, 389
Sabellida					
Sabellidae					
Fabricia sabella (Ehrenberg, 1836)	7, 25, 34, 69	12	aannam	M, bt, 3-38‰, ep, ps	219, 245, 249, 389
Fabricia stellaris (O. F. Müller, 1774) [? *F. sabella*]	7, 68, 69		bam	M, bt, ep	358

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
? *Manayunkia caspica* Annenkova, 1928			pc, cpc, Rc	M-B-L, bt	245, 249, 320
Oriopsis armandi (Claparède, 1864) [*Oridia*]	1-22, 27, 28	-130, 200	kclm, ? clmrs	M, bt, hb, ms, phs	234, 245, 249, 358
Serpulidae					
Hydroides norvegicus Gunnerus, 1768	7, 24	0-30	nami	M, bt, ep, lt, r	84, 245, 389
Ficopomatus enigmaticus (Fauvel, 1923) [*Mercierella*]	5, 7, 68, 69, 77, *79, 84, 87	0-15	amip, i	M, bt, 0-55‰, ep, is	219, 245, 249, 389
Vermiliopsis infundibulum (Philippi, 1844)	3, 7, 12, 13	10-15	amrsp	M, bt, ep, lt, ro	67, 84, 91, 245, 249
Spirobranchus triqueter (Linnaeus, 1758) [*Pomatoceros, P. triquetroides*]	3, 7, 24, 25, 27	0-70	clm	M, bt, mb, lt, ms, sg	67, 84, 219, 226, 245, 389
Ditrupa arietina (O. F. Müller, 1776)	7, 26		namip	M, bt, ep, pe	84, 245, 249, 389
Pileolaria militaris Claparède, 1870 [*Spirorbis*]	24	0-30	neaminz	M, bt, ep-mb, slc, phc	230, 245, 249
Spirorbidae					
Spirorbis pusilla Rathke, 1837	1-22, 24, 50	0-30, 75	neamnp	M, bt, mb, lt, ro, ph, phc, slc, sg, zc	91, 230, 245, 249, 389
Archiannelida					
Polygordiidae					
Polygordius lacteus Schneider, 1868 [*P. neapolitanus ponticus, P. ponticus*]	25	0-25	clm	M, bt, ep, ps, sg, sls	180, 226, 245, 249
Protodrilidae					
Protodrilus flavocapitatus (Uljanin, 1877)	7, 25, 27, 35, 51	0-80	lm, ? clm	M, bt, eb, l-sl, ps, pe	220, 245, 249, 358
Saccocirridae					
Saccocirrus papillocercus Bobretzky, 1872	7, 51	0.5-0.7	lm, ? clm	M, bt, sep, l-sl, ps	220, 245, 249, 389
Nerillidae					
Nerilla antennata Schmidt, 1848	7, 25, 34, 35, 51, *69	80	naminz	M, bt, ep, l-sl, ps, gw	220, 239, 245, 386
Dinophilidae					
Dinophilus gyrociliatus O. Schmidt, 1857	25, 34, 51		naminz	M, bt, sep, l-sl, ps	220, 245, 249, 389
Trilobodrilus heideri Remane, 1925	7, 35	0-1	clm	M, bt, sep, ps, if, r	220, 245, 249, 389
Aphanoneura					
Aeolosomatida					
Aeolosomatidae					
Aeolosoma hemprichi Ehrenberg, 1831	58, *68		(hnata, ? sk)	L, bt, cr, po, sw	88, 249, 365, 389
Oligochaeta					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Opistophora					
Criodrilidae					
Criodrilus lacuum Hoffmeister, 1845	71, 72		(eca, ? h)	L, bt	365
Lumbricidae					
Eiseniella tetraedra (Savigny, 1876)	71, 77		(h, ? k)	L-TL, bt, tx	365
Tubificida					
Naididae					
Stylaria lacustris (Linnaeus, 1767)	1-22, 35, 58, 77, 84		nam, (hno)	M, bt, 7‰, ps, gw	42, 84, 88, 249, 365
Slavina appendiculata (Udekem, 1855)	58		amnz, (k)	M, bt, 1-2‰	365
Dero digitata (O. F. Müller, 1773)	78		(k)	L, bt	365
Dero obtusa Udekem, 1855	58		(k)	L, bt, 1-2‰, α	365
Nais barbata O. F. Müller, 1773	58, 71, 77		(hoa)	L, bt,	365
Nais bretscheri Michaelsen, 1899	58		(hop, ? hno)	L, bt, 1-2‰, o-β	265
Nais communis Piguet, 1906	88, 90		ham, (k)	M-L, bt, eh-16‰, eu	88, 249, 365, 374
Nais elinguis O. F. Müller, 1774	54, 58, *68, *69, 71, 74, 77, *78, 82, 84, *86-88, 90, 92		aminz, (k)	M-B-L, bt, 18‰, eh, eu, sw-po	84, 87, 88, 249, 365, 374, 389
Nais pardalis Piguet, 1906	58, *69, 84		(hno)	L, bt, 10‰, ph, ps-pe	88, 249, 365, 389
Nais variabilis Piguet, 1906	58, 74, 79, 82		aminz, (k)	M-B, bt, sw-po	365
Ophidonais serpentina O. F. Müller, 1774	58, 79, 84, 92		bap, (hno)	L, bt, sw-po	365
Homochaeta naidina Bretscher, 1896 [*Paranais*]	7, 58		(po)	L-M, bt, 15‰	84, 249, 365, 389
Paranais frici Hrabe, 1941	84		amip, (hno)	M-B, bt, po	365
Paranais litoralis (O. F. Müller, 1780)	7, 58, 87, 88		namp, (hn)	M-B, bt, 16‰	84, 88, 249, 365
Amphichaeta leydigi Tauber, 1879	58, 87		(h, ? hno)	L, 2‰, sw	365
Chaetogaster cristallinus Vejdovsky, 1883	*68, 84		(hpt, ? hptn)	L-M, bt, 10‰, sw	84, 88, 365, 374
Chaetogaster diaphanus (Gruithuisen, 1828)	58		SK, (sk)	M-L, bt, sw, po	88, 365, 372
Tubificidae					
Tubifex nerthus Michaelsen, 1908	84, 96		clp, ? bap	M-B, bt, sw	107, 249, 364, 365
Tubifex tubifex (O. F. Müller, 1774)	58, 71, 72, 74, 77, 78, 80, 84, 87, 92		(k)	M-B-L, bt, eu	365
Branchiura sowerbyi Beddard, 1892	59		(h)	L, 0.78‰, bt, ro	365
Aulodrilus pluriseta (Piguet, 1906)	58, 96		(hoa)	L, bt, eu	365

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Limnodrilus claparedeanus Ratzel, 1868	71, 80, 92		(k)	L, bt, eu, sw, po	365
Limnodrilus hoffmeisteri Claparède, 1862	58, *68, 71, 74, 87, 92	0.5-120	SK, (k)	M-L, bt, sw, po, α, s	84, 249, 365, 389
Limnodrilus profundicola (Verrill, 1871)	78		nam, (ho)	L-B, bt, sw, po	365
Limnodrilus udekemianus Claparède, 1862	58, 65, *68, 74, 79, 80, 84, 87		SK, (k)	L-B, 1‰, bt, eu, α	84, 249, 365, 389
Psammoryctides albicola (Michaelsen, 1901) [*Psammoryctes*, *Tubifex*]	58, *68		clm, (h)	L-B, 2‰, bt, pe, α	88, 249, 365, 389
Psammoryctides barbatus (Grube, 1861)	58		clm, (h)	M-L, 2‰, bt, ps, α-β	365
Psammoryctides moravicus (Hrabe, 1934)	58		(wpat)	L, 2‰, bt, po, sw, r	365
Potamothrix bavaricus (Oeschmann, 1913)	58		clmnz, (hna)	M-L, 2‰, bt, sw, r	365
Potamothrix bedoti (Piguet, 1913)	58		(ho)	L, 2‰, bt, po, sw	365
Potamothrix hammoniensis (Michaelsen, 1901)	58, 78, 84, 88		clm, (ho)	M-L, bt, sw, po, pe	205, 365
Potamothrix vejdovskyi (Hrabě, 1941)	58		pc, (eit, ? h)	M-B-L, bt, po, sw	365
Clitellio arenarius (Müller, 1776)	84, 96		bap	M, bt, l-sl, s, ro, ps	249, 364, 365
Aktedrilus monospermathecus Knöllner, 1935	1-22, 35, 49		clm, ? clmnei	M, bt, l-sl, gw, ps	150, 244, 249, 365
Heterochaeta costata Claparède, 1863 [*Tubifex*]	11, 58, 84, 88, 96		clp	M-B, bt, l, ps, pe-ps	249, 364, 365
Tubificoides benedii (Udekem, 1855) [*Peloscolex*]	1-22, 35		bap	M-B, bt, l, ps, gw	43, 249
Tubificoides euxinicus (Hrabě, 1966) [*Tubifex euxinus* ?]	1-22, 35		? bap	M, bt, l, ps, gw	244, 249, 252
Tubificoides swirencowi Jaroschenko, 1948 [*T. heterochaetus*, *Pristina papillosa*]	13, 84		pc, cp	M, bt, 15‰, pe-ps	88, 249, 365, 389
Monopylephorus rubroniveus Levinsen, 1884 [*Rhizodrilus ponticus*, *M. r. ponticus*]	1-22, 35		? namnp	M, bt, l, pe-ps, gw, ph	43, 249, 252
Enchytraeidae					
Enchytraeus albidus Henle, 1837	11, 35		napnei, (hna)	M-L-TL, l, ps, gw	84, 88, 249, 365
Marionina achaeta (Hagen, 1954)	1-22, 35		cp	M, 15‰, l, ps, gw	244, 249, 252
Marionina elongata Lasserre, 1964	1-22, 35		? nam	M, bt, 15‰, l, ps, gw	244, 249, 252
Marionina spicula (Leuckart, 1847)	1-22, 35		bap	M, bt, 15‰, l, ps, gw	244, 249, 252
Marionina subterranea (Knöllner, 1935)	1-22, 35, 54		bapbp, (h)	M-L, bt, l, ps, gw, cr	244, 249, 252, 365
Branchiobdellea					
Branchiobdellida					
Branchiobdellidae					
Branchiobdella astaci Odier, 1823	60, ? 61		(csee, ? cse)	L, epi, 0.1-2‰	365, 389
Hirudinea					
Rhynchobdellida					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Glossiphoniidae					
Glossiphonia complanata (Linnaeus, 1758)	58, *68, 94		neamj, (h)	L, bt, ph, 2‰	374, 389
Helobdella stagnalis (Linnaeus, 1758)	58, *68		(h)	L, bt, ph, 1‰	374, 389
Hemiclepsis marginata (O. F. Müller, 1774)	58, 59		(po)	L, bt, ph, 0.3‰	374, 389
Placobdella costata (Fr. Müller, 1846)	58		(wp)	L, bt, ph, 0.3‰	
Theromyzon tessulatum (O. F. Müller, 1774) [*Protoclepsis*]	*67		(? h)	L, bt	372, 389
Piscicolidae					
Piscicola geometra (Linnaeus, 1758)	*68		(hn, ? hnat)	L-B-M, bt, 1‰	84, 389
Arhynchobdellida					
Hirudinidae					
Hirudo verbana Carena, 1820 [*H. medicinalis*]	58, *68, *69, *74		(cse)	L, bt, ph, 10‰, ▲	374, 389
Haemopidae					
Haemopis sanguisuga (Linnaeus, 1758) [*Aulastoma gulo*]	58, *68, *74		(ena)	L, bt, ph, 10‰	374, 389
Erpobdellidae					
Erpobdella ococulata (Linnaeus, 1758)	58, 77		(po)	L, bt, ph, lt, 5-7‰	258
TARDIGRADA					
Heterotardigrada					
Arthrotardigrada					
Batillipedidae					
Batillipes mirus Richters, 1909	16, 18, 25, 51	1-8	nami, ? K	M, bt, l-sl, ps, gw, if	249, 388, 389
Halechiniscidae					
Halechiniscus guiteli Richters, 1908	16, 35, 51		lm, ? clm	M, bt, l-sl, ps, s, gw	249, 388, 389
Stygarctidae					
Stygarctus bradypus Schulz, 1951	35		cpnei, ? cg	M, bt, l, ps, gw	249, 392
Echiniscoidea					
Echiniscoididae					
Echiniscoides sigismundi Plate, 1889	3-22, 50		anamp	M, bt, eh, eu, l, ph	84, 249, 382, 388
Eutardigrada					
Paracheta					
Hypsibiidae					
Halobiotus stenostomus (Richters, 1908) [*Hypsibius*]	24, 25, 49	-25	clm	M, bt, sl, ps, ph	249, 316

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
ARTHROPODA					
Arachnida					
Acarina					
Hydrozetidae					
Hydrozetes lacustris (Michael, 1882)	70, *86, 94		(csee, ? e)	L, 4‰	374, 389
Limnozetidae					
Limnozetes rugosus (Sellnick, 1923)	94		(e)	L, 6‰	374, 389
Halacaridae					
Rhombognathus magnirostris Trouessart, 1889	7, 11, 12, 13, 16, 24		clm	M-B, bt, slc	84, 89, 275, 389
Rhombognathus notops (Gosse, 1855)	*69		abap	M, bt, 12‰, l-sl	249, 389, 402
Rhombognathides pascens (Lohmann, 1889) [*Rhombognathus*]	11, 12, 13, 16		nam	M-B, bt, sl	89, 249, 389
Halacarellus capuzinus (Lohmann, 1893) [*Halacarus*]	35		bap	M-B, bt, l-sl, ps, gw	249, 252, 307
Halacarellus phreaticus Petrova, 1972	7, 16		hom	M-B-L, bt	249, 252, 306
Halacarellus procerus (Viets, 1927)	35		bam	M-B, bt, 15‰, l-sl, ps, gw, ■	114, 249, 252, 307
Halacarellus subterraneus Schulz, 1933	3, 5, 84		abam, ? anam	M-B, eh, bt, l, gw	249, 252, 306
Anomalohalacarus marcandrei Monniot, 1967 [*Halacarus*, *Halacarellus*]	8, 18		clm, ? clmi	M, bt, sl	249, 252, 307
Thalassarachna affinis (Trouessart, 1896) [*Halacarus basteri* var. *affinis*]	11-13, 16, 24, 27, 28	-150	hom	M-B, bt, l-sl, pe, slc	89, 249, 389
? *Thalassarachna basteri* (Johnston, 1836) ? [*Halacarellus*]		-46	abam, ? anam	M-B, eh, bt, l-sl	249
Thalassarachna hexacantha (Viets, 1927) [*Halacarus*, *Halacarellus*]	7	0.5-28	cp	M, bt, l-sl	84, 249, 389
Copidognathus brachystomus Viets, 1940	*69		clm	M-B, bt, l	249, 389, 402
Copidognathus brevirostris Viets, 1927	7, 24	0-10	clm	M-B, bt, l-sl, ph, lt	84, 249, 389
Copidognathus extensus Viets, 1940	7	12	hom	M, bt, l-sl	84, 249, 389
Copidognathus fabricii (Lohmann, 1889)	11, 12, 13, 16, *79		clmi	M-B, bt, l-sl	89, 249, 374, 389
Copidognathus magnipalpus (Police, 1909) [*C. m. ponticus*, *C. m. serratiseta*]	*86		lmwi, ?R	M-B, bt, 1-20‰, l	249, 389, 401
Copidognathus oculatus (Hodge, 1863) [*Copidognathopsis*, *Halacarus*]	11, 12, 13, 16, *69		clm	M-B, bt, 12‰, sl	89, 249, 374, 389
Copidognathus quadricostatus (Trouessart, 1894) [*Copidognathopsis*]	11, 12, 16		clm	M, bt, sl	89, 249, 275, 389
Copidognathus rhodostigma (Gosse, 1855)	11, 12, 16, 24		clm	M-B, bt, l-sl, ph, sg	89, 249, 275, 389
Copidognathus tabellio (Trouessart, 1894)	11, 12, 13, 16	9-28	lm	M-B, bt, sl	89, 249, 275, 389
Copidognathus tectiporus (Viets, 1935) [*Copidognathopsis*]	*67, *69		lm, ?R	B-L-(M), bt, eu	249, 389, 400, 402
Agaue chevreuxi (Trouessart, 1889) [*Halacarus*]	11, 12, 13, 16, 24	-20	lm, ? clm	M-B, bt, l-sl, slc, phc	89, 249, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Agauopsis brevipalpus (Trouessart, 1889) [*A. pontica*, *Agaue b.* var. *ponticus*]	11, 12, 13, 16, 25, 27	9-28	namnei	M-B, bt, sg, ms, phc	89, 249, 389
Agauopsis marinovi Petrova, 1976	7		ham	M-B, bt, l	249, 252, 308
Actacarus pygmaeus Schulz, 1937	25, 35	-5	lmnei	M-B, bt, gw-if, ps, sl	229, 249, 389
Arhodeoporus gracilipes (Trouessart, 1889) [*Copidognathopsis*]	12, 16, 25, 28	-150	clm	M-B, bt, eb, sg, phs	89, 249, 275, 389
Acarochelopodia delamarei Angelier, 1954	7, 35		hom	M-B, bt, ps, gw	229, 249, 392
Lohmannella falcata (Hodge, 1863)	12, 27, 28	45-100	bam	M-B, bt, eb, ms, phs	89, 249, 389
Caspihalacarus hyrcanus Viets, 1928 [*C. h. danubialis*]	*69	1-2	pc, clm, Rc	B-L, bt, ep, ro, s	252, 389, 402
Hydrachnidae					
Hydrachna cruenta O. F. Müller, 1776	42		(h)	L, bt, l	84, 389
Eylaidae					
Eylais infundibulifera Koenike, 1897	42		(h)	L, bt, l	84, 389
Eylais rimosa Piersig, 1899	42		(h)	L, bt, l	84, 389
Hydryphantidae					
Hydryphantes crassipalpis Koenike, 1914	*68		(wesa)	L, bt, 1‰, l	389, 400
Hydrodromidae					
Hydrodroma despiciens (O. F. Müller, 1776)	88		(sk, ? k)	L, bt, 1‰	389, 402
Pontarachnidae					
Pontarachna valkanovi Petrova, 1978	11, 12, 25, 35, 51, 92		• p	M, bt, l-sl, ps, gw	249, 252, 309, 392
Limnesiidae					
Limnesia koenikei Piersig, 1894	90		(h)	L, bt	389, 402
Limnesia undulata (O. F. Müller, 1776)	*68		(h)	L, bt, l	389, 400
Aturidae					
Brachypoda versicolor (O. F. Müller, 1776)	*67		(? tp)	L, bt	389, 400
Arrenuridae					
Arrenurus bruzelii Koenike, 1885	93		(wp, ? tp)	L, bt, 3‰	389, 402
Pycnogonida					
Pantopoda					
Ammotheidae					
Tanystylum conirostre (Dohrn, 1881)	7, 24	1-2	kclm	M, bt, ep, sl, ph	39, 249, 389
Callipallenidae					
Callipallene phantoma (Dohrn, 1881)	1-22, 28	35-80	anam	M, bt, shb, phs	247, 249, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Crustacea					
Sarsostraca: Anostraca					
Artemiidae					
Artemia parthenogenetica Bowen & Sterling, 1978	76, 77		(omcaa)	B, 20-100-340‰, p	119, 359
Artemia salina (Linnaeus, 1758)	*64, 76, 77		(sp, ? sk)	B, 20-80-340‰, p	86, 91, 100, 372, 389
Thamnocephalidae					
Branchinella spinosa (H. Milne Edwards, 1840)	*64		lm, (atm)	B-M, 30‰, p, ■	100, 114, 389
Phyllopoda: Cladocera					
Sididae					
Penilia avirostris Dana, 1849 [*P. schmackeri*]	7, 29, *69, 77	0-50	amiwp	M-B-L, p, eh, epp	198, 202, 319, 389
Diaphanosoma brachyurum (Liévin, 1848)	58, *68, *79, 80		amwp, (hat)	M-B-L, p, eh, 6-8‰	97, 278, 374, 389
Diaphanosoma lacustris Korinek, 1981	59, 60		(pat)	L, p, 0.5-0.8‰	279, 280
Macrothricidae					
Macrothrix laticornis (Jurine, 1820)	*68		(sk)	L, 1‰, p-bt, s	97, 279, 389
Ilyocryptus sordidus (Liévin, 1848)	*68		amwp, (pat)	B-L, 1‰, p	279, 374, 389
Bosminidae					
Bosmina coregoni Baird, 1857	59, 60		apswp, (h)	M-B-L, 0.5-0.8‰, p	279, 280
Bosmina longirostris (O. F. Müller, 1776) [*B. l. similis*]	58, 59, 60, *68, 77, 80		anam, (k)	M-B-L, 1-2‰, p, epp	278, 279, 280, 389
Chydoridae (Eurycercidae)					
Acroperus harpae (Baird, 1834)	92		(hnat)	M-B-L, 0.5‰, p	279, 374, 389
Alona guttata Sars, 1862	78		(sk)	L, 0-20‰, p	252, 278, 279
Alona quadrangularis (O. F. Müller, 1776)	58, *68		namp, (sk)	M-B-L, 0.2-2‰, p	278, 279, 374, 389
Alona rectangula Sars, 1861	58, 59, 60, *68, *69, 76, 77, *79, *86, 88, 92, 93		(sk)	B-L, 0.5-6‰, p	277, 279, 280, 374, 389
Alonella excisa (Fischer, 1854)	59, 60		(k)	L, 0.5-0.8‰, p	279, 280
Alonella exigua (Lilljeborg, 1853)	42		(h)	L, p	252, 278, 279,
Chydorus piger Sars, 1862	60		(e)	L, p, 0.5-0.8‰	279, 280
Chydorus sphaericus (O. F. Müller, 1785)	58, 59, 60, *68, *69, 71, *79, 80, 88, 92		amswp, (k)	M-B-L, 3‰, p, epp	278, 279, 280, 374, 389
Disparalona rostrata (Koch, 1841) [*Phrixura*, *Rhynchotalona*]	42, 86		(h, ? sk)	B-L, p	252, 277, 279
Graptoleberis testudinaria (Fischer, 1848)	60		(k)	M-B-L, p, 0.5-0.8‰	279, 280

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Leydigia acanthocercoides (Fischer, 1854)	95		(sk)	B-L, p, 0.5‰	279, 374, 389
Leydigia leydigi (Schoedler, 1863)	*68		(sk)	B-L, p, 1‰	97, 279, 389
Monospilus dispar Sars, 1862	*69		(hata)	B-L, p	279, 374, 389
Oxyurella tenuicaudis (Sars, 1862)	59, 60, *69		(hata)	L, p, 0.5-0.8‰	279, 289, 375, 389
Pleuroxus trigonellus (O. F. Müller, 1776)	59, 60, *68, *86, 88		(hat)	L, p, 1.5‰	279, 280, 374, 389
Pleuroxus uncinatus Baird, 1850	58		(hop, ? h)	L, p, 0.5-2‰	252, 278, 279
Moinidae					
Moina hartwigi Welter, 1898	81		(? atm)	L, p, 1‰, r	279, 374, 389
Moina macrocopa (Straus, 1819)	58		(h, ? hpt)	L, p, 2‰	252, 278, 279
Moina micrura Kurz, 1874 [*M. m. dubia*, *M. propinqua*]	58, 59, 60, 78, 79		? SK, (sk)	B-L, p, 0.5-20‰	190, 193, 252, 278, 280, 374, 389
Moina rectirostris (Leydig, 1860)	*69		(hpt)	B-L, p, 4‰	374, 389
Daphniidae					
Daphnia cucullata Sars, 1862 [*D. c. apicata*, *D. c. breviensis*]	58, 59, 60, 78, 80		(h)	M-B-L, p, 0.8‰	252, 277, 278, 280
Daphnia curvirostris Eylmann, 1887 [? complex]	60, 82, 88, 92		(hat)	L-B, p, 0.5-15‰	252, 277, 279, 280
Daphnia galeata Sars, 1863	59, 60		(h)	B-L, p, 0.8‰	279, 280
Daphnia hyalina Leydig, 1860	68, 79		(hes)	M-B-L, p, 1-12‰	252, 277, 278, 279
Daphnia longispina (O. F. Müller, 1776)	13, 71		(hnat)	B-L, p	279, 374, 389
Daphnia magna Straus, 1820	58, 78, 79, 80		(hat,? hpt)	B-L, p, 0.5-2‰	192, 193, 252, 279
Daphnia pulex (Leydig, 1860)	74, 77, 80		(k)	B-L, p, 5-17‰	258, 279, 374, 389
Ceriodaphnia affinis Lilljeborg, 1900	78, 79, 80		(h)	L-B, p	190, 192, 193, 252,
Ceriodaphnia dubia Richard, 1894 [*Moina*]	58, 79		(sk)	L, p, 0.5-8‰	252, 278, 279, 374
Ceriodaphnia pulchella Sars, 1862	58		(sk)	L, p, 0.5-8‰	252, 278, 279
Ceriodaphnia quadrangula (O. F. Müller, 1785)	58, 59, 60, 78		(sk)	B-L, p, 0.5-2‰	277, 278, 279, 280
Ceriodaphnia reticulata (Jurine, 1820)	58, 84		(sk)	M-B-L, p, 0.5-2‰	252, 277, 278, 279
Scapholeberis mucronata (O. F. Müller, 1776)	58, 59, 60, 80, 88		(sk)	B-L, p, 0.5-2‰	278, 280, 374, 389
Simocephalus vetulus (O. F. Müller, 1776)	58, 59, 60, *68, 77, 80		(sk)	B-L, p, 0.5-2‰	97, 278, 279, 280
Podonidae					
Evadne nordmanni Lovén, 1836	29, 69	0-25	namp	M, p, eh, epp, et	201, 317, 319, 389
Evadne spinifera P. E. Müller, 1867	7, 11, 12, 29		amwp	M, p, epp	91, 198, 319, 389
Pseudevadne tergestina (Claus, 1877) [*Evadne*, *Pleopis*]	7, 11, 12, 16, 29	0-20	amip	M, p	91, 198, 319, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Podon intermedius Lilljeborg, 1853	29		bamswp	M, p, epp	201, 202
Podon leuckartii G. O. Sars, 1862	7, 29, *69		abapbp	M, p, epp, 10‰	201, 319, 374, 389
Pleopis polyphaemoides (Leucart, 1859) [*Podon*]	7, 13, 29, 69, 72, 77	0-50	amnp	M-B, p, eh	198, 201, 304, 317
Podonevadne trigona (G. O. Sars, 1897) [*P. t. ovum*, *Podon ovum*]	*69		pc, Rc	M-B-L, p, 5‰	317, 389
Cercopagidae					
Cercopagis pengoi (Ostroumov, 1891)	*68, *69		pc, Rc	M-B-L, p, 3‰	317, 385, 389
Ostracoda: Podocopida					
Darwinulidae					
Darwinula stevensoni (Brady et Robertson, 1870)	93		(k)	L-B, bt, 1‰	185, 249, 389
Candonidae					
Paracypris polita G. O. Sars, 1866	11, 25, 27	8, 100	clm	M, bt, eb, ps	233, 249, 252
Candona neglecta G. O. Sars, 1887	*68		(wp)	L-B, bt, 1-5‰	185, 249, 389
Candonopsis kingsleii (Brady et Robertson, 1870)	93		(h)	L-B, bt, 1‰	185, 249, 389
Fabaeformiscandona levanderi (Hirschmann, 1912) [*Candona*]	*68		(e)	L-B, bt, 1‰	185, 249, 389
Physocypria kraepelini G. W. Müller, 1903 [*Phycocypria kliei*]	*68		(k)	L, bt, 1‰	97, 389
Cyprididae					
Cyprinotus salinus (Brady, 1868) [*Heterocypris fretensis*]	*68, *69, *74, 77, *86, 88, 89, 90, 93, 94		(ean)	M-B-L, bt, 0-20‰	185, 249, 374, 389
Eucypris inflata (G. O. Sars, 1903)	61, 64, 76, 77, *79		(mwca)	L-B, bt, eh-150‰	185, 249, 389
Sarscypridopsis aculeata (Costa, 1847) [*Cypridopsis*]	96		(hnat)	L-B, bt	185, 249, 389
Cypridopsis vidua (O. F. Müller, 1776)	93		(sk)	L-B, bt, 8‰	185, 249, 389
Plesiocypridopsis newtoni (Brady et Robertson, 1870) [*Cypridopsis*]	93, 95		(wp)	L-B, bt, 8‰	185, 249, 389
Potamocypris steueri Klie, 1935	94		(hom)	L-B, bt, 10‰	185, 249, 389
Heterocypris maura (Masi, 1932)	*68		(pm)	L-B, bt, 1‰	185, 389
Heterocypris incongruens (Ramdohr, 1808)	42		(k)	L, bt	84, 389
Trajancypris serrata G. W. Müller, 1900 [*Eucypris*]	*68		(eca)	L, bt, 1‰	97, 389
Ilyocyprididae					
Ilyocypris biplicata (Koch, 1838)	*68		(h)	L, bt, 1‰	97, 389
Cushmanideidae					
Pontocythere bacescoi (Caraion, 1960) [*Cyteridea*]	11, 12, 25, 71	0.7-10	• p	M, bt, ep, ps	228, 249, 392
Pontocythere tchernijawskii Dubowsky, 1939	26, 27	10-43	ep	M, bt, mb, pe, s-ps	249

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Cytherideidae					
Cyprideis torosa (Jones, 1850) [*C. littoralis*]	*68, *69, 76, 77, *78, *79, 84, 93, 96		clm, (hat)	M-B-L, bt, ep, 0-30‰, eh, ps, pe, ph	84, 249, 374, 389
Cytheridea acuminata (Bosquet, 1952)	25, 26, 27, 28	20-100	m, ? em	M, bt, eb, pe, s-ps	249
Leptocytheridae (Cytheridae)					
Amnicythere quinquetuberculata (Schweyer, 1949) [*Leptocythere*]	3		pc, Sf, Rc	B-M, bt	237, 249, 252
Amnicythere striatocostata (Schweyer, 1949) [*Leptocythere*]	3		pc, Sf, Rc	B-M, bt	237, 249, 252
Euxinocythere lopatici (Schornikov, 1964) [*Leptocythere*]	3		pc, Sf, Rc	B-M, bt	237, 249, 252
Leptocythere devexa Schornikov, 1966	3, 7, 10, 25, 26, 27, 28	1-100	hom	M, bt, eb, pe, sg	249, 327, 252
Leptocythere diffusa G. W. Müller, 1894) [*Callistocythere*]	1-22, 26, 27	13-70	lm	M, bt, eb, pe	237, 249, 252
Leptocythere macallana (Brady et Robertson, 1869)	1-22, 25	8-12	ce	M, bt, ep, pe, ps, sg	237, 249, 252
Leptocythere mediterranea (G. W. Müller, 1894) [*Callistocythere*]	1-22, 24, 50	0-10	mj	M, bt, ep, pe, ps, ph	237, 249, 252
Leptocythere multipunctata (Seguenza, 1942)	3, 7, 10, 25, 27, 28, 35	-100	mj	M, bt, hb, pe, s-ps, sg	237, 249, 252
Leptocythere nitida Schornikov, 1966	1-22, 25, 26	8-15	● p	M, bt, ep, ps, pe	237, 249, 252
Leptocythere relicta Schornikov, 1964	3		pc, Sf, Rc	M-B, bt	237, 249, 252
Trachyleberididae					
Carinocythereis carinata (Roemer, 1838) [*C. antiquata*, *Cythereis*]	1-22, 25, 26	20-80	clm	M, bt, eb-hb, pe, s-ps	225, 249, 392
Hiltermannicythere rubra (G. W. Müller, 1894) [*H. r. pontica*, *Carinocythereis*]	1-22, 25, 26, 27, 28	2-100	m, ? em	M, bt, eb, pe, s, ps	225, 249, 392
Hemicytheridae					
Aurila dubowskyi Schornikov, 1969	24	0.4-10	● p	M, bt, ep, ph, ro	249
Hemicythere sicula (Brady, 1902) [*Cythere*]	*68, *69		pca	M-B, bt, 1-12‰	185, 249, 374, 389
Limnocytheridae					
Limnocythere inopinata (Baird, 1843)	*68		(h)	B-L, bt, 1‰	185, 249, 389
Cytheromatidae (Cytheromidae)					
Cytheroma karadagiensis Dubowsky, 1939	7, 24, 25, 26, 27	5-80	m	M, bt, eb, ps, ph, pe	225, 249, 392
Cytheroma marinovi Schornikov, 1969	24, 25, 26	15-30	● p	M, bt, ep, ps, ph, pe	249
Cytheroma variabilis G. W. Müller, 1894	26, 27	20-80	adep	M, bt, eb, pe	249
Cytheridae					
Pontocytheroma arenaria Marinov, 1963	7, 11, 25	10-25	● p	M, bt, ep, ps	227, 249, 392
Paracytheridea paulii Dubowsky, 1939	8, 11, 12, 25	2-20	● p	M, bt, ep, ps	228, 249, 392
Parvocythere hartmanni Marinov, 1962	25, 35		● p	M, bt, ps, gw	225, 249, 392

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Loxoconchidae					
Loxoconcha aestuarii Marinov, 1963	86		● p	M-B, bt, pe, s-ps	228, 249, 392
Loxoconcha bulgarica Caraion, 1961	16, 23, 26	-5	● p	M, bt, ep, pe, zc	80, 249, 392
Loxoconcha elliptica Brady, 1868 [*L. gauthieri*]	*68, 84, *86, 88		clm	M-B, bt, eh	185, 249, 374, 389
Loxoconcha granulata G. O. Sars, 1866	1-22, 26, 27, 28	20-100	clm	M, bt, eb, pe	225, 249, 392
Loxoconcha impressa (Baird,	7		bam	M, bt, sl	225, 392
Loxoconcha littoralis G. W. Müller, 1894 [*L. pennatus*, *Sagmatocythere*]	8, 25		m, ? hom	M, bt, ps	228, 249, 392
Loxoconcha nana Marinov, 1962 [*Tuberoloxoconcha*]	7, 25, 33		● p	M, bt, ps, if	225, 249, 392
Loxoconcha pontica Klie, 1937	7, 16, 24, 77, *86	0-5	clm	M, bt, sep, ph	84, 185, 249, 389
Loxoconcha rhomboidea (Fischer, 1855)	3, 7, 10, 17, 24, 26, 27	5-50	clm, ? bam	M, bt, mb, eh, s-ph-ro	247, 249, 252
Microloxoconcha marinovi Schornikov, 1969	7, 21, 22, 25	2-3	● p, Ebg	M, bt, sep, ps	233, 249, 252
Cytheruridae					
Eucytherura bulgarica Klie, 1937 [*Hemicytherura*]	16, 24, 89	0-15	● p	M, bt, ep, ph	185, 249, 389
Pseudocytherura pontica Dubowsky, 1939	8, 11, 12, 25	5-25	● p	M, bt, ep, ps	228, 249, 392
Semicytherura calamitica Schornikov, 1969	3, 7, 10, 25	-25	● p	M, bt, ep, ps	249, 252
Semicytherura euxinica (Caraion, 1967)	3, 7, 10, 17, 25	-20	● p	M, bt, ep, ps	249, 252
Semicytherura pontica (Marinov, 1962) [*Cytherura*, *Levocytherura*]	7, 11, 25	-7	● p, Ebg	M, bt, ep, ps	225, 249, 252
Semicytherura virgata Schornikov, 1969	2, 3, 5, 7, 10, 25	-25	● p	M, bt, ep, ps	249, 252
Levocytherura remanei (Marinov, 1962) [*Cytherura*, *Semicytherura*]	8, 11, 12, 25	5-10	● p	M, bt, ep, ps	228, 249, 392
Microcytherura fulvoides Dubowsky, 1939	11, 25		● p	M, bt, ep, ps	225, 249, 392
Microcytherura nigrescens G. W. Müller, 1894	3, 4, 7, 25	1-30	m, ? hom	M, bt, ep-me, ps	247, 249, 252
Xestoleberididae					
Xestoleberis aurantia (Baird, 1838)	24*, 69	-5	namni	M, bt, ep, ph	185, 249, 389
Xestoleberis cornelii Caraion, 1963	24, 25, 27	1.5-90	m	M, bt, eb, ph, pe, ps-s	249
Xestoleberis decipiens (G. W. Müller, 1894)	24, *86	0-25	hom	M, bt, eb, ph	185, 249, 389
Microcytheridae					
Microcythere longiantennata Marinov, 1962	7, 11-22, 25, 51		● p, Ebg	M, bt, eb, ps	225, 249, 392
Microcythere varnensis Marinov, 1962	25, 35, 51		● p, Ebg	M, bt, eb, l, ps, gw	225, 249, 389
Bythocytheridae					
Bythocythere turgida G. O. Sars, 1866	3, 7, 10, 21, 22, 24, 28	-70, 100	abam	M, bt, hb, ph, phs	247, 249, 252
Sclerochilus gewemuelleri Dubowsky, 1939 [*S. g. dubowskyi*]	7, 23, 24, 27, 28	3-100	clm	M, bt, eb, ph-zc-phs	225, 249, 392

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Paradoxostomatidae, Cytheridae					
Cytherois carcinitica Marinov, 1964	24, 25	10-20	● p	M, bt, ep, ps, ph, ro	249
Cytherois cepa Klie, 1937	23, 24, *79, *86	-2	● p	M, bt, seb, eh, ph	185, 249, 389
Cytherois messambriensis Marinov, 1964 [*C. pseudovitrea messambriensis*]	11, 25		● p, Ebg	M, bt, ep, ps	228, 249, 392
Cytherois pontica Marinov, 1966	11, 25	10-15	● p, Ebg	M, bt, ep, ps	234, 249, 392
Cytherois pseudovitrea Dubowsky, 1939 [*C. p. pseudovitrea*]	24, 25		● p	M, bt, ep, ps, ph	249
Cytherois valkanovi Klie, 1937	23, 24, *69	-25	● p	M, bt, ep, ph, zc	186, 249, 389
Paradoxostoma abbreviata G. O. Sars, 1866	7, 20		clm	M, bt	228, 392
Paradoxostoma convexum Schornikov, 1965	23, 24	-4	● p	M, bt, sep, ph, zc	249
Paradoxostoma guttatum Schornikov, 1965	24	-30	● p	M, bt, ep-mb, ph, ro	249
Paradoxostoma intermedium G. W. Müller, 1894	23, 24,*69, *86	-30	m, ? hom	M, bt, ep, ph, slc, zc	185, 249, 389
Paradoxostoma ponticum Klie et Whittaker, 1942	24, *86	-10	lm	M, bt, ep, ph, lt	185, 186, 249, 392
Paradoxostoma simile G. W. Müller, 1894	20, 24, 27, 28	15-83	m, hom	M, bt, eb, phc-ms-phs	228, 249, 392
Copepoda: Calanoida					
Calanidae					
Calanus euxinus Hulsemann, 1991 [? *C. helgolandicus*]	7, 10-17, 29		● p	M, p	160, 163, 269, 334
? *Calanus helgolandicus* (Claus, 1863)	3, 7, 10, 17, 29	0-150	amp	M, p, et	120, 198, 319, 389
Paracalanidae					
Paracalanus parvus (Claus, 1863)	7, 10-17, 29, 77	0-150	K	M, p, pp, et	91, 201, 304, 389
Clausocalanidae (Pseudocalanidae)					
Pseudocalanus elongatus (Boeck, 1865)	7, 10-17, 29, 69	0-200	anamnp	M, p	198, 317, 319, 389
Temoridae					
Eurytemora affinis (Poppe, 1880)	7, 29, 58, 80		anapnep, (h)	M-B, p, epp, eh	110, 252, 278, 279
Eurytemora lacustris (Poppe, 1887)	59		cp	M, p, eh, 0.5-0.8‰	280
Eurytemora velox (Lilljeborg, 1853)	59, 60, 71, 77, 80, 88, 93		cpc, (tp)	M-B, p, eh, 0-10‰	280, 294, 374, 389
Centropagidae					
? *Centropages kroyeri* Giesbrecht, 1893	3, 7, 10-17, 76, 77		amip	M, p	91, 304, 319, 374
Centropages ponticus Karavaev, 1895 [*C. kroyeri pontica*, ? *C. kroyeri*]	7, 11, 12, 29, *69, 76, 77		mrs	M, p, ■	114, 198
Diaptomidae					
Arctodiaptomus byzantius Mann, 1940 [*A. byzantinus*]	42		(seea)	L	252, 277, 279

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Arctodiaptomus salinus (Daday, 1885) [*Diaptomus*]			(po)	L, p, 10‰	91, 279, 389
Neolovenula alluaudi (Guerne et Richard, 1890) [*Lovenula*, *Paradiaptomus*]	78		(hom)	L, p	192, 252, 279
Pseudodiaptomidae					
Calanipeda aquaedulcis Kritchagin, 1873	7, 13, 29, 59, 60, *68-70, *74, 76-80, 83, 85, 88, 90, 92-95		lm, (hom)	B-L, p, eh, et	198, 201, 279, 280, 317, 319, 374, 389
Pontellidae					
Anomalocera patersoni Templeton, 1837	7, 29		amip	M, p, et, ■	198, 201, 319, 389
Labidocera brunescens (Czerniavsky, 1868)	7, 29		lmm	M, p, eh, th, ■	198, 201, 319, 389
Pontella mediterranea (Claus, 1863)	7, 12, 29, *69		lmm	M, p, ■	91, 198, 319, 389
Acartiidae					
Acartia clausi Giesbrecht, 1889	7, 10-17, 29, 68, 69, 76, 77, 80, 84	0-50	K, aamip	M, p, 10‰, et	91, 198, 201, 304, 317, 319, 374, 389
Acartia tonsa Dana, 184	29		antamip, K, i	M, p, th	160, 204, 355
Paracartia latisetosa (Kritchagin, 1873) [*Acartia*]	7, *69, *79, 84		lmmwi	M, p, 10‰, th	279, 317, 319, 374
Copepoda: Monstrilloida					
Monstrillidae					
Monstrilla grandis Giesbrecht, 1891	7, 11, 29		amrsp	M, p	91, 198, 319, 389
Copepoda: Cyclopoida					
Oithonidae					
Oithona brevicornis Giesbrecht, 1891	29		amip	M-B-L, p	324
Oithona davisae Ferrari F.D. & Orsi, 1984	2-17		SK, i	M-B-L, p, eh, is	269, 355
Oithona minuta (Krichagin, 1877; Scott, 1894) [? *O. nana*, *Dioithona*]	7, 11, 12, 29, *68, *79, 84, *86, 88	20	amip	M-B-L, p, eh, ■	84, 114, 198, 201, 317, 319, 374, 389
Oithona nana Giesbrecht, 1893 [? = *O. minuta*]	10-17, 29		K	M-B-L, p, eh	160, 324
Oithona similis Claus, 1866	7, 10-17, 16, 29	20-	K	M-B-L, p, eh, epp	198, 201, 319, 389
Cyclopidae					
Halicyclops rotundipes Kiefer, 1935 [*H. r. rotundipes*]	*69, 84, 88		(nem)	B, p, 0-10‰	279, 374, 389
Macrocyclops albidus (Jurine, 1820)	59, 60		(k)	L, p, 0.5-0.8‰	279, 280
Macrocyclops fuscus (Jurine, 1820)	59, 60		(hn, ? sk)	L, p, 0.5-0.8‰	279, 280
Eucyclops macruroides (Lilljeborg, 1901) [*E. m. macruroides*]	85		(pat)	L, p, 0-30‰	252, 277

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Eucyclops serrulatus (Fischer, 1851) [*Cyclops*]	58-60, *68, 76, 77, *79, 80, 85, *86, 88, 92, 93		(sk, ? k)	L, p, 0.5-8‰	252, 277, 278, 280, 374, 389
Eucyclops speratus (Lilljeborg, 1901)	60		(hptn, ? sk)	L, p, 0.5-0.8‰	279, 280
Euryte longicauda Philippi, 1843	3		nam, ? namnz	M, p, r	160, 355
Paracyclops affinis (G. O. Sars, 1863)	60		(hpt)	L, p, 0.5-0.8‰	279, 280
Paracyclops fimbriatus (Fischer, 1853)	90		(sk)	L, p, 0-30 ‰	252, 277
Ectocyclops phaleratus (Koch, 1838)	60		(sk)	L, p, 0.5-0.8‰	279, 280
Cyclops strenuus Fischer, 1851	58, 60, 78, 79, 80, 84, *86, 92		(h)	L, p, eh	192, 193, 252, 277, 278, 280
Cyclops vicinus Uljanin, 1875 [*C. v. vicinus*]	7, 13, 29, 58-60, 78, 79, 84, 92		(ho)	L, p, eh	110, 192, 193, 198, 177, 201, 278, 280
Megacyclops latipes (Lowndes, 1927) [*Acanthocyclops*]	92		(h)	L, p	252, 277
Megacyclops viridis (Jurine, 1820) [*M. v. viridis*, *Cyclops*]	58, 59, 60, *68, *69, *86, 88		(hptn, ? sk)	L, p, 6‰	278, 280, 374, 389
Acanthocyclops robustus (G. O. Sars, 1863) [? *A. americanus*]	58, 59, 60, 77, 80, *86		(hna, ? sk), i	L, p, is	252, 277, 278, 280
Acanthocyclops vernalis (Fischer, 1853)	78, 79, 85, 92		(sk, ? k)	L, p, epp	192, 193, 252, 277
Diacyclops bicuspidatus (Claus, 1857)[*D. b. odessanus*, *Acanthocyclops*, *Cyclops*]	59, 60, 79, 84, 85, *86, 92		(h, ? hn)	L, p, 20‰, eh	252, 277, 280, 374
Diacyclops bisetosus (Rehberg, 1880) [*Acanthocyclops*, *Cyclops*]	33		(ha)	L, p, 10‰	252, 277, 374, 389
Metacyclops planus (Gurney, 1909) [*Microcyclops*]	42		(wp)	L, p	252, 278
Microcyclops minutus Claus, 1863 [? *Metacyclops*]	69		(? pat)	L, p	279, 334
Microcyclops varicans (G. O. Sars, 1863)	76		(sk, ? k)	L, p, eh	119, 259
Mesocyclops leuckarti (Claus, 1857)	59, 60, 76, 92		(tp)	L, p, 0.5-0.8‰	252, 277, 279, 280
Thermocyclops crassus (Fischer, 1853) [*Mesocyclops*]	79, 80		(hptn, ? sk)	L, p, 0.5‰	193, 252
Thermocyclops dybowskii (Landé, 1890)	60		(wcp, ? hop)	L, p, 0.5-0.8‰	279, 280
Thermocyclops oithonoides (G. O. Sars, 1863)	60		(hop, ? h)	L, p, 0.5-0.8‰	279, 280
Lernaeidae					
Lernaea cyprinacea Linnaeus, 1758	60		(h)	L, ec	389
Copepoda: Harpacticoida					
Longipediidae					
Longipedia minor T. Scott et A. Scott, 1893 [*L. pontica*]	7, 10, 12, 24, 25, 27	10-100	cp	M, bt-p, eb, ph-sg-s	13, 17, 31, 249, 252
Canuellidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Canuella perplexa T. Scott et A. Scott, 1893	7, 24, 25, 27, 61, 76, 78, 88	-65	nam	M, bt-p, mb, eh, 12-50‰, ph-ps-s	185, 249, 252, 304, 389
Canuella furcigera G. O. Sars, 1903	1-22, 25, 26, 76, 96	-50	abam	M, bt, mb, ps, ps-s	17, 18, 31, 43, 240
Canuella pontica Apostolov, 1971	25, 35, 51, 86, 87		● p	M, bt, l, ps, gw	16, 18, 31, 249, 252
Sunaristes paguri Hesse, 1867			cp, ? amip	M, bt, co, ep	17, 31
Ectinosomatidae					
Ectinosoma melaniceps Boeck, 1865	16, 24-27, *69, 76, *86	1-100	amip	M, bt-p, eb, ph, ps, s	31, 84, 185, 249
Ectinosoma normani T. Scott et A. Scott, 1894	24, 25, 27	1-100	clm	M, bt, eb, ph, ps, s-ps	17, 31, 249
Ectinosoma soyeri Apostolov, 1975	19, 20, 35, 51		● p	M, bt, l, ps, gw	24, 31, 249, 252
Halectinosoma abrau (Kritchagin, 1877) [*Ectinosoma*]	35, 51		abam, (wcp)	M-B, bt, eh, ps, gw	16, 31, 249, 252
Halectinosoma brevirostre (G. O. Sars, 1904) [*Ectinosoma*]	7, 12, 23, 25, 27, 29	1.5-50	bap	M, bt-p, mb, zc, ps, s	17, 31, 249, 252
Halectinosoma curticorne (Boeck, 1872) [*Ectinosoma*]	25, 35, 84, 96	0-15	abam, (h)	M, bt, ep, ps, ps-s, gw	31, 249, 252, 263
Halectinosoma elongatum (G. O. Sars, 1904) [*Ectinosoma*]	7, 24, 25, 26	-30	bap	M, bt, ep, ph, ps, ps-s	17, 31, 43, 249, 252
Halectinosoma herdmani (T. Scott et A. Scott, 1894) [*Ectinosoma*]	1-22, 24, 25, 26, 29	5-6, 30	cp, ? clm	M, bt-p, eu, ph, ps, s	13, 17, 31, 249, 252
Pseudobradya beduina Monard, 1935	7, 17, 24, 25	2-12	cp, ? clm	M, bt, ep, ps, ph, ps-s	26, 31, 249, 252
Pseudobradya minor (T. Scott et A. Scott, 1896)	3, 7, 10, 13, 25, 26	5-25	acp	M, bt, ep, ps, ps-s	31, 246, 249, 252
Glabrotelson bodini Apostolov, 1974 [*Hastigerella*]	2, 35, 51		● p	M, bt, ls, ps, gw	23, 31, 249, 252
Noodtiella wellsi Apostolov, 1974	2, 35	0.80	● p	M, bt, ls, ps, gw	23, 31, 249, 252
Darcythompsoniidae					
Leptocaris brevicornis (van Douwe, 1905) [*Horsiella*]	25, *78, *79		nam, (wcp)	M, bt, ep, l, eh, ph, ps	31, 249, 386, 389
Tachidiidae					
Microarthridion littorale (Poppe, 1881)	7, 25		abap, (h)	M-B, bt, l, ep, ps, if	31, 240, 246, 249
Harpacticidae					
Harpacticus flexus Brady et D. Robertson, 1873	1-22, 24, 25	1-2	clm, ? cp	M, bt, ep, ph, ps, s, eu	14, 15, 31, 43, 182
Harpacticus gracilis Claus, 1863 [*H. nicaeensis* var. *pontica*]	7, 24, 25, 29, 35		namni	M, bt, ep, ph, (p, ps)	31, 249, 304, 319
Harpacticus littoralis G. O. Sars, 1910	13, 16, 24, 25, 29, 76		namni	M, ep, ph, (p, ps), co	14, 15, 31, 249, 252
Harpacticus nicaeensis Claus, 1866	1-5, 11, 12, 13, 24, 25		nam, ? bap	M, bt, ep, ph, (ps)	31, 91, 157, 249
Harpacticus obscurus T. Scott, 1895	7, 24, 29		clp, ? clm	M, bt, ep, ph, (p)	31, 84, 249, 389
Harpacticus uniremis Kröyer, 1842	20, 24, 35, 51		anap, (h)	M, bt, eh, ph, gw, s, r	15, 17, 31, 249, 252
Tigriopus fulvus (Fischer, 1860) [*Harpacticus*]	32, 33		neamnp	M, 10-60‰, spr	57, 392
Tisbidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Tisbe dilatata Klie, 1949	20, 21, 22, 24	2-25	cp,	M, bt, ep, sl, ph-ro	31, 84, 249, 389
Tisbe furcata (Baird, 1837) [*Idya*]	7, 13, 24, 29, 76		anaminp, ? K	M, bt, p, sl, ph, eu	31, 84, 249, 304
Scutellidium arthuri Poppe, 1884	24		abap	M, bt, ep, ph	17, 31, 249
Scutellidium longicauda (Philippi, 1840) [*Machairopus*, *Psammathe*]	7, 11, 12, 24		am	M, bt, ep, ph	31, 91, 157, 249
Porcellidiidae					
Porcellidium viride (Philippi, 1840)	7, 24		clmwi	M, bt, ep, ph	17, 31, 249, 252
Peltidiidae					
Alteutha typica Czerniavski, 1868	1-22, 24		• p	M, bt, ep, ph	20, 31, 243, 249
Tegastidae					
Tegastes longimanus (Claus, 1863)	1-22, 24, 35		clp, ? clm	M, bt, ep, ph, (gw)	17, 25, 31, 249, 252
Thalestridae					
Thalestris longimana Claus, 1863	13, 24, 25, 29	-35, 100	bam, ? bap	M, bt (p), eb, ph, ps, s	16, 31, 249, 252
Thalestris rufoviolascens Claus, 1866	13, 24, 25	-30	clm	M, bt, ep, ph, ps-sg, s	15, 16, 31, 249, 252
Parathalestris clausi (Norman, 1868)	20, 24, 25, 26, 27	25-50	clp	M, bt, mb, ph, ps-s, et	17, 31, 249, 252
Parathalestris dovi Marcus, 1966	13, 24, 25	-12	lp, ? clp	M, bt, ep, sl, ph-lt	17, 31, 182, 249
Parathalestris harpactoides (Claus, 1863)	7, 24, 25, 35	0-50	cp, ? clm	M, mb, ph, ps, s, co	31, 84, 249, 389
Phyllothalestris mysis (Claus, 1863) [*Phyllopodopsillus*]	11, 12, 24, 25, 27	-90	clmi	M, bt, eb, ps, ph, s, et	31, 91, 249, 389
Rhynchothalestridae					
Ambunguipes rufocincta (Brady, 1880) [*Rhynchothalestris*]	3, 24, 25		nami, ? bami	M, bt, eb, ph, ps-pe	17, 31, 249, 252
Dactylopusiidae					
Diarthrodes assimilis (G. O. Sars, 1906)	24		cpnei	M, bt, ep, sl, ph	17, 31, 249
Diarthrodes minutus (Claus, 1863)	24, *69		bam	M, bt, ep, sl, ph, eh	31, 185, 249, 389
Diarthrodes nobilis (Baird, 1845)	7, 16, 20, 24, 29, 66	-25	amswp	M, bt (p), ep, slc, ps-s	17, 20, 31, 243, 249
Diarthrodes ponticus (Kritchagin, 1873) [*D. p. orientalis*]	7, 13, 16, 24, 25	-25	clmwi	M, bt, ep, ph, ps, sg	17, 24, 31, 182, 263
Diarthrodes pygmaeus (T. Scott et A. Scott, 1895)	16, 24		ami	M, bt, ep, ph, r	17, 31, 249, 252
Dactylopusia tisboides (Claus, 1863) [*Dactylopodia*]	7, 11, 12, 24, 25, 35	-30, 50	aminz, ? SK	M, ph, gw, (sg, s), co	31, 91, 185, 249
Dactylopusia vulgaris G. O. Sars, 1905 [*Dactylopodia*]	20, 24, 25, 29, 35	-100	abam	M, bt (p), ph, gw (ps)	13, 14, 17, 31, 249
Paradactylopodia brevicornis (Claus, 1866) [*Dactylopusia*]	1, 11, 12, 24, 25, 35	-40, 100	naminz, ? SK	M, bt, ph, ps, ro, gw	31, 91, 249, 389
Paradactylopodia latipes (Boeck, 1865)	7, 20, 24, 25, 35	-20, 100	namni	M, bt, ph, gw, sg, s, r	14, 15, 17, 20, 31, 182, 249, 252
Pseudotachidiidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Dactylopodella flava (Claus, 1866)	7, 24, 25, 26, 27	8-110	acmnz	M, bt, eb, ph, ps, s	31, 243, 249, 252
Parastenheliidae					
Parastenhelia hornelli I. C. Thompson et A. Scott, 1903	16, 20, 24		anpip	M, bt, ep, ph, r	20, 31, 182, 249
Parastenhelia reducta Apostolov, 1975	20, 21, 25	5	● p	M, bt, ep, ps, r	24, 31, 249, 252
Parastenhelia spinosa (Fischer, 1860) [*P. s. bulgarica*, *P. forficula litoralis*]	7, 16, 24	-25	naminz, ? SK	M, bt, ep, ph, ps	31, 84, 249, 389
Miraciidae, Diosaccidae					
Stenhelia elisabethae Por, 1960 [*Delavalia*]	1-22, 25, 26		cp, ? clp	M, bt, sl, pe, co	31, 240, 249, 252
Stenhelia normani (T. Scott, 1905) [*Delavalia*]	7, 13, 24, 25, 27, 28	6-100	clm	M, bt, eb, ps, pe, ph	16, 18, 31, 43, 249
Stenhelia palustris (Brady, 1868) [*Delavalia*]	7, 25, 26	10	bam, ? bap	M, bt, ep, eh, ps, pe	17, 31, 43, 249, 252
Stenhelia proxima G. O. Sars, 1907	7, 25, 26, 27	10-30	cp	M, bt, ep, ps, pe, ph	17, 31, 43, 249
Stenhelia reflexa Brady et D. Robertson, 1880 [*Delavalia*]	10, 25	-25	anam	M, bt, sl, ep, ps	17, 31, 246, 249
Stenhelia tethysensis Monard, 1928 [*Delavalia*]	7, 12, 25, 27	10-100	m, ? nm	M, bt, eb, pe, ps-s	31, 84, 91, 249, 389
Diosaccus tenuicornis (Claus, 1863)	7, 17, 18, 24, 25, 35	15-30	nam	M, bt, ep, ph, ps, gw	20, 31, 249, 252
Diosaccus varicolor (Farran, 1913) [*D. v. biarticulatus*]	24		lm, ?clm	M, bt, ph	26, 31, 249
Robertsonia knoxi (I. C. Thompson et A. Scott, 1903)	7, 16, 20, 25, 27, 28	15-100	nami	M, bt, ps-s, ms, phs	10, 31, 248, 2490
Robertsonia monardi (Klie, 1937) [*Varnaia*]	24, 25, 69	0.3-3	cp	M, bt, sep, ps-s, ph	31, 185, 249, 389
Sarsamphiascus caudaespinosus (Brian, 1927) [*Amphiascus*]	24, 27, 28	-150	m, ? nm	M, bt, hb, pe, ph	31, 42
Sarsamphiascus gracilis Lang, 1936 [*Amphiascus*]	24		ap	M, bt, ph, lt	15, 17, 31
Sarsamphiascus propinquus (G. O. Sars, 1906) [*Amphiascus*, *A. angustipes*]	7, 18, 24, 25, 35	0-20	ami	M, bt, ep, ps, ph, gw	31, 242, 249
Sarsamphiascus sinuatus (G. O. Sars, 1906) [*Amphiascus*]	16, 24, 25, 27, 28, 29	30-150	nam, ? bam	M, bt (p), ph, ps, pe	14, 15, 31, 249, 252
Amphiascopsis cinctus (Claus, 1866)	13, 24	6	amip, ? SK	M, bt, sep, ph, lt	17, 26, 31, 249, 252
Amphiascopsis minutus (Claus, 1863) [*Amphiascus*]	11, 13, 20, 24, 25, 35	0-10	amnep, SK	M, bt, ep, ph, ps, gw	14, 15, 31, 243, 249
Amphiascopsis thalestroides (G. O. Sars, 1911) [*Amphiascus latilobus*]	7, 24, 25		clm	M, bt, ps, ph	31, 84, 249, 389
Amonardia normani (Brady, 1872)	13, 20, 24, 25, 27, 35	-85	ap	M, bt, eb, ph, ps, pe	15, 17, 31, 243, 249
Amonardia similis (Claus, 1866)	24, 25, 26	-30	lm	M, bt, ep, ph, ps, s	13, 31, 249
Pseudamphiascopsis attenuatus (G. O. Sars, 1906)	13, 18, 25	-20	clm, ? nam	M, bt, ep, ps	26, 31, 249, 252
Amphiascus longirostris (Claus, 1863) [*Paramphiascopsis*]	1-22, 24, 25, 27, 28	5-98	ham	M, bt (p), eb, eh, et, eu, ph, ps, s	14, 15, 17, 31, 240, 246, 249, 252
Bulbamphiascus imus (Brady, 1872)	1-22, 25-28	10-200	naminz	M, bt, eb, eu, pe, sg, s, ms, phs, ph	17, 31, 243, 246, 248, 249, 252
Robertgurneya oligochaeta Noodt, 1955	1-22, 25, 35	0-20	lm	M, bt, ep, ps, ps-s, gw	17, 18, 27, 31, 240, 249, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Robertgurneya rostrata (Gurney, 1927)	25		namnei	M, bt, ps-pe	249
Robertgurneya similis (A. Scott, 1896)	7, 24, 25	8-40	lm	M, bt, mb, ps, sg, ph	18, 31, 246, 249
Robertgurneya soyeri Apostolov, 1974	20, 21, 22, 25	10	● p	M, bt, ep, ps	23, 31, 249, 252
Robertgurneya spinulosa (G. O. Sars, 1911)	13, 14, 25, 27	-40	cp, ? clm	M, bt, mb, ps, pe	27, 31, 249, 252
Typhlamphiascus confusus (T. Scott, 1902)	16, 25, 27	-80	clm	M, bt, eb, ps, pe, rh	31, 246, 249, 252
Typhlamphiascus typhlops (G. O. Sars, 1906)	17, 25, 26, 39	10-15	bam	M, bt, ep, ps, ps-s, s	17, 19, 31, 249, 252
Amphiascoides brevifurca (Czerniavsky, 1868) [*A. speciosus*]	24, 25, 26, *86		lm	M, bt, ep, ph, pe, ps	17, 31, 185, 249
Amphiascoides debilis (Giesbrecht, 1881) [*Amphiascella*]	7, 24, 25, 26		anam	M, bt, ph, ps, s	31, 84, 249, 389
Amphiascoides neglecta (Norman et T. Scott, 1905) [*Amphiascella*]	24, 25, 26		cp, ? clm	M, bt, ps, ps-s, s	249
Amphiascoides subdebilis (Willey, 1935) [*Amphiascella*]	7, 24, 25, 26	8	antami	M, bt, ep, ph, ps, s	12, 17, 31, 243, 249
Mesamphiascus junodi (Monard, 1935) [*Haloschizopera*]	18, 25, 26	30	nam	M, bt, ep, ps, pe	19, 31, 249, 252
Haloschizopera pontarchis Por, 1959	1-22, 27, 28	25-200	adp	M, bt, hb, ms, phs, s	31, 240, 249,252
Schizopera brusinae Petkovski, 1954	7, 22, 25, 35, 51, 95		m, ? nm	M, bt, l-sl, ps, gw	22, 30, 31, 242, 249
Schizopera chaetosa Petkovski, 1954	25, 71, 92		m, adp	M, bt, ps, if	15, 18, 30, 31, 249
Schizopera clandestina (Klie, 1924)	25, *86, 88, 96		neamnz, (pa)	M, bt, 3‰, ps, eh	14, 31, 185, 249
Schizopera compacta De Lint, 1922	7, 25, 69		clm, (cse)	M, bt, ep, ps, eh	15, 22, 31, 249, 252
Schizopera jugurtha (Blanchard et Richard, 1891)	7, 25, 35	0-5	hom, (atm)	M, bt, l-sl, ep, ps, if	16, 17, 22, 31, 249
Schizopera kunzi Apostolov, 1967	7, 25, 35		● p	M, bt, ps, if	9, 13, 14, 31, 249
Schizopera langi Petkovski, 1954	7, 25, 35		m, adp	M, bt, ep, ps, gw, r	16, 22, 30, 31, 249
Schizopera meridionalis Petkovski, 1954	7, 13, 25, 35		cm, (e)	M, bt, l, ps, gw	22, 30, 31, 240, 249
Schizopera neglecta Akatova, 1935	25, 94		pc, (? wcp)	M, bt, eh, ps	12, 18, 22, 31, 249
Schizopera petkovskii Apostolov, 1971	25, 35, 51, 92		● p	M, bt, l, ps, gw, r	15, 17, 31, 249, 252
Schizopera pontica Chappuis et Serban, 1953	7, 25, 35		● p	M, bt, l, ps, gw, if	17, 31, 243, 249
Eoschizopera gligici (Petkovski, 1957)	7, 11, 26, 35, 84		m, adp	M, bt, l, ps, if, s, r	17, 22, 31, 249, 261
Schizoperopsis arenicola (Chappuis et Serban, 1953) [*Schizopera*]	7, 25, 35		● p	M, bt, l, ps, if	17, 22, 30, 31, 249
Schizoperopsis varnensis (Apostolov, 1967)	7, 11, 25, 35		● p	M, bt, l, ps, if	9, 13, 14, 17, 30, 31
Metidae					
Metis ignea Philippi, 1843	7, 16, 24, 25, 35	0-10	namwi, (hat)	M, bt, ep, ph, ps, if, s	17, 19, 31, 182, 249
Ameiridae					
Ameira divagans Nicholls, 1939 [*A. d. pontica*]	7, 24, 25	8	bap	M, bt, ep, ph, ps, r	31, 241, 246, 249
Ameira longipes Boeck, 1865	20, 24, 25	5-72	amnei	M, bt, eb, ph, ps, et	15, 31, 249, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Ameira parvula (Claus, 1866) [*A. p. tenuiseta*, *A. tau*]	7, 11-13, 24, 25, 76, *86	0-12	nami	M, bt-p, sep, ph, ps, ps-s, s, co	26, 31, 84, 91, 185, 249, 389
Ameira scotti G. O. Sars, 1911 [*A. s. brevicornis*]	7, 20, 24, 25, 27	0-70	ham	M, bt, eb, ph, ps, if, s	15, 31, 243, 249
Filexilia attenuata (Thompson, 1893) [*Ameira tenella*]	20, 25, 35		cp	M, bt, ph, ps, s (gw)	15, 17, 31, 249, 252
Filexilia brevipes (Kunz, 1954) [*Ameira*, *A. b. pontica*]	1, 7, 12, 13, 16, 25, 35	0-10	cp	M, bt, ep, ph, ps, if, r	12, 15, 17, 26, 31
Filexilia pestae (Petkovski, 1955) [*Ameira*, *A. brevipes pestae*]	1, 7, 12, 22, 24, 25, 27	10-70	m, adp	M, bt, eb, ph, pe, ps	19, 31, 240, 249
Nitokra affinis Gurney, 1927 [*N. a. californica*]	7, 13, 25, 35, 95	0-10	amip, (m)	L-eh, bt, ps, gw-if, ph	18, 28, 31, 244, 249
Nitokra divaricata Chappuis, 1923	25, 35, 79		adpc, (cseea)	L-B, bt, gw, ps-s, co	17, 31, 249, 250
Nitokra fallaciosa Klie, 1937	35, *69, 76		clm, (wp)	L-B, 60‰, bt, pe, gw	31, 86, 185, 389
Nitokra fragilis G. O. Sars, 1905	24, 69		amiswp, (ha)	B-L, bt, sep, ph	17, 31, 249
Nitokra hibernica (Brady, 1880) [*N. h. bulgarica*, *N. h. hialina*, *N. inuber*]	2, 24, 35, 41, 71, 92		clm, (et)	B-L, bt, ph, ps-if, co	25, 31, 185, 389
Nitokra lacustris (Shmankevich, 1875)	16, 18, 20, 24, 25, 35, 76, 77, 95		SK, (pat)	L-B, eh-0-60‰, bt, ps, gw, pe, cr, ph, et	14, 15, 21, 31, 243, 249, 252, 263
Nitokra mediterranea Brian, 1928 [*N. m. pontica*]	25, 95	10	ep	L, eh, bt, ep, ps	28, 31, 249, 252
Nitokra pontica Jakubisiak, 1938 [*N. typica* var. *pontica*]	4, 25		● p	L, eh, bt, ep, ps, r	31, 157, 249, 389
Nitokra pusilla G. O. Sars, 1911	7, 20, 25, 35		cp, ? nap	L, eh, bt, ps, gw	31, 84, 249, 389
Nitokra spinipes Boeck, 1865	7, 20, 22, 24, 25, 35, *69, 76		nami, ? K, (h)	L, eh, bt (p), ph, ps, if	31, 185, 249, 389
Nitokra stygia (Apostolov, 1976)	20, 25		● p, (Ebg)	L-B, eh, ps, cr	25, 31, 249, 252
Nitokra typica Boeck, 1865 [*N. t. adriatica*]	7, 16, 20, 25, 35	0-35	anam, (h)	L, eh, bt, mb, ps, gw	14, 15, 31, 84, 249
Ameiropsis reducta Apostolov, 1973	11, 17, 24, 25, 85	10	● p	M, bt, ep, ph, ps	20, 31, 182, 249
Sicameira intermedia Marinov, 1973	10, 17, 25	26	● p	M, bt, ep, ps	31, 241, 249, 252
Pseudoleptomesochrella halophila (Noodt, 1952)	16, 17, 19, 22, 25, 35	0.8	cp	M, bt, l, ps, sg, gw-if	12, 14, 31, 249, 263
Leptomesochra africana Kunz, 1951 [*Paraleptomesochra*]	7, 25, 35	0-25	aminp	M, bt, ep, ps, sg, if	31, 241, 249, 252
Parevansula wellsi (Marinov, 1973) [*Philoleptomesochra*]	10, 11, 17, 25	-20	● p	M, bt, ep, ps, ps-s	31, 241, 244, 249
Paramesochridae					
Paramesochra helgolandica Kunz, 1936	7, 11, 18, 25	10-30	namnei	M, bt, ep, ps, ps-s	18, 31, 240, 249
Paramesochra similis Kunz, 1936	7, 11, 25, 35		cp	M, bt, ep, l-sl, ps, gw	14, 17, 31, 249, 252
Kliopsyllus constrictus (Nicholls, 1935)	17, 20, 25, 35, 94	0-10	cclm, ? bam	M, bt, ep, l-sl, ps, gw	14, 17, 31, 240, 249
Kliopsyllus holsaticus (Klie, 1929)	25		amnei	M, bt, ps, r	31, 249
Scottopsyllus herdmani (I. C. Thompson et A. Scott, 1899) [*Paramesochra*]	1-22, 25, 35	0-20	bap	M, bt, ep, ps, ps-s, if	31, 240, 249, 252
Scottopsyllus intermedius (T. Scott et A. Scott, 1895)	7, 25, 26, 35		cp	M, bt, ep, ps, pe, gw	19, 31, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Scottopsyllus minor (T. Scott et A. Scott, 1895)	20, 25, 35		bap	M, bt, ep, l-sl, ps, gw	12, 14, 17, 31, 249
Scottopsyllus robertsoni (T. Scott et A. Scott, 1895)	11, 22	0.5-10	cp	M, bt, ep, ps	18, 31, 240, 249
Tetragonicipitidae					
Phyllopodopsyllus briani Petkovski, 1955	7, 22, 25, 35, 95		adp	M, bt, ep, l-sl, ps, gw	13, 17, 31, 244, 249
Phyllopodopsyllus pauli Crisafi, 1960 [*Ph. ponticus*]	7, 22, 25, 35, 95	8-12	hom	M, bt, ep, l-sl, ps, gw	11, 19, 31, 249, 252
Phyllopodopsyllus thiebaudi Petkovski, 1955	7, 22, 25, 35, 95		lmwp	M, bt, ep, l-sl, ps, if	17, 18, 31, 249, 252
Diagoniceps kunzi Marinov, 1973	17, 18, 25	20	• p	M, bt, ep, ps, r	31, 242, 249, 252
Canthocamptidae (Orthopsyllidae, Cylindropsyllidae part)					
Mesochra aestuarii Gurney, 1921 [*M. apostolovi*, *M. pontica*]	25, *68, *69, *74, 84, 88, 90, 94, 96		neamj, (tp)	M-B-L, eh, 1-16‰, bt, ps, ps-s	17, 31, 185, 249, 252, 389
Mesochra heldti Monard, 1935	16, 24, 25, 49, 76		lm, (hom)	B-M, bt, l-sl, ph, ps, s	31, 84, 249, 389
Mesochra lilljeborgi Boeck, 1864	24, 25, 35, *86,		ham, (h)	B-M, bt (p), ph, ps-s	31, 185, 249, 389
Mesochra pestai Lang, 1948	24, 25		• p	B, bt, ph, ps	31, 249, 262, 276
Mesochra pygmaea (Claus, 1863)	12, 24, 25, 26, *69, 76	8-120	namip	B, bt-p, eu, ph, ps, pe	31, 91, 185, 249
Mesochra rapiens (Schmeil, 1894)	24, 25, *69, 76		cpj, (h)	B, bt, ph, ps-pe	31, 185, 249, 389
Mesochra xenopoda Monard, 1935	7, 24, 26, 35, *69		ham, (atm)	B, bt, l-sl, ph, pe, gw	31, 185, 249, 389
Orthopsyllus linearis (Claus, 1866)	12, 25, 27, 28	35-200	ami	L, bt, eu, ph, ps, s, et	26, 31, 249, 252
Itunella intermedia Apostolov, 1975	25, 92		• p, (Ebg)	B-L, bt, l, ps, if	24, 31, 249, 252
Itunella muelleri (Gagern, 1923)	7, 25, 35		clm, (e)	B-L, l, ps-gw, if	17, 18, 31, 249, 252
Nannomesochra arupinensis (Brian, 1925)	13, 24, 25, 28	-100	namp	M, bt, eb, ph, ps, phs	26, 31, 249, 252
Stenocaris minor (T. Scott, 1892)	7, 11, 12, 25, 35, 92	0-20	clm, ? bap	L-M, bt, ep, ps, gw	14, 17, 31, 249, 252
Vermicaris pontica (Chappuis et Serban, 1953) [*Stenocaris*]	1-22, 25, 35		cp	L-M, l, ps, gw, if	17, 22, 31, 240, 244, 249, 252
Stenocaris valkanovi Marinov, 1974 [*Stenocaropsis*]	7, 18, 25, 35	0-25	• p	L-M, bt, ep, ps, (gw)	19, 31, 242, 249
Leptastacidae (Cylindropsyllidae part)					
Leptastacus laticaudatus Nicholls, 1935 [*L. l. intermedius*]	11, 25	10	cp	M, bt, ep, ps, r	18, 31, 249, 252
Leptastacus macronyx (T. Scott, 1892)	10, 11, 21, 25	8-50	nap	M, bt, mb, ps, sg	31, 240, 246, 249
Leptastacus taurica Marinov, 1973	10, 21, 25	-18	cp	M, bt, ep, ps, sg	31, 242, 246, 249
Paraleptastacus holsaticus Kunz, 1937	7, 20, 25, 35, 95		bap, ? nap	M, bt, eh, ps, gw, if	14, 15, 17, 31, 249
Paraleptastacus spinicaudus (T. Scott et A. Scott, 1895)	7, 11, 25, 35		clp	M, bt, eh, ps, gw, if	13, 14, 17, 18, 31
Psammastacus confluens Nicholls, 1935	18, 25, 35		cp, ? nap	M, bt, ph, ps, gw, r	26, 31, 249, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Leptopontiidae (Arenopontiidae)					
Leptopontia curvicauda T. Scott, 1892	7, 11, 16, 25		cp	M, bt, ep, ps	15, 19, 31, 249, 252
Arenopontia subterranea Kunz, 1937 [*A. pontica*]	1-33, 35		clmi	M, bt, ep, ps, if, gw	13, 14, 31, 240, 249
Psammoleptastacus stygius (Noodt, 1955) [*Arenopontia*]	17, 25, 35, 84		nap, ? calp	M, bt, ep, ps, (gw), r	31, 240, 249, 252
Cletodidae					
Cletodes limnicola Brady, 1872	1-22, 25, 28	20-100	clm, ? clmi	M, bt, hb, pe, s-ps, sg	31, 246, 249, 252
Cletodes longicaudatus (Boeck, 1872)	1-22, 25, 28	20-100	bam, ? nam	M, bt, hb, pe, s-ps, sg	31, 246, 249, 252
Cletodes tenuipes T. Scott, 1896	3, 10, 17, 25, 27, 28	20-250	nam	M, bt, hb, s-ps, ms, s	31, 246, 249, 252
Enhydrosoma caeni Raibaut, 1965	7, 25, 26, 76		lm	M, bt, pe, s-ps, (ps)	16, 31, 249, 252
Enhydrosoma gariensis Gurney, 1930 [*E. gariene*]	7, 25		cp	M, bt, eh, ps-s, ps	16, 31, 249, 252
Enhydrosoma longifurcatum G. O. Sars, 1909	25, 26, 27, 76	-50	nam	M, bt, mb, pe, ps-s	31, 249
Enhydrosoma propinquum (Brady et D. Robertson, 1880)	1-22, 25, 27, 28	4-90	nam	M, bt, eb, pe, s-ps, ps, et, eu	18, 31, 43, 240, 246, 249, 252
Enhydrosoma sordidum Monard, 1926	1-22, 25, 27, 28	15-150	ham	M, bt, hb, pe, s-ps, (ps)	16, 19, 31, 43, 240, 249, 252
Cletocamptus confluens (Schmeil, 1894)	25-28, 35, *66, *69		SK, (sk)	M-L, 60‰, ps, s, gw	31, 185, 249, 389
Cletocamptus retrogressus Schmankevitsch, 1875	25, 26, 41, *69, 76, 77		nam, (h)	M-B, 60‰, eu, ps, s	31, 185, 249, 389
Limnocletodes behningi Borutsky, 1926	25, 26, 35, 93		pca, (po), Rc	M, bt (p), eh, ps-s, gw	26, 31, 249, 252
Stylicletodes longicaudatus (Brady et D. Robertson, 1880)	1, 7, 10, 26, 27, 28	12-100	SK, antamip	M, bt, hb, phs, s-ps, s	31, 240, 249, 252
Miroslavia longicaudata Apostolov, 1980	25, 26, 95	-24	● p	M, bt, ep, ps, ps-s	29, 31, 249, 252
Rhizothricidae					
Rhizothrix pubescens Por, 1959	1-22, 25, 26	20-30	● p	M, bt, ep-mb, pe, s-ps	31, 240, 249, 252
Argestidae					
Eurycletodes latus (T. Scott, 1892)	1-16, 26, 27, 28	20-150	cm	M, bt, eb, phs, pe	31, 240, 246, 249
Pontocletodes ponticus Apostolov, 1980	25, 95	24	adp	M, bt, ep, ps	29, 31, 249, 252
Laophontidae					
Laophonte borceai Jakubisiak, 1938	4		● p	M, bt	31, 157, 389
Laophonte elongata Boeck, 1873 [*L. e. triarticulata*]	7, 11, 16, 19, 24, 25, 27	3-40, 82	neamep	M, bt, eb, ph, ps, s	17, 31, 182, 249
Laophonte parvula G. O. Sars, 1908	7, 20, 25, 35	10	clm	M, bt, ep, ps, ph, gw	14, 15, 31, 249, 252
Laophonte setosa Boeck, 1865 [*L. similis*]	7, 11, 16, 24, *69, 76, *79, *86, 96		clm, ? ce	M-B, bt (p), eh, ph, et, co	31, 182, 185, 249, 252, 389
Laophonte thoracica Boeck, 1865	20, 24, 25, 28, 35	0-100	clm	M, bt, eb, ph, ps, s, et	14, 15, 31, 249, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Heterolaophonte curvata (Dauwe, 1929) [*H. c. micrarthros*]	7, 16, 24		hom	M, bt, ep, ph, slc	31, 84, 240, 249
Heterolaophonte stroemii (Baird, 1834) [*H. s. brevicaudata*, *H. s. paraminuta*]	7, 10, 16, 20, 24, 27, 35	0-50	nam, (h)	M, eh, mb, ph, s-ps, if, gw, eu, et, co	14, 15, 16, 17, 31, 84, 182, 243, 249
Heterolaophonte uncinata (Czerniavsky, 1868) [*Laophonte*]	12, 13, 24, 49, *69		lm	M, bt, ep, eh, l, ph	31, 91, 249, 304
Paralaophonte brevirostris (Claus, 1863) [*Laophonte*]	5, 7, 9, 24		namnei, ? SK	M, bt, ep, ph	31, 157, 282, 249
Paralaophonte congenera (G. O. Sars, 1908) [*P. c. mediterranea*]	20, 24, 25	-30	clmi	M, bt, ep, ph, slc, s-ps	26, 31, 249, 252
Paralaophonte octavia (Monard, 1935)	20, 21, 24, 35		m, ? hom	M, bt, ep, l-sl, ph, gw	17, 31, 249, 252
Asellopsis duboscqui Monard, 1928	7, 25, 26, 76	0-20	m, hom	M, bt, ep, ps, s-ps, s	18, 31, 240, 252
Onychocamptus mohammed (Blanchard et Richard, 1891) [*Laophonte*]	42, *68, *69, *74, *79, 82, 83, 84, *86, 88, 90, 92, 94		K, (k)	M-B-L, bt, ep, eh	31, 347, 389
Klieonychocamptus kliei (Monard, 1935) [*K. k. adriaticus*, *Onychocamptus*]	6, 7, 10, 16, 25, 35		lm	M, bt, ep, l, ps, gw, if	14, 19, 31, 244, 349
Klieonychocamptus ponticus (Serban et Plesa, 1957) [*Onychocamptus*]	25, 35		lmnei	M, bt, ep, l, ps, if	31, 17, 244, 249
Normanellidae					
Normanella minuta (Boeck, 1872)	7, 24	10, 100	ham	M, bt, eb, ph, pe, (ps)	12, 31, 249, 252
Normanella mucronata G. O. Sars, 1909	6, 7, 17, 20, 25, 27, 28	10-100	nam	M, bt, eb, ms, phs, ps	12, 31, 246, 249
Normanella serrata Por, 1959	1-22, 25, 27	40-70	m	M, bt, eb, ms, sg, s-ps	31, 243, 246, 249
Latiremidae					
Delamarella karamani Petkovski, 1957	7, 24, 35		adep	M, bt, l, gw, if, ph, r	12, 14, 31, 249, 252
Copepoda: Poecilostomatoida					
Nereicolidae					
Vectoriella marinovi Stock, 1968	10, 13		● p	M, ec	252, 336
Ergasilidae					
Ergasilus lizae (Kroyer, 1863) [*E. nanus*]	*68		namsp, (ha)	M-B, ec	389
Ergasilus sieboldi von Nordmann, 1832	7		nam, (h)	B-L, ec	389, 412
Oncaeidae					
Triconia minuta (Giesbrecht, 1893 [1892]) [*Oncaea*]	7		K, i	M, p, r	160, 355
Copepoda: Siphonostomatoida					
Lernaeopodidae					
Clavellisa emarginata (Kroyer, 1837) [*Anchorella*]	3, 7		cp, ? bap, (h)	M-B-L, ec	389, 412
Branchiura: Arguloidea					
Argulidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Argulus foliaceus (Linnaeus, 1758)	71, 89, 93		(hno)	B-L, ec, 3‰	374, 389
Cirripedia: Thoracica: Verrucomorpha				plankton larvae	
Verrucidae					
Verruca spengleri Darwin, 1854			lm	M, bt, r	249
Cirripedia: Thoracica: Balanomorpha				plankton larvae	
Chthamalidae					
Chthamalus stellatus (Poli, 1795)	3, 7, 16, 21, 22, 45, 50		amip	M, bt, spr, lt, epi	84, 249, 295, 389
Euraphia depressa (Poli, 1795) [*Chthamalus*]	45, 50		m, em	M, bt, spr, r	294
Chelonibiidae					
Chelonibia testudinaria (Linnaeus, 1758)	17		amip	M, bt, epi	379, 389
Balanidae					
Amphibalanus eburneus (Gould, 1841) [*Balanus*]	49, *68, *69, *78, *79, 84, *86, 88, 96		amip, i	M-B, bt-p, 7‰, is, sl	103, 129, 249, 374, 389
Amphibalanus improvisus (Darwin, 1854) [*Balanus*]	1-22, 49, 68, *69, *79, 96	0-27	amip, ? K, i	M, bt, sl, eu, is, epi	84, 91, 103, 129, 249, 295, 317, 374
Cirripedia: Rhizocephala: Kentrogonida				plankton larvae	
Peltogastridae					
Septosaccus rodriguezii (Fraisse, 1877) [? *Peltogaster diogeni*]	7, 25		lm	M, pa	71, 84, 389
Sacculinidae					
Sacculina carcini Thompson, 1836 [*S. benedeni*]	1-22, 23, 24, 50		clmwi	M, pa	71, 72, 389
Malacostraca: Mysida (Mysidacea)					
Mysidae					
Siriella jaltensis Czerniavsky, 1868 [*S. clausi*]	2, 3, 5, 7, 17, 20, 24	3, 0-4	ham, amwi	M, bt, ep, lt, mc, ph	35, 36, 370, 389
Gastrosaccus sanctus (van Beneden, 1861) [? *H. normani*]	6, 7, 16, 20, 25, 51, *69	0-10	ami	M, bt, ep, l-sl, ps	35, 36, 249, 370
Leptomysis lingvura (G. O. Sars, 1866) [*L. pontica*, *L. sardica*]	3, 5, 7, 16, 20, 24, 29	0-50	ace	M, bt-p, me, lt, slc, r	35, 36, 249, 389
Hemimysis anomala G. O. Sars, 1907	7, 24	-20	pc, clm, (h)	B-L, bt, ep, lt, ■	36, 114, 249, 389
Hemimysis lamornae (Couch, 1856) [*H. l. pontica*, *H. l. reducta*]	7, 16, 24	0.3-100	clmm	M, bt, eb, slc, ro	33, 36, 249, 389
Diamysis mecznikowi (Czerniavsky, 1882) [*D. bahirensis, D. b. mecznikowi*]	7, 58, *69, *79, *86, 88, 92, 95		● p	M-B, bt, eh, 0.6‰	35, 36, 249, 347
Limnomysis benedeni Czerniavsky, 1882 [*Mysidella bulgarica*]	58, 59, 65, *68,	-9	pc, (e), Rc	B-L, bt-p, 5‰, ep, ph	35, 205, 249, 373
Haplostylus normani (G. O. Sars, 1877) [*Gastrosaccus*, ? G. *sanctus*]	5		clmwi	M, bt	35, 249, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Mesopodopsis slabberi (van Beneden, 1861)	1-7, 13, 24, 29, *69, 76, *78, *79	1-20, 50	eami, (e)	M-B, bt-p, ep-mb, eh, 1-40‰, l-sl	35, 36, 198, 249, 317, 319, 370, 374
Paramysis agigensis Bacescu, 1940	3, 5, 7, 25, 26, 58, *69	0-4	ep	M, bt, ep, ps, ph, ps-s	35, 36, 249, 389
Paramysis kroyeri (Czerniavsky, 1882) [*Mesomysis*]	7, 26, *68, *69	1-22	• p	M-B, bt-p, ep, eh, pe	36, 97, 249, 370
Paramysis pontica (Bacescu, 1940)	7, 29	-100	• p	M, p-bt, eb, pe, ps	36, 198, 249, 319
Malacostraca: Amphipoda					
Ampeliscidae					
Ampelisca diadema (A. Costa, 1853)	2, 3, 5, 7, 10, 13, 17. *69	1-27, 120	eamwi, ? SK	M, bt, eb, ps, sg, pe	81, 84, 249, 370
Ampithoidae					
Ampithoe gammaroides (Bate, 1856) [*Pleonexes*]	3, 24		clm	M, bt, ep, ph, slc	81, 249, 389
Ampithoe helleri Karaman, 1975	16	2	clmnei	M, bt, ep	370
Ampithoe ramondi Audouin, 1828 [*A. rubricata*, *A. vaillanti*]	1-22, 24	1-20	amip, ? SK	M, bt, ep, mc, slc	81, 91, 368, 370
Cymadusa crassicornis (Costa, 1857) [*Grubia*]	1-22, 24	1-3	ep	M, bt, seb, ph, mc	91, 249, 370, 389
Aoridae					
Leptocheirus pilosus Zaddach, 1844	13, 25, 26, *69, *79, 84, *86, 88	7	clm	M, bt, ep, ps-pe, r	249, 370, 374. 389
Microdeutopus anomalus (Rathke, 1843)	3	20-	nam	M, bt, hb, pe	81, 249, 389
Microdeutopus damnoniensis (Bate, 1856) [nomen nudum]	3, 7, 12, 16, 20, 25, 27, 69	8-95	bam	M, bt, eb, ps-pe, mc	168, 249, 370, 392
Microdeutopus gryllotalpa Costa, 1853	7, 13, 16, 24, 25, *69	5-20, 40	nam	M, bt-p, mb, mc, ph, ps, sg, s, l-sl	84, 91, 249, 368, 370, 374, 389,
Microdeutopus stationis Della Valle, 1893	7, 25	-20	lm	M, bt, ep, ps, sg, r	171, 249, 389
Microdeutopus versiculatus (Bate, 1856) [*Coremapus*]	3, 13, 25, 26, 27, 68	10-80	clm	M, bt, eb, ps-s, pe, sg	81, 249, 370, 389
Atylidae					
Nototropis guttatus (A. Costa, 1853) [*Atylus*]	7, 24, 25, *69,	-5, 100	clm, ? eam	M, bt (p), eb, ph, ps	84, 249, 368, 370
Behningiellidae					
Cardiophilus baeri G. O. Sars, 1896 [*C. marisnigrae*]	7, 9, 10, *69	10-20, 30	pc, cpc, Rc	M-B-L, bt, ep, co	84, 178, 249, 370
Biancolinidae					
Biancolina algicola Della Valle, 1893 [*B. cuniculus*]	11, 12, 24	1-3	ep	M, bt, sep, ph, slc	91, 249, 370, 389
Corophiidae					
Monocorophium acherusicum (Costa, 1857) [*Corophium*]	7, 16, 25, 69	-10	amip, ? SK	M, bt, ep, mc, ps	367, 368, 370

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Monocorophium insidiosum (Crawford, 1937)	5, 16, 23, 24	1-3	amp, ? amip	M, bt, ep, ph, zc	370
Crassicorophium bonellii (Milne Edwards, 1830) [*Corophium*]	3, 7, 16, 24, 68, *69	0-12	amp	M, bt-p, sep, ph, s	81, 84, 249, 374
Crassicorophium crassicorne (Bruzelius, 1859) [*Corophium*]	*68, *69, *78, *79, 84, *86		abapbp	M, bt, eh-1‰, ep	249, 368, 374, 389
Chelicorophium curvispinum (G. O. Sars, 1895) [*Corophium*]	59, 60, *68, *69, 76		pc, (e), Rc	B-L, eh, bt, ep	82, 84, 97, 249, 375
Chelicorophium sowinskyi Martynov, 1924 [*Corophium curvispinum* var. *villosus*]	58, 59, 60		pc, Rc	B-L, 5-6‰, ps-pe, ph	82. 83, 369
Corophium volutator (Pallas, 1766)	7, 13, 26, 58, *68, 77, *79, 84	7	namswp	M, bt, 0.5‰, ep, pe	249, 370, 374, 389
Medicorophium runcicorne (Della Valle, 1893) [*Corophium*]	3, 7, 26, 27, 28	18-100	ep, ? em	M, bt, hb, pe	81, 171, 249, 367
Siphonoecetes dellavallei Stebbing, 1899	7, 25, 26, 27	-50	lmsa	M, bt, mb, ps, pe	171, 249, 392
Lysianassidae					
Orchomene humilis (Costa, 1853)	3, 28	80-90	clm	M, bt, shb, phs	81, 249, 389
Cheluridae					
Chelura terebrans Philippi, 1839	7		amip, ? SK	M, bt, ep	252
Dexaminidae					
Dexamine spinosa (Montagu, 1813)	11, 12, 13, 24, *69	1-25, 85	clmm	M, bt-p, eb, mc, ph	84, 91, 249, 370
Gammarellidae					
Gammarellus angulosus (Rathke, 1843) [*G. carinatus*]	1, 2, 3	0-40	anam	M, bt, ep-mb, l-sl	81, 249, 389
Eusiridae					
Apherusa bispinosa (Bate, 1857)	3, 11, 12, 24, 27, 28, 69	-100	anam, ? abam	M, bt, eb, ph, s	81, 91, 249, 370
Gammaridae					
Gammarus aequicauda (Martynov, 1931)	3, 7, 25, 51, 69, 77, 80, 84		lm	M, eh, bt, ep, ps	102, 252, 370
Gammarus crinicornis Stock, 1966	7	0.5	clm	M, bt, ep, r	270
Gammarus insensibilis Stock, 1966	16, 23, 24, 76	0-15, 30	lm	M, bt, ep, ph, ps-s, ro	252, 346, 370
Gammarus subtypicus Stock, 1966 [*G. locusta*]	1-22, *66, *68, *69, *74, 76-80, 82, 84, *86, 88	0-20	m, ep, ? em	M, bt, eh-1-50‰, ep, mc, ro, l-sl	84, 86, 91, 249, 295, 370, 374, 389
Echinogammarus foxi (Schellenberg, 1928) [*Chaetogammarus*]	16, 23	2	m, ep, ? nm	M, bt, ep, zc	370
Echinogammarus marinus (Leach, 1815) [*Gammarus*]	7, 11, 13, 16, 25		bam	M, bt, ep, ps, ro	91, 249, 259, 389
Echinogammarus olivii (Milne Edwards, 1830) [*Chaetogammarus*, *Gammarus*]	7, 10, 16, 68, 69, 76	0-10	lm	M, bt, sep, mc, ro	84, 249, 346, 370
Echinogammarus trichiatus (Martynov, 1932) [*Chaetogammarus*]	58, 59, 60		pc, cpc, Rc	B-L, bt, ph	130

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Chaetogammarus ischnus (Stebbing, 1899) [*Ch. i. major*, *Ch. tenellus behningi*]	58, 59, 60, *69		pc, cpc, Rc	M-B, eh, 0-12‰, sep, ro, l-sl, ■	82, 114, 249, 374, 389
Dikerogammarus haemobaphes (Eichwald, 1841) [*D. h. fluviatilis*]	58, 59, 60, *69		pc, cpc, Rc	B, bt, ep, ph, ro	82, 249, 375, 389
Dikerogammarus villosus (Sowinsky, 1894)	58-60, *68, 71, 92, 95		pc, cpc, Rc, (ean)	B-L, bt, 0.1-5‰, ep, sg, ro, ph, ■	82, 114, 249, 374, 389
Iphigenella andrussowi (G. O. Sars, 1896) [*Gammarus*, *Lanceogammarus*]	59, 60		pc, Rc	B-L, bt, ep, ps, ps-s, ■	82, 114, 174, 249, 389
Shablogammarus shablensis (Carausu, 1943) [*Gammarus*, *Iphigenella*]	59, 60		pc, Rc	B-L, bt, ep, ps, ps-s, ■	82, 114, 249, 389
Pontogammaridae					
Pontogammarus borceae Carausu, 1934 [*P. abreviatus borcea*]	*63, 65		pc, Rc	B-L, bt, ep	82, 249, 369, 389
Pontogammarus robustoides (G. O. Sars, 1894)	58, 59, 60		pc, cpc, Rc	B-L, ep, eu, ph	82, 249, 369, 389
Euxinia maeoticus (Sowinsky, 1894) [*Gammarus*, *Pontogammarus*]	1-22, 51, 58, 59, 60	0.1-0.2	pc, Rc	B-L, eh, l, ps	91, 249, 369, 370
Stenogammarus carausui Derzhavin & Pjatakova, 1962	68		pc, Rc	B-L, ep	358
Hyalidae					
Micropythia carinata (Bate, 1862) [*Hyale*]	3, 7, 20		ep	M, bt	178, 392
Hyale crassipes (Heller, 1866)	24		lm	M, bt, ep-mb, mc	370
Hyale perieri (Lucas, 1849)	1-22, 24, 26	-19	klm	M, bt, ep, mc	249, 368, 370
Hyale pontica Rathke, 1837	3, 7, 24	0-50	clm	M, bt, mb, ph, mc	84, 167, 368, 370
Apohyale prevosti (H. Milne Edwards, 1830) [*Hyale*]	7, 13, 16, 21, 22, 24	0-30	anam	M, bt, ep, ph, lt	84, 91, 249, 389
Talitridae					
Talitrus saltator (Montagu, 1808)	1-22, 49		clm	M, bt, sep, l-sp	171, 249, 392
Orchestia bottae Milne Edwards, 1840; ? *O. cavimana* Heller, 1865	7, 49, 52, 59		clm, ep	M-B-TL, bt, l-sp, eh	84, 249, 389
Orchestia gammarellus (Pallas, 1766)	3, 7-16, 46, 49, 52		ham	M-TL, bt, l-sp	81, 84, 91, 249, 389
Orchestia mediterranea (Pallas, 1766); Costa, 1853	80		clm	M-TL, bt, l-sp	218
Orchestia montagui Audouin, 1826	7, 11, 12, 46, 51, 52		ep, ? em	M-TL, bt, l-sp	84, 91, 249
Pseudorchestoidea brito (Stebbing, 1891) [*Talorchestia*]	11, 21, 22		clm	M-TL, bt, l-sp	84, 249, 389
Deshayesorchestia deshayesii (Audouin, 1826) [*Talorchestia*]	7, 11, 16, 46, 49, 52, 76		clm	M-TL, bt, l-sp	84, 91, 249, 389
Isaeidae					
Microprotopus longimanus Chevreux, 1887	2, 20, 21, 23, 24, 27	2-85	clp	M, bt, eb, zc, pe, sg, r	178, 249, 370, 392
Ischyroceridae					
Jassa ocia (Bate, 1862)	1-22, 24, 27	0-20	clm	M, bt, ep, ph, mc, ms	84, 91, 367, 368
Ericthonius difformis H. Milne Edwards, 1830	1-22, 24		anamnp	M, bt, sep, mc, ph	84, 91, 368, 370

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Megaluropidae					
? *Megaluropus agilis* Hoeck, 1889	7, 69		eami	M-B, bt	370
Megaluropus massiliensis Ledoyer, 1976 [? *M. Agilis*]	7, 25	5-25	m, adep	M-B, bt, ep, ps, r	171, 249, 370, 392
Melitidae					
Melita palmata (Montagu, 1804)	1-22, 24, 27, *69	0-20	aam	M, bt, ep, mc-s, ph-ro	84, 249, 370, 374
Cheirocratus sundevalli (Rathke, 1843)	11, 16, 17, 20		clm	M, bt	173
Oedicerotidae					
Perioculodes longimanus (Bate et Westwood, 1868)	1, 2, 3, 7, 13, 25, 69	2-20, 100	aami	M, bt, eb, ps, sls	81, 249, 367, 370
Deflexilodes gibbosus (Chevreux, 1888) [*Monoculodes*]	13, 16, 23, 25	16-100	clm	M, bt, hb, zc, sg	171, 249, 370
Synchelidium maculatum Stebbing, 1906	1, 2, 7, 13, 16, 27, 28	10-105	clm	M, bt, eb, pe, sg	81, 249, 389
Bathyporeiidae (Pontoporeiidae)					
Bathyporeia guilliamsoniana (Bate, 1857)	1-22, 25	-6, 25	clm	M, bt, ep, ps, sls	84, 249, 367, 370
Stenothoidae					
Stenothoe monoculoides (Montagu, 1815)	24, *69	0-10	clm, ? bam	M, bt, sep, ph, mc, lt	249, 368, 370, 374
Photidae					
Megamphopus cornutus Norman, 1869	3	10-50	clmm	M, bt, mb, pe, sg	81, 249, 389
Caprellidae					
Phtisica marina Slabber, 1769 [*Ph. acaudata*, *Proto pedata*]	2, 3, 7, 16, 26, 27, 28	15-100	amwi	M, bt-p, hb, ph, sg, pe	91, 295, 351, 370
Pseudoprotella phasma (Montagu, 1804)	3, 24, 27	-98	clm, ? eam	M, bt, eb, ph, pe	178, 249, 389
Caprella acanthifera Leach, 1814 [*C. a. ferox*]	1, 2, 3, 5, 7, 11, 12, 16, 24, 27, 28	0.2-100	clm	M, bt, eb, ph, slc, pe, epi, eu	41, 66, 81, 84, 87, 89, 249, 351, 370
Caprella danilevskii Czerniavski, 1868	3, 16, 23, 24	0.5-8	tam, ? cst	M, bt, ep, slc, ph, zc	81, 249, 351, 370
Caprella mitis Mayer, 1890	7, 24	1-12	m, ep	M, bt, ep, slc, r	84, 249, 389
Malacostraca: Cumacea					
Pseudocumatidae (Pseudocumidae)					
Pseudocuma ciliatum G. O. Sars, 1879	5, 7, 25	0.5-10	hom	M, bt, ep, ps	36, 249, 389
Pseudocuma longicorne (Bate, 1858) [*P. l. pontica*]	7, 21, 25, 69	1-7	clm, ? eamrs	M, bt, ep, ps	36, 169, 249, 370
Pseudocuma tenuicauda G. O. Sars, 1894 [*Stenocuma*]	7		pc, Rc	B-L, bt, ps, ps-pe, eh	358
Bodotriidae					
Bodotria arenosa Goodsir, 1843 [*B. a. mediterranea*]	7, 20, 22, 23, 25		clm	M, bt-p, ep, ps, zc	36, 249, 389
? *Bodotria scorpioides* (Montagu, 1804)	3, 5		clmwi	M, bt-p, ep, ps	274, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Iphinoe elisae Bacescu, 1950	1-22, 25, 27, 28, 69	9-95, 125	lm	M, bt, eb, ps, pe, phs	169, 249, 358, 370
Iphinoe maeotica Sowinskyi, 1893 [*I. inermis*]	7, 25, 26, 69	6-25	ep	M, bt, ep, ps-pe, s, eh	36, 356, 370, 274
Iphinoe tenella G. O. Sars, 1878	7, 10, 13, 25, 28, 69	7-78	clm	M, bt, eb, ps, phs	36, 249, 358, 370
Cumopsis goodsir (van Beneden, 1861) [*C. longipes*]	7, 25	0-16	clm	M, bt, ep, ps	36, 249, 370, 389
Nannastacidae					
Nannastacus euxinicus Bacescu, 1951	7, 21, 24, 25		m	M, bt, ep, ps, pe-lt	37, 249, 389
Cumella limicola G. O. Sars, 1879	5, 7, 16, 20, 21, 23, 25	0.5-1, 18	lmwiwp	M, bt, ep, ps, zc	249, 274, 370, 389
Cumella pygmaea G. O. Sars, 1865 [*C. p. euxinica*]	1-22, 27, 28, 69	20-, 50-	clm	M, bt, hb, pe, phs	169, 249, 358, 392
Leuconidae					
Eudorella truncatula (Bate, 1856)	1-22, 27, 28	40-150	anamnep	M, bt, shb, pe, phs	169, 249, 358, 392
Malacostraca: Tanaidacea					
Apseudidae					
Apseudopsis acutifrons (Sars, 1882) [? *Apseudes ostroumovi*]	2, 3, 7, 13, 16, 27, 28	2-120	m, hom	M, bt, hb, ms, phs, zc	41, 249, 370, 389
Apseudopsis ostroumovi Bacescu & Carausu, 1947	13	27, -100	● p	M, bt, sg, ms, phs, ■	114, 356
Tanaidae					
Tanais dulongii (Audouin, 1826) [*T. cavolinii*]	7, 14, 15, 23, 24, 69	1	aminwp	M, bt, ep, mc, zc, slc	36, 249, 358, 370
Paratanaidae (Leptocheliidae)					
Heterotanais oerstedii (Kroyer, 1842) [*H. gurneyi*]	16, 23, *79, 84, 88	1-25	clm	M-B, ep, 6‰, zc	249, 370, 374, 389
Leptochelia savignyi (Kroyer, 1842) [*L. dubia*]	3, 11, 12, 23, 24, 25	1-2	amip	M, bt, slc, zc, mc, ps	91, 249, 370, 389
Malacostraca: Isopoda					
Asellidae					
Asellus aquaticus (Linnaeus, 1758)	58, 60, *68, *74, 77, 80, 89		(h)	L-B, bt, 5‰	374, 389
Janiridae					
Jaera hopeana Costa, 1853 [*J. charrieri*]	7		lm	M, bt, co	249, 376, 389
Jaera nordmanni (Rathke, 1837)	3, 7, 11, 16		clm	M-B-L, bt, ep	91, 93, 249, 377
Jaera sarsi Valkanov, 1936	58, 60, *68, *69, 84, 95		cp, Rc	M-B-L, eh, bt, ro	249, 374, 375, 377
Ligiidae					
Ligia italica Fabricius, 1798 [*L. brandti*]	45		lmm, (hom)	M-T, spr, lt, ro	34, 84, 91, 249, 389
Tylidae					
Tylos ponticus Grebnitsky, 1874	7, 46, 52, 69		lm, (hom)	M-T, sps	249, 358

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Tylos latreillei Audouin, 1826	7, 16, 46, 52		klm, (hn)	M-T, sps	84, 389
Idoteidae					
Idotea balthica (Pallas, 1772) [*I. b. basteri*, *I. tricuspidata*]	1-22, 24, 25, 36-40, 49, 58-60, *69, 76-*78, 84, 86, 88	0-5, 30	ham, ? SK	M, bt, ep, ph, l-sl	84, 91, 249, 370, 374, 389
Idotea ostroumovi Sowinsky, 1895 [*I. metalica*, *I. m. elongata*]	7, 10, 11, 29	100-150	em	M, p-bt, hb, r	36, 84, 249, 370
Stenosoma capito (Rathke, 1837) [*Idotea pontica*, *Synisoma*]	1-5, 7, 11, 12, 13, 16, 20, 21, 23, 24, 25	1-3, 92	m, hom	M, bt, eb, mc, zc, slc, ps, sg, ms, phs	36, 67, 84, 91, 93, 249, 370, 389
Limnoriidae					
Limnoria tuberculata Sowinsky, 1884	7		amip, ? SK	M, bt, ep	249, 252
Sphaeromatidae					
Dynamene bidentata (Adams, 1800) [*Naesa*]	1-22, 24, 25, 49	-3	clmi	M, bt, ep, mc, slc, ps	36, 289, 370, 389
Lekanesphaera hookeri (Leach, 1814) [*Sphaeroma pulchellum*]	7, 16, 23, 24, *69	0-40	clm	M, bt, sp-sl, ph, ro, s	84, 249, 389
Sphaeroma serratum (Fabricius, 1787)	1-5, 7, 12, 13, 15, 16, 24, 25, 46, 49, *69, 77, *78, *86	0-10	amiswp	M, bt, ep, l-sl, ps, slc, mc, ro, ph	91, 93, 249, 370, 374, 389
Gnathiidae					
Gnathia maxillaris (Montagu, 1804)	5		ace	M, bt-p, ec	34, 389
Gnathia oxyuraea (Lilljeborg, 1855)	7		ace	M, bt-p, ec	167, 249, 389
Cirolanidae					
Eurydice dollfusi Monod, 1930 [*E. d. maris-nigri*]	7, 10, 20, 22, 25, 51	0-3, 8	m, hom	M, bt (p), sep, ps	36, 249, 358, 370
Eurydice pontica (Czerniavsky, 1868)	7, 51		ep	M, bt (p), sep, l, ps	36, 249, 389
Eurydice racovitzai Bacescu, 1949	24, 25	2-5	● p	M, bt, ep, slc, lt	249
Eurydice spinigera Hansen, 1890	7, 16, 20, 21, 22	-6, 30	clm	M, bt-p, ep, pe	36, 84, 249, 370
Eurydice valkanovi Bacescu, 1949	7, 24, 25	2-14	● p	M, bt, ep, ps, ph	36, 249, 389
Cymothoidae					
Livoneca sinuata Kölbel, 1878 [? *L. mediterranea*, *Cymothoa carryensis*]	7		lm	M, bt, ec	167, 389
Mothocya taurica (Czerniavsky, 1868) [*Livoneca pontica*, *L. punctata*, *Cymothoa*]	3, 7		● p	M, bt, ec	249, 389, 412
Bopyridae					
Anisarthrus pelseneeri Giard, 1907	16		cp, ? clp	M, bt, pa	94, 249, 389
Bopyrissa diogeni (Popov, 1927) [*Pseudione*]	7		cp, ? clp	M, bt, pa	71, 249, 389
Bopyrus squillarum Ltreille, 1802	7		clmi	M, bt, pa	91, 249, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Malacostraca: Decapoda				plankton larvae	
Palaemonidae					
Palaemon adspersus Rathke, 1837 [*Leander rectirostris*]	7, 12, 13, 23, 24, *69, *78, *79, 84, 88	-35	eami	M, bt, ep, zc, ph, s	72, 249, 358, 370, 374, 389
Palaemon elegans Rathke, 1837 [*Leander squilla* var. *elegans*]	1-22, 24, *69, 77, 96	0-30	eam	M-B, bt, eh, 4-5‰, ep, ph, mc, eu	72, 249, 370, 371, 389
Palaemon macrodactylus Rathbun, 1902	69		j, SK, i	M, bt, eh, et	355
Palaemon serratus (Pennant, 1777) [*Leander triellianus*]	3, 7, 13, 20, 77	7	eamrs	M, bt, ep, r	40, 91, 214, 249
Alpheidae					
Alpheus dentipes Guérin-Méneville, 1832	16	10-17, 40	lmmg	M, bt, mb, lt, r	78, 249, 252
Athanas nitescens (Leach,1814)	5, 7, 11, 12, 13, 16, 24	3-25, 50	eam	M, bt, mb, ph, mc, ro	72, 249, 371, 389
Hippolytidae					
Hippolyte leptocerus (Heller, 1863)	16, 24	3	eam	M, bt, ep, slc	370, 371
Hippolyte sapphica D'Udekem d'Acoz, 1993 [*H. gracilis*, *H. longirostris*, *Virbius*]	7, 11, 13, 16, 20, 23, 24	2-25, 48	lm, ? lmm	M, bt, mb, ph, lt, zc	36, 72, 91, 249, 371
Processidae					
Processa edulis (Risso, 1816)	5, 7, 16		eamrs	M, bt, r	36, 249, 389
Crangonidae					
Crangon crangon (Linnaeus, 1758) [*C. maculosus*, *C. vulgaris* var. *maculosus*]	7, 11, 13, 25, 27, 28, 76, 77	5-100	ce, ? namj	M, bt (p), eh, eb, ps, s	36, 72, 249, 371
Philocheras fasciatus (Risso, 1816) [*Pontophilus*]	13, 16, 24, 25	1-2, 12	clmm, ? eam	M, bt, ep, ps, ph, r	36, 75, 249, 389
Philocheras trispinosus (Hailstone, 1835) [*Pontophilus*]	7, 16, 20, 22,	-15	clmm, ? eam	M, bt, ep, r	36, 249, 389
Nephropidae (Homaridae)					
Homarus gammarus (Linnaeus, 1758) [*H. vulgaris*]	3, 7, 12, 16, 17	40-45	clmm	M, bt, mb, r	72, 84, 103, 189, 249, 296, 389, 410
Astacidae					
Astacus leptodactylus Eschscholtz, 1823	58, 59, 60, *67, *68, 71, 79, 84, 92, 95		(e), ? Rc	L-B, bt, ep, 0-9‰	74, 91, 206, 249, 286, 389
Callianassidae					
Pestarella candida (Olivi, 1792) [*Callianassa pestae*, *C. pontica*, *C. tyrrhena*]	4, 7, 11, 16, 20, 25, 26	0.5-15	lm	M, bt, ep, ps-pe	36, 77, 84, 249, 389
Necallianassa truncata (Giard et Bonnier, 1890) [*Callianassa*]	24, 25		lm	M, bt, r	214
Upogebiidae					
Upogebia pusilla (Petagna, 1792) [*U. littoralis*, *Gebia*]	7, 25, 26, 69, *79, 84, *86	-22	clmm	M, bt, ep (p), ps-pe, ■	72, 84, 91, 249, 370

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Porcellanidae					
Pisidia longicornis (Risso, 1815) [*Porcellanides*, *Porcellana longimana*]	1-22, 24, 50, 69	0-40	eam	M, bt, mb, ph, mc, ro	72, 73, 84, 249, 370
Diogenidae					
Diogenes pugilator (Roux,1829) [*D. varians*]	1-22, 25, 36-40, 69	0-15, 40	eam, ? eami	M, bt, mb, ps, sg, ■	72, 84, 91, 358, 371
Clibanarius erythropus (Latreille, 1818) [*C. misanthropus*]	1-22, 24, 25		lmmg, ? eami	M, bt, ep, lt, ro	72, 73, 84, 249, 389
Majidae, Inachidae					
Macropodia longirostris (Fabricius, 1775) [*Stenorhynchus egyptius*]	3, 5, 7, 11, 12, 16, 21, 23, 24	0-20	clmm	M, bt, ep, ph, zc, slc	34, 72, 86, 249, 389
Portunidae					
Callinectes sapidus Rathbun, 1896	3, 5, 7, 13	5-22	amj, i	M, bt, ep, ps, s, r	76, 103, 249, 371
Portumnus latipes (Pennant, 1777)	7, 16, 21	3	clm	M, bt, ep, ps	36, 72, 75, 249, 389
Carcinus aestuarii Nardo, 1847 [*C. maenas*, *C. mediterraneus*]	1-22, 23, 24, 25, *69,	0-70	lm, ? amp	M, bt, ps, zc, ro, r, ■	72, 73, 84, 370, 371
Liocarcinus depurator (Linnaeus, 1758) [*Macropipus*, *Portunus*]	7		cem, ? eam	M, bt, r	84, 249, 370, 371
Liocarcinus navigator (Herbst, 1794) [*L. arcuatus*, *Macropipus*, *Portunus*]	7, 11, 16, 25, *69	3-80	acem	M, bt, eb, ps, sg, s, ■	72, 73, 84, 249, 389
Liocarcinus vernalis (Risso, 1827) [*Portunus holsatus*, *Macropipus*]	7, 11-13, 16, 25, 36-40, *69, *78, *79, 84, *86, 88	-80	clmm, ? eam	M, bt, eb, eh, ps, sg	72,73, 91, 249, 370, 371, 389
Xanthidae (Eriphiidae, Panopeidae, Pilumnidae)					
Eriphia verrucosa (Forskål, 1775) [E. *spinifrons*]	1-22, 24, 45, 50	0-30	lmm, ? lmmg	M, bt, ep, sp-l-sl, lt, ro, ■, ▲	72,73, 91, 114, 249, 370, 371, 389
Pilumnus hirtellus (Linnaeus, 1761) [*P. h.* var. *villosus*, *P. villosus*]	1-22, 24, *69	0-40	clmm	M, bt, mb, ph, mc, lt, ro, slc, ■	72, 73, 84, 91, 249, 358, 370, 371, 389
Xantho poressa (Olivi, 1792) [*X. hydrophilus*, *X. rivulosus*]	1-22, 24, 69	1-15, 100	lmm	M, bt, eb, ro, ■	72, 84, 91, 249, 371
Rhithropanopeus harrisii (Gould, 1841) [*R. h. tridentatus*]	7, *68, *69, 87, 96	-10	nam, i	M-B, bt, ps, ps-s	95, 164, 371, 386
Potamidae (Potamonidae)					
Potamon ibericum (Bieberstein, 1808) [*P. fluviatile*, *P. potamios*, *P. tauricum*]	43, 74, 87, 92, 94		(nmwca)	L, eu, ro, ph, ■	69, 114, 214
Grapsidae (Varunidae)					
Brachynotus gemmellari (Rizza, 1839) [*Cleistostoma*]	7	15	m, hom	M, bt, r	370, 371
Brachynotus sexdentatus (Risso, 1827) [*Heterograpsus* (*Brachynotus*) *lucasi*]	7, 13, 25, 26, *69	1, 9-40	hom, lm, clm	M, bt, mb, ps-pe, s, ph	72,73, 84, 249, 358, 370, 371, 389
Pachygrapsus marmoratus (Fabricius, 1787)	1-22, 24, 45, 50	0-7	clmm	M, bt, sep, spr-slr, l, lt, ro, ■	72, 84, 91, 114, 249, 370, 371, 389
Eriocheir sinensis (H. Milne Edwards, 1854)	? 96		(esea, sk - i)	L-B, eu, is	214

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Hexapoda: Entognatha					
Collembola					
Neanuridae					
? *Anurida maritima* (Guérin-Méneville, 1836)	45, 46, 49, 52		nam, (hnat)	M-TL, l, sp	47, 84, 249
Friesea acuminata (Denis, 1925)	1-22, 59, 60		lm, (nm)	M-TL, l	247, 249, 252
Onychiuridae					
Protaphorura fimata (Gisin, 1952) [*Onychiurus*]	1-22		(e)	TL, sp-l	247, 249, 252
Isotomidae					
Archisotoma besselsi (Packard, 1877)	1-22, 51, 52		ace, (h)	M-TL, sp-l, ps	247, 249, 252
Entomobryidae					
Seira ferrarii Parona, 1888	1-20, 25, 51		(m, hom)	M-TL, l-sl, ps	247, 249, 252
Hexapoda: Insecta					
Ephemeroptera					
Siphlonuridae					
Siphlonurus lacustris (Eaton, 1870)	80		(tp)	L-TL	218
Baetidae					
Cloeon dipterum (Linnaeus, 1761)	58, 77, 80		(h)	L-TL, bt, ph	218, 258
Centroptilum luteolum (Müller, 1776)	58		(tp, ? hes)	L-TL, bt, ph	218, 258
Caenidae					
Caenis horaria (Linnaeus, 1758)	58, 77, 80		(tp)	L-TL, bt, ph	218, 258
Caenis luctuosa (Burmeister, 1839)	58, 59, 77, 80		(wcp, ? hoes)	L-TL, bt, ph	218, 258
Caenis robusta Eaton, 1884	58		(tp)	L-TL, bt, ph	218, 258
Odonata					
Calopterygidae					
Calopteryx splendens (Harris, 1782)	65, 71, 73, 83, 84, *86, 91, 92		(wcp)	L-TL, ■, ♦	114, 216, 217
Calopteryx virgo (Linnaeus, 1758)	83, 91, 92, 94		(tp)	L-TL, ■, ♦	114, 216
Euphaeidae					
Epallage fatime (Charpentier, 1840)	92		(om)	L-TL, ■, ▲, ♦	114, 216, 217
Lestidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Lestes barbarus (Fabricius, 1798)	58, 60, 61, 63, 70, 72, 74, 76-*78, 80-82, 84-*86, 88, 92, 95		(wpo)	L-TL, 13‰	216, 217, 218, 258
Lestes dryas Kirby, 1890	58, 80, *86, 88		(h)	L-TL	215, 216, 217, 218
Lestes macrostigma (Eversmann, 1836)	76, 80		(mwca)	L-TL, 14‰, ha	59, 119, 216, 217
Lestes parvidens (Artobolevski, 1929) [*Chalcolestes*]	71, 77, 78, 81, 83-85, 91, 94		(nemit)	L-TL	216, 217
Lestes sponsa (Hansemann, 1823)	58, 63, *78		(tp)	L-TL	59, 216, 217
Lestes virens (Charpentier, 1825)	77, 78, 81		(wp)	L-TL	216, 217, 258
Lestes viridis (Vander Linden, 1825) [*Chalcolestes*]	77, 86, 88, 90, 91		(hom)	L-TL, ▲, ♦	217, 258
Sympecma fusca (Vander Linden, 1820)	58, 60, *61, 69, 71, 80, 84		(omca)	L-TL	59, 215, 216, 218
Platycnemididae					
Platycnemis pennipes (Pallas, 1771)	60, 65, 68, 71-76, 78, 84, *86, 88, 90-92, 94, 95		(wces)	L-TL	59, 119, 216, 217
Coenagrionidae					
Erythromma viridulum (Charpentier, 1840)	58, 60, 63, 71, 73, *78, 80, 82, 83, 85, *86, 88, 92		(mca, ? wp)	L-TL	59, 215, 216, 218
Pyrrhosoma nymphula (Sulzer, 1776)	83, 89, 92		(wp)	L-TL	216
Coenagrion ornatum (Selys, 1850)	75, 76, 92, 95		(nm)	L-TL	59, 215, 216
Coenagrion puella (Linnaeus, 1758)	60, 63, 70, 71, *78, 80, 82, 83, *86, 88, 91, 92, 95		(ena)	L-TL	59, 216, 217
Coenagrion pulchellum (Vander Linden, 1820)	60, 63, 70, 71, 75, 77, *78, 80, 82, 83, 90		(wes)	L-TL	59, 215, 216, 217, 218
Coenagrion scitulum (Rambur, 1842)	71, 80, 88, 91		(hom)	L-TL	59, 215, 216, 218
Cercion lindenii (Sélys, 1840)	74, 78, 86, 92		(hom)	L-TL	216
Enallagma cyathigerum (Charpentier, 1840)	60, 61, 69, 74, 77, 78, 80		(h)	L-TL	216, 217, 218
Ischnura elegans (Vander Linden, 1820)	58, 60, 61, 63, 65, *68-86, 88, 89, 92, 95		(po)	L-TL	119, 215, 216, 217, 218, 258, 259

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Ischnura pumilio (Charpentier, 1825)	58, 60, 63, 69-71, 77, 80, 92, 94		(wcp, wcpo)	L-TL	215, 216, 217, 218, 258
Aeshnidae					
Anax imperator Leach, 1815	58, 60, 61, 63, *68, *69, 71, 73, 75, 77, 80, 83, 85, 86, 88, 92, 95		(wppt)	L-TL, ■, ♦	114, 215, 216, 217, 218, 258
Anax parthenope (Selys, 1839)	58, *68, *69, 73-80, 82-84, 86		(ptsp)	L-TL	216, 217, 218, 258
Hemianax ephippiger (Burmeister, 1839)	58, 65, 77, 78, 80, 85		(ptm)	L-TL	59, 216, 218, 258
Brachytron pratense (Müller, 1764)	86		(ean)	L-TL	216
Aeshna affinis Vander Linden, 1820	69, 74, 78, 80, 81, 83, 84, 86, 88		(wcp)	L-TL, 4‰	216, 217, 218
Aeshna isoceles (Müller, 1767) [*Anaciaeschna isosceles*]	71, 76-78, 80, 83, 86, 89		(hom, ? wp)	L-TL	119, 216, 258, 259
Aeshna mixta Latreille, 1805	72, 77, 80		(tpo)	L-TL	215, 217, 218, 259
Corduliidae					
Somatochlora meridionalis Nielsen, 1935	69, 88, 89, 91		(nm)	L-TL	59, 216
Libellulidae					
Libellula depressa (Linnaeus, 1758)	70, 80, 83, 84, 86, 88, 89, 91, 92, 94, 95		(esca)	L-TL	216, 217
Libellula fulva Müller, 1764	77, 78, 80, 88, 89		(wesa)	L-TL	216, 217, 218, 258
Libellula quadrimaculata Linnaeus, 1758	84, 88		(h)	L-TL	216, 217
Orthetrum albistylum (Sélys, 1848)	60, 61, 68, 69, 72, 75, 77, 78, 80, 86		(tp)	L-TL	215, 216, 217, 218
Orthetrum brunneum (Fonscolombe, 1837)	63, 64, 68-72, 78, 79, 81, 83, 85, 88, 89, 91, 92		(omca)	L-TL	216, 217
Orthetrum cancellatum (Linnaeus, 1758)	58, 60, 61, 63, 73-78, 80, 83, 84, 86, 88, 92, 94, 95		(wp)	L-TL, 13‰	59, 215, 216, 217, 218
Orthetrum coerulescens (Fabricius, 1798)	60, 61, 65, 68, 74, 76, 78, 83		(e)	L-TL	119, 216, 217, 259

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Crocothemis erythraea (Brullé, 1832)	58, 60, 61, 63, 69, 71, 72, 74, 76-86, 88, 89, 92, 94, 95		(ptmca)	L-TL	119, 217, 218, 259
Sympetrum depressiusculum (Sélys, 1841)	81		(tp)	L-TL, ▲, ♦	216, 217
Sympetrum fonscolombii (Sélys, 1840)	58, 60, 71, 77, 80, 83, 84, 86		(ptm, ptsp)	L-TL	216, 217, 218
Sympetrum meridionale (Sélys, 1841)	58, 60, 61, 65, 68, 71, 72, 74-78, 80, 82, 83-86, 88, 92		(mca, omca)	L-TL	59, 119, 215, 216, 217, 218, 259
Sympetrum pedemontanum (Allioni, 1766)	58, 60, 77		(tp, ? dp)	L-TL	216, 217
Sympetrum sanguineum (Müller, 1764)	60, 63, 71, 77, 80-86, 92, 95		(wp)	L-TL	216, 217
Sympetrum striolatum (Charpentier, 1840)	*68, *69, 71, 74, 76-81, 83, 85, 86, 92, 93, 95		(tp)	L-TL, eh	119, 215, 216, 217, 218, 259
Sympetrum vulgatum (Linnaeus, 1758)	60, 77, 80		(ewca)	L-TL, ▲, ♦	216, 217, 218
HETEROPTERA					
Corixidae					
Corixa affinis Leach, 1817	33, *69		(po)	L-TL, sp, ha	152, 252
Sigara lateralis (Leach, 1817) [*S. hieroglyphica*]	33, 41, 42, 59, 61		(ppt)	L-TL, sp ha-6.8‰	85, 158, 252, 389
Sigara mayri (Fieber, 1860)	33		(em)	L-TL, sp, ha-34‰	158, 252
Sigara nigrolineata (Fieber, 1848)	33		(hop)	L-TL, sp, ha-4.6‰	158, 252
Sigara striata (Linnaeus, 1758)	33		(tp, ? hop)	L-TL, sp, hs-3.4‰	158, 252
Notonectidae					
Notonecta glauca Linnaeus, 1758	58, 77		(hes, ? hop)	L-TL, sp, eu	206, 258
Notonecta viridis Delcourt, 1909	33, 44		(po)	L-TL, sp, ha-4.5‰	158, 252
Pleidae					
Plea minutissima Leach, 1817	80		(wcp)	L-TL, sp, eu	218
Naucoridae					
Ilyocoris cimicoides (Linnaeus, 1758)	80		(tp)	L-TL, sp, eu	218
Nepidae					
Nepa cinerea Linnaeus, 1758	59		(hop)	L-TL, eu	206

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Ranatra linearis (Linnaeus, 1758)	71		(hop)	L-TL, eu	374, 389
Belostomatidae					
Lethocerus patruelis (Stål, 1854) [*L. cordofanus*, *Belostoma niloticum*]	*78		(om, ? osp)	L-TL	79, 389
Hebridae					
Hebrus pusillus (Fallén, 1807)	80		(wp)	T, sp	218
Miridae					
Deraeocoris serenus (Douglas et Scott, 1868)	47, 76		(hom)	T, sp, ha	158, 252
Teratocoris antennatus (Boheman, 1852)	47		(e, ? hop)	T, sp, ha	158, 252
Phytocoris insignis Reuter, 1876	77		(e)	T, sp, ha	158, 252
Lygus italicus Wagner, 1950 [*L. maritimus*]	48, 77		(atm)	T, sp, ha	158, 252
Polymerus cognatus (Fieber,1858)	48		(h)	T, sp, ha	158, 252
Orthotylus josifovi Wagner, 1959	48, *69, 76		(Er)	T, sp, ha	158, 252
Orthotylus parvulus Reuter, 1879	47		(nem)	T, sp, ha	158, 252
Orthotylus rubidus Puton, 1874	47, 48, 76		(am)	T, sp, ha	158, 252
Orthotylus schoberiae Reuter, 1876	48, 76, *78		(nm)	T, sp, ha	158, 252
Europiella albipennis (Fallén, 1829) [*Plagiognathus lanuginosus*]	47		(et, ? mt)	T, sp, ha	158, 252
Compsidolon pumilum (Jakovlev, 1876) [*C. atomosum*, *Psallus*]	77		(hom)	T, sp, ha	158, 252
Nabidae					
Nabis sareptanus Dohrn, 1862 [*Halonabis*]	48		(omca, ? osp)	T, sp, ha	158, 252
Tingidae					
Catoplatus carthusianus (Goeze, 1778)	48		(csena)	T, sp, ha	158, 252
Agramma atricapillum (Spinola, 1837) [*Serenthia*]	48		(mca)	T, sp, ha	158, 252
Agramma laetum (Fallén, 1807) [*A. confusum*, *Serenthia*]	48		(wces)	T, sp, ha	158, 252
Saldidae					
Salda adriatica Horvath, 1887 [*S. littoralis*, *S. l. adriatica*]	47, 76		(nem)	T, sp, ha	158, 252
Chartoscirta longicornis (Jakovlev, 1882) [*Ch. elegantula longicornis*]	*69, 77		(pm)	T, sp, ha	158, 252
Halosalda lateralis (Fallén, 1807)	47		(wp)	T, sp, ha	158, 252
Saldula arenicola (Scholtz, 1847)	47, 76		(hat)	T, sp, ha	158, 252
Saldula opacula (Zetterstedt, 1838)	32, 33		(ho)	T, sp, ha	158, 252
Saldula pallipes (Fabricius, 1794)	47		(hno)	T, sp, ha	158, 252
Saldula pilosella (Thomson, 1871)	47, 76		(tp)	T, sp, ha	158, 252

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Piesmatidae					
Parapiesma salsolae (Becker, 1867) [*Piesma*]	48		(wes)	T, sp, ha	158, 252
Lygaeidae					
Cymus claviculus (Fallén, 1807)	48		(h)	T, sp, ha	158, 252
Cymus grandicolor Hahn, 1832	48		(tp)	T, sp, ha	158, 252
Cymus melanocephalus Fieber, 1861	48		(hom)	T, sp, ha	158, 252
Henestaris halophilus (Burmeister, 1835)	48		(hom)	T, sp, ha	158, 252
Henestaris laticeps (Curtis, 1836)	48		(atm)	T, sp, ha	158, 252
Peritrechus meridionalis Puton, 1877 [*P. ambiguus*]	47, *69, 77		(hom)	T, sp, ha	158
Pentatomidae					
Antheminia varicornis (Jakovlev, 1876) [*Codophila*]	47		(tp)	T, sp, ha	158, 252
Eurydema spectabilis Horváth, 1882	48		(nem)	T, sps, ha	158, 159, 252
Cydnidae					
Stibaropus henkei (Jakovlev, 1874)	48		(emca)	T, sps	47, 57
COLEOPTERA					
Dytiscidae					
Hydroglyphus geminus (Fabricius, 1792) [*Bidessus*, *Guignotus pusillus*]	42		(po)	L-TL, sp, eu, sw	85, 389
Hygrotus confluens (Fabricius, 1787) [*Coelambus*]	42		(wcp)	L-TL, sp, sw, th	85, 143, 389
Hygrotus lernaeus (Schaum, 1857) [*Coelambus*]	77		(hom)	L-TL, ha, sw	143, 184, 389
Hygrotus pallidulus (Aubé, 1850) [*Coelambus*]	48		(hom)	L-TL, sp, ha	143, 184, 389
Hygrotus parallellogrammus (Ahrens, 1812) [*Coelambus*]	48		(wcp)	L-TL, sp, ha	143, 184, 389
Hydroporus jonicus L. Miller, 1862	*69		(hom)	L-TL, sw	143, 184, 389
Nebrioporus ceresyi (Aubé, 1836) [*Deronectes*, *Potamonectes*]	76		(mca)	L-TL, 7‰, ha, sw	85, 86, 184, 389
Laccophilus minutus (Linnaeus, 1758) [*L. obscurus*]	42		(wpo)	L-TL, sp, sw	85, 184, 389
Rhantus suturalis (MacLeay, 1825) [*R. pulverosus*]	42		(poa, ? sk, R)	L-TL, sp, eu, sw	85, 184, 389
Eretes sticticus (Linnaeus, 1767)	42		(k)	L-TL, sp, sw	85, 184, 389
Dytiscus marginalis Linnaeus, 1758	71, *78		(h)	L-TL, sw, eu	184, 374, 389
Cybister lateralimarginalis (DeGeer, 1774)	7, 59, 60		(wcp)	L-TL, sw, eu	184
Gyrinidae					
Gyrinus distinctus Aubé, 1836	7		(hop)	L-TL, eu	85, 184, 389
Gyrinus suffriani Scriba, 1855	7		(wp)	L-TL, eu, sw	85, 184, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeographical		
Hydrophilidae					
Helophorus aquaticus (Linnaeus, 1758)	42		(wp)	L-TL, sp, sw	85, 389
Helophorus brevipalpis Bedel, 1881	42		(wcp, ? h)	L-TL, sp, sw	85, 389
Berosus bispina Reiche et Saulcy, 1856	42		(mwca)	L-TL, sp, sw, ha	85, 389
Berosus spinosus (Steven, 1808)	*69		(tp)	L-TL, sw, eu	184, 389
Cercyon arenarius Rey, 1885	46		(se)	L-TL, sp	144
Paracymus aeneus (Germar, 1824)	33, 41, *69, 76		(tp)	L-TL, sw, ha	85, 86, 144, 184
Laccobius gracilis Motschulsky, 1855	42		(hom)	L-TL, sp, sw	85, 389
Laccobius scutellaris Motschulsky, 1855	42		(em)	L-TL, sp, sw	184, 389
Enochrus bicolor (Fabricius, 1792) [*Philydrus*]	*69, 76, 77, *78		(hop, ? h)	L-TL, sw, eu	85, 184
Hydrophilus piceus (Linnaeus, 1758)	7, *78		(tpo)	L-TL, sw, eu	85, 374, 389
Hydraenidae					
Ochthebius marinus (Paykull, 1798)	33, 41, 42, 44, 76, 77, *78		(h)	L-TL, ha, sw, eu, sp	85, 144, 184, 389
Ochthebius nanus Stephens, 1829	41		(csena, hom)	L-TL, 23‰, sp, sw	184, 389
Ochthebius ponticus Ienistea, 1956	41, 42, 43		(Er)	L-TL, l, sp	V. Guéorguiev
Trichoptera					
Hydroptilidae					
Stactobia caspersi Ulmer, 1950	42		(em)	L-TL, sp, sw	84, 211, 389
Diptera					
Ceratopogonidae					
Dasyhelea halophila Kieffer, 1911	33		(se)	L-TL, 7-10‰, sw, ha	386
Chironomidae					
Tanypus punctipennis Meigen, 1818 [*Pelopia*]	58, 59, 60, *68, *79		(hno)	L-TL, 6‰, sw	96, 249, 389
Anatopynia plumipes (Fries, 1823)	*69		(wces, ? wp)	L-TL, 1‰, sw	96, 389
Ablabesmyia monilis (Linnaeus, 1758)	58		(hnoa, ? sk)	L-TL, sw	96, 389
Thienemannimyia lentiginosa (Fries, 1823) [*Ablabesmyia*]	*68		(wp, ? wcp)	L-TL, 1‰, sw	96, 389
Thalassomyia frauenfeldi Schiner, 1856	2, 3, 7, 13, 14, 17, 32, 33		(ase)	M-TL, l-sp, lt	85, 249, 380, 389
Clunio marinus Haliday, 1855	7, 16		(ena)	M-TL, sl-l, ph, lt	84, 380
Clunio ponticus Michailova, 1980	5, 7, 11, 16, 20		(Er)	M-TL, sl-l, lt	249, 252, 267
Cricotopus algarum (Kieffer, 1911)	32, 33, 59, 60, *68		(eca, ? h)	L-TL, 1‰, sw	96, 249, 337, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
? *Cricotopus intersectus* (Staeger, 1839) [? *Cryptochironomus conjugens*]	58, 59, 60, *68		(h)	L-TL, 6‰, sw	96, 389
Cricotopus ornatus (Meigen, 1818)	32, 33, 59, 60		(ho)	L-TL, 0.8‰, sw	249, 337
Cricotopus sylvestris (Fabricius, 1794)	32, 33, 58-60, *68, *69, 80		(hno)	L-TL, 8‰, l, sw	96, 249, 337, 389
Halocladius mediterraneus Hirvenoja, 1973	76		(em)	M-TL, sw, ha	119, 398
Halocladius varians (Staeger, 1839) [*Cricotopus*]	32, 33		(ena, ? wp)	M-TL, sp, ha	249, 252, 266
? *Halocladius vitripennis* (Meigen, 1818) [*Cricotopus*, *Trichocladius*], sp. dubia	2, 7, 32, 33		(e)	M-TL, l-sp, ph, lt	57, 85, 249, 266
? *Limnophyes minimus* (Meigen, 1818) [*Camptocladius exiguus*, *Tanytarsus*]	*68		(hptn, ? sk)	L-TL, 1.5‰, sw	96, 389
Limnophyes pentaplastus (Kieffer, 1921) [*L. prolongatus*]	*68		(h)	L-TL, 1‰, sw	96, 389
Orthocladius fuscimanus (Kieffer, 1908) [*O. bipunctellus*]	16		(ena, ? wp)	L-TL, l-sp	252, 268
Orthocladius rubicundus (Meigen, 1818) [*O. saxicola*]	58, 59, 60		(h)	L-TL, 1‰, sw	96, 389
Propsilocerus lacustris Kieffer, 1923	*68		(csee)	L-TL, 1‰, sw	353, 389
Psectrocladius obvius (Walker, 1856) [*P. dilatatus*]	*68		(h)	L-TL, 1‰, sw	96, 389
Psectrocladius psilopterus (Kieffer, 1906)	58, 59, 60, *68		(h)	L-TL, 1‰, sw	96, 389
Rheocricotopus atripes (Kieffer, 1913) [*R. foveatus*]	7, 11, 16, 32, 33		(wcp)	L-TL, sp	249
Smittia duplicata Strenzke, 1951	16, 24		(Er)	M-TL, sl, ph	249
Baeotendipes noctivagus (Kieffer, 1911) [*Haliella caspersi*]	76		(hom)	M-TL, 100‰, sw	86, 119, 249, 389
Chironomus anchialicus Michailova, 1974	76		(Ep)	M-TL, 80‰, sw	119, 252, 259, 265
Chironomus aprilinus Meigen, 1818 [*Ch. halophilus*]	33, 42, *69, 76, 80		(wcp)	M-B-TL, 12‰, l-sp	84, 119, 249, 389
Chironomus plumosus (Linnaeus, 1758)	16, 20, 33, 58, *68, 76		(hno)	L-TL, 0-9‰, sw, sp	84, 97, 119, 249, 353, 374, 389, 396
Chironomus riparius Meigen, 1804 [*Ch. thummi*]	42, 58-60, *68, *69, *74, 76, 77, 80, 88		(hn)	L-TL, 0-16‰, sw, sp	85, 96, 337, 353, 374, 389, 396
Chironomus salinarius Kieffer, 1915	33, 58-60, *69, *66, 76, 77, *78, *79, 80, *86		(wcp)	M-TL, 15-60‰, sw, sp	84, 96, 119, 353, 259, 264, 374, 396
Chironomus valkanovi Michailova, 1974	76, 77		(Ep)	M-TL, 60‰, sw	252, 264, 265, 398
Cryptochironomus defectus (Kieffer, 1913)	58, 59, 60, *68, 76		(pa)	L-TL, 2‰, sw	96, 337, 389
Dicrotendipes nervosus (Staeger, 1839) [*Limnochironomus*]	58, 59, 60, *68, *79		(h)	L-TL, 2‰, sw	96, 337, 389
? *Endochironomus signaticornis* Kieffer, 1913, nom. dubia	58, 60, 68		(e)	L-TL, 2‰, sw	96, 389
Endochironomus tendens (Fabricius, 1775)	59, 60		(tp, ? hop)	L-TL, 0.8‰, sw	337
Glyptotendipes barbipes (Staeger, 1839)	42, 46		(ho)	L-TL, sw, sp	131, 252
Glyptotendipes caulicola (Kieffer, 1913)	59, 60		(cse)	L-TL, 0.8‰, sw	337

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Glyptotendipes glaucus (Meigen, 1818)	59, 60		(tp)	L-TL, 0.8‰, sw	337
Glyptotendipes cauliginellus (Kieffer, 1913) [*G. gripekoveni*]	58-60, *68, 76, *79, 80		(po)	L-TL, 2‰, sw	96, 119, 337, 396
Glyptotendipes pallens (Meigen, 1804) [*G. polytomus*]	58, 59, 60		(po)	L-TL, 2‰, sw	96
? *Parachironomus pararostratus* Harnisch, 1923 [*Cryptochironomus*], sp. dubia	58, 60			L-TL, 2‰, sw	96, 389
Polypedilum nubeculosum (Meigen, 1804)	2, 7, 58, 59, 60, *68		(h)	L-TL, 15‰, l, sw	84, 96, 249, 337
Polypedilum nubifer (Skuse, 1889) [*P. aberrans*, *P. pharao*]	7, 24, 58-60, *68, 77		(poa)	L-TL, 1.5‰, l, ph	97, 249, 389
Polypedilum scalaenum (Schrank, 1803) [*P. breviantennatum*]	58, 59, 60, *68		(ho)	L-TL, 2‰, sw	97, 389
Cladotanytarsus mancus (Walker, 1856) [*Tanytarsus*]	*68		(h)	L-TL, 1.5‰, sw	97, 389
Stempellina bausei (Kieffer, 1911)	*68		(wces)	L-TL, 1‰, sw	97, 389
Tanytarsus gregarius Kieffer, 1909	*69		(h)	L-TL, sw	84, 389
Tanytarsus mendax Kieffer, 1925 [*T. holochloris*]	32		(h)	L-TL, sp	249
Chaoboridae					
Chaoborus crystallinus (De Geer, 1776)	59, 60		(h)	L-TL, 0.8‰, ps, s, ro	337
Stratiomyidae					
Stratiomys longicornis (Scopoli, 1763)	59		(tp)	L-TL, 0.78‰, sw	206
Hybotidae					
Chersodromia colliniana Frey, 1936	47		(m)	T, sps, ha	46, 252
Chersodromia curtipennis Collin, 1950	47		(pm, Ep)	T, sps, ha	46, 252
Dolichopodidae					
Aphrosylus fuscipennis Strobl, 1909	45		(se)	M-TL, sl-l-sp, lt	50, 51, 249, 252
Aphrosylus piscator Lichtwardt, 1902	45		(Eb)	M-TL, sl-l-sp, lt, r	50, 249, 252
Aphrosylus venator Loew, 1857	45, 46		(hom)	M-TL, sl-l-sp, lt	46, 47, 50, 249, 252
Coelopidae					
Malacomyia sciomyzina (Haliday, 1833)	46		(e)	T, sp, ha	50, 54, 249, 252
Coelopa frigida (Fabricius, 1805) [*C. eximia*, *Fucomyia*]	46, 47		(h)	T, sp, ha	46, 50, 249, 252
Helcomyzidae					
Helcomyza mediterranea (Loew, 1854)	46		(see)	T, sp, ha, ps	48, 53, 249
Tethinidae					
Tethina albosetulosa (Strobl, 1900) [*T. griseola*]	46, 47		(wpat)	T, l-sp, ha	46, 52, 62, 249
Tethina czernyi (Hendel, 1934)	46, 47		(mca)	T, l-sp, ha, r	58, 60, 62
Tethina flavigenis (Hendel, 1934)	47, 61, 62, 76		(am)	T, l-sp, ha, r	46, 58, 62

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Tethina grisea (Fallén, 1823) [*T. cinerea*]	46, 47		(am)	T, l-sps, ha	46, 52, 62, 249, 252
Tethina pallipes (Loew, 1865)	46, 48, 59, 60, 73, 74, 85		(hpta, ? sk)	T, l-sps, ha, r	58, 62
Tethina strobliana (Mercier, 1923)	58		(wp)	T, l-sp, ha, r	58, 60, 62
Canacidae					
Canace salonitana Strobl, 1900	45, 50		(nem)	M-TL, ph, l-sp, lt	48, 52, 62, 249
Sphaeroceridae					
Thoracochaeta brachystoma (Stenhammar, 1855) [*Leptocera*]	46, 47		(k)	T, l-sp, ha	46, 50, 51, 249, 252
Ephydridae					
Hecamede albicans (Meigen, 1830)	45, 46, 47		(hat)	T, l-spr, ha, lt	46, 50, 51, 62, 249
Ephydra attica Becker, 1896	41, 44, 47, 76, 77		(dp, ? mca)	TL, 60‰, sl-l-sp	46, 62, 85, 249, 283
Ephydra bivittata Loew, 1860	33, 41, 44, 59, 60, 64, 76, 77		(hom)	TL, l-sp, ha, r	49, 62, 249
Ephydra flavipes (Macquart, 1843)	33, 76, 77,		(ptm, ? atm)	TL, l-sp, ha	62
Ephydra murina Wirth, 1975 [*E. macellaria*]	32, 47, 62, 64, 76, 77, 80, 92		(cseeit)	TL, 60‰, sl-l-sp	62, 85, 389
Ephydra riparia Fallén, 1813	47, 58, 61, 77, 91		(h)	TL, 60-80‰, l	46, 62, 252
Schema acrosticale (Becker, 1903)	47, 48, 61, 76, 77		(wp)	TL, ha	62
Chlorichaeta albipennis (Loew, 1848)	47, 76, 91, 92, 95		(pata)	TL, ha	62, 63, 85
Glenanthe nigripes Czerny, 1909	47, 48, 61, 76, 77		(nm)	TL, ha, r	45, 50, 53, 54, 55, 56, 61, 62, 63
Polytrichophora duplosetosa (Becker, 1896)	47, 48, 58-60, 76, 91, 92-95		(wpat)	TL, ha, r	62, 63
Anthomyiidae					
Fucellia maritima (Haliday, 1838)	46		(ena)	T, l-sp, ha	46, 50, 51, 53,
Fucellia tergina (Zetterstedt, 1845)	46		(hnata, ? sk)	T, l-sp, ha	249
MOLLUSCA				plankton larvae	
Polyplacophora (Loricata)					
Chitonida (Chitoniformes)					
Lepidochitonidae (Tonicellidae, Ischnochitonidae)					
Lepidochitona caprearum (Scacchi, 1836) [*L. corrugata*, *Chiton poli*, *Middendorffia*]	13, 24	17	hom, ? lm	M, bt, ep, lt, r	91, 249, 389
Lepidochitona cinerea (Linnaeus, 1767) [*Chiton marginatus*, *Ch. variegatus*]	7, 12. 16, 21, 24	0-30	clm	M, bt, ep, lt, ro	84, 91, 249, 295

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Gastropoda					
Patellogastropoda (Archaeogastropoda, Docoglossa)					
Patellidae					
Patella ulyssiponensis Gmelin, 1791[*P. caerulea pontica*, *P. pontica*, *P. tarentina*]	3, 11, 14, 16, 17, 50	0-10	clm	M, bt, sep, lt-ro, l-sl, r, ■	31, 84, 91, 114, 249, 389
Vetigastropoda (Archaeogastropoda)					
Phasianellidae (Tricoliidae)					
Tricolia pullus (Linnaeus, 1758) [*Phasianella pontica*]	1-22, 24	0-10, 50	eam	M, bt, ep, ph	84, 91, 249, 389
? *Tricolia tenuis* (Michaud, 1829) [*Phasianella*]	11		lmm	M, bt, ep, r	91, 389
Trochidae					
Gibbula adriatica (Philippi, 1844) [*G. euxinica*, *G. deversa*, *Trochus*]	4, 24	-30, 50	lm	M, bt, ep, ro, mc, ph	67, 389
Gibbula albida (Gmelin, 1791) [*G. a.* var. *pontica*, ? *Trochus fermonii*]	24	0-15, 40	lm	M, bt, ep, ro, mc, ph	249
Gibbula divaricata (Linnaeus, 1758) [*Trochus*]	1-22, 24	0-10, 50	lm	M, bt, sep, ro, lt, ph	84, 91, 249, 389
Cycloneritimorpha (Archaeogastropoda)					
Neritidae					
Theodoxus danubialis (C. Pfeiffer, 1828) [*Neritina*]	*69		(seepc)	L, bt, 12‰, lt, pe	84, 389
Theodoxus euxinus (Clessin, 1887) [*Neritina*]	96	-10	Ep, Rc, Sf, +	M-B, bt, 5‰,	6, 126
Theodoxus fluviatilis (Linnaeus, 1758) [*Neritina*]	58-60, *68, *69, 71, *78, *79, 84, *86, 88, 92, 94, 95, 96		(e)	L-B, bt, eh, 20‰, lt	84, 305, 374, 389
Theodoxus pallasi Lindcholm, 1924 [*Neritina*]	*69	4-10	pc, Rc, Sf, +	M-B, eh-14‰, ro, EX, ▲	113, 164
Theodoxus pilidei (Tournouer, 1879) [*Neritina*]	28	65-	pc, Rc, Sf, +	M-B, bt, phs	249
Ectobranchia (Heterostropha, Mesogastropoda)					
Valvatidae					
Valvata cristata O. F. Müller, 1774	*68, *69		(wes)	L, 0.5‰, bt, ph, s, r, ♦	118, 305, 374, 389
Valvata piscinalis (O. F. Müller, 1774) [*V. pulchella*]	*68, *69	3-10, 80	(wcp, i - h)	L, 0.4‰, bt, sw, ph, pe, x, ♦	84, 118, 305, 389
Sorbeoconcha (Neotaenioglossa, Mesogastropoda)					
Cerithiidae					
Bittium reticulatum (da Costa, 1778) [*Cerithiolum*, *Cerithium exile*]	7-22, 26, 27, 28, 69	2-14-111	clmm	M, bt, eb, ps, ps-s, pe	66, 84, 249, 389
Bittium submamillatum (de Reyneval et Ponzi, 1854) [*Cerithidium*, *C. pusillum*]	3, 26, 27, 28	20-140	lm	M, bt, eb, ps-s, pe	67, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Cerithium vulgatum Bruguière, 1792 [*C. v. ponticum*, *C. ponticum*]	11, 13, 16	-15, 25	lm	M, bt, ep	91, 249, 389
Hypsogastropoda (Neotaenioglossa, Meso-, Neogastropoda)					
Caecidae					
Caecum armoricum de Folin, 1869 [*C. tenue*, *Brochina*]	7	15-30	lmm	M, bt, ep	166, 249, 252
Caecum trachea (Montagu, 1803) [*C. elegans*, *C. rugulosum*]	7	5-15, 50	lm	M, bt, ep	166, 167, 249, 352
Calyptraeidae					
Calyptraea chinensis (Linnaeus, 1758)	7, 11, 13, 15, 16	40, 70	eam	M, bt, mb	84, 91, 249, 389
Cerithiopsidae					
Cerithiopsis minima (Brusina, 1865)	84	-30	lmm	M, bt, ep, zc	404, 405
Cerithiopsis tubercularis (Montagu, 1803)	6, 7, 8, 26, 27, 28	14-111	eamswi	M, bt, eb, pe	67, 249, 389
Cimidae (Aclididae)					
Graphis albida (Kanmacher, 1798)	84	0-50	clmm	M, bt, ep	404
Epitoniidae					
Epitonium turtonis (Turton, 1819) [*Scalaria communis*, *S. tenuicostata*]	7	13-36, 60	clm	M, bt, mb	84, 249, 389
? *Epitonium clathrus* (Linnaeus, 1758) [*Scalaria communis*]	7		clm, ce	M, bt, mb	84, 389
Eulimidae					
Vitreolina incurva (Bucquoy, Dautzenberg et Dollfus, 1883) [*Eulima*]	3, 26, 27, 28	15-100	clm	M, bt, eb, pe	67, 249, 389
Hydrobiidae					
Hydrobia acuta (Draparnaud, 1805) [*H. ventrosa*]	7, 23, 24, 43, *66, *68, *69, *78, *79, *86	0-22	lm, ? hm	B-M, eh-60‰, bt, ep, sw, ph, ro, pe, ♦	84, 118, 249, 305, 374, 389
? *Hydrobia ulvae* (Pennant, 1777)	76		clmm	M-B, bt, eh	119, 396
Ventrosia ventrosa (Montagu, 1803) [*Hydrobia*, *H. acuta*]	13, 26-28, *66, *69, 76, 77-*79, *86, 96	0-111, 20	clm	B, bt, eh, mb, ro, ph, zc, pe	166, 249, 374, 389
Hauffenia lucidula Angelov, 1967 [*Horatia*]	53		(El)	L, 1‰, bt, cr, ▲, ♦	6, 118
Lithoglyphus naticoides (C. Pfeiffer, 1828)	*69	12	(seep, Rc)	L, 3‰, bt, lt, po, ♦	84, 118, 249, 389
Lithoglyphus fuscus (C. Pfeiffer, 1828) [? *L. pyramidatus* v. Mollendorf, 1873]	*69		(Eb)	L, bt, lt, rh, r	84, 389
Potamopyrgus antipodarum (J. E. Gray, 1843) [*P. jenkinsi*]	? 96		(nz, sk, i)	B-L, 17‰, po-sw, eu, is	118, 204
Bithyniidae					
? *Bithynia leachii* (Sheppard, 1823) [? *B. transsilvanica* (Bielz, 1853)]	*68	3	(wp, ? e, wes)	L, bt, 0.5‰, ph	374, 389
Bithynia tentaculata (Linnaeus, 1758)	60, *68, *69	5	(wp, ? h - i)	L, bt, ph, ro, s, ps, ♦	84, 118, 305, 389
Pyrgulidae (Micromelaniidae)					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Turricaspia lincta (Milaschewitch, 1908) [*Micromelania*, *Pyrgula*]	26, 28, *68, *79	24-148	pc, Rc, Sf, +	M-B, 8‰, bt, s, sw, ♦	113, 166, 249
Littorinidae					
Melarhaphe neritoides (Linnaeus, 1758) [*Littorina*]	2-22, 45		clmm	M, bt, lr-spr, lt	34, 84, 249, 389
Rissoidae					
Alvania lactea (Michaud, 1832) [*Massotia*, *Rissoa*]	3, 7, 24		clm	M, bt, ep, ph	84, 282, 389
Rissoa membranacea (J. Adams,1800) [*R. oblonga*, *R. pontica*, *R. venusta*]	1-13, 23, 24	-10	clm	M, bt, ep, ph, zc	84, 91, 249, 282
Rissoa parva (da Costa, 1778) [*R. euxinica*]	3, 13, 24	-20, 80	clm	M, bt, ep-mb, ph	249, 282, 389
Rissoa splendida Eichwald, 1830	7-22, 23, 24	-12	m, hom	M, bt, sep, zc, ph, ro	84, 91, 249, 389
Pusillina lineolata (Michaud, 1832) [*Rissoa*, ? *R. membranacea*]	7, 16, 17, 24, *69	-47	lm	M, bt, mb, ph, pe	374, 389
Setia pulcherrima (Jeffreys, 1848) [*S. turriculata*]	17, 19, 24, 45		lm	M, bt, sep, lr	404, 405
Pontiturboella rufostrigata (Hesse, 1916) [*Assiminea*, *Paludinella*]	*69		● p, Er	M, bt	148
Tornidae					
Tornus subcarinatus (Montagu, 1803) [*Adeorbis*]	14		clm	M, bt, ep	166, 249, 392
Triphoridae					
Marshallora adversa (Montagu, 1803) [*Trifora obesula*, *T. perversa* var. *parva*]	16, 17, 19	-15, 80	clm, ? eam	M, bt, mb, phc	405
Muricidae					
Rapana venosa (Valenciennes, 1846) [*R. bezoar*, *R. thomasiana*]	1-22, 24, 25, 69, 76	-70	j, aminp, i	M, bt, mb-eb, eu, is	165, 249, 392
Trophonopsis muricatus (Montagu, 1803) [*T. breviatus*, *Trophon*]	3, 21, 22, 27, 28	36-138	clm	M, bt, shb, phs	67, 249, 389, 410
Buccinidae					
Neptunea arthritica (Valenciennes, 1858)	25, 26, 49		j, pnep, i	M, bt , r	355
Nassariidae					
Cyclope neritea (Linnaeus, 1758) [*Cyclonassa kamischiensis*, *Nassa brusinai*]	1-22, *69	-54	lm	M, bt, mb, ps-pe	67, 84, 91, 249, 389
Nassarius reticulatus (Linnaeus, 1758) [*N. nitidus*, *Nassa*]	1-22, 25, 36-40, *69, 76	-60	clmm	M, bt, mb, ps, ps-pe	84, 91, 249, 374
Conidae					
Bela nebula (Montagu, 1803) [*Cythara fuscata*, *Mangelia*, *Raphitona*]	7, *69	-20	clm	M, bt, ep	91, 249, 389
Mangelia costata (Pennant, 1777) [*M. pontica*, *M. taeniata*, *Cythara*]	7, *69	-50	clm	M, bt, mb	84, 249, 389
Heterostropha					
Omalogyridae					
Omalogyra atomus (Philippi, 1841) [*Homalogyra*, *Truncatella*]	17, 84		aam	M, bt, ep	405
Ammonicera fischeriana (Monterosato, 1869) [*Homalogyra*]	17, 84		lm, ? lmm	M, bt, mb	405
Pyramidellidae (Ebalidae, Turbonillidae, Murchisonellidae)					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Chrysallida emaciata (Brusina, 1866) [*Parthenina*, *Turbonilla*]	17, 19, 84		lm	M, bt, ep	405
Chrysallida incerta (Milaschewitsh, 1916) [*Ch. brusinai*, *Odostomia*, *Parthenia*]	17, 19, 69, 84	-18	m, ? lmmg	M, bt, ep	405
Chrysallida interstincta (J. Adams, 1797) [*Ch. obtusa*, *Parthenina tenuistriata*]	12, 17, 19, 69, 84	6-80	clmm	M, bt, mb	164, 405
Chrysallida terebellum (Philippi, 1844) [*Parthenina costulata*, *Odostomia*]	7, 69	-10, 42	lm	M, bt, ep, pe	166, 167, 249, 392
Eulimella acicula (Philippi, 1836) [*E. laevis*, *Belonidium*, *Odostomia*]	17, 84	-18, - 47	clm	M, bt, ep, r	405
Ebala pointeli (de Folin, 1868) [*Anisocycla*, *Eulimella*, *Turbonilla*]	7, 69	-20	lm, ? lmm	M, bt, ep, ps, s	166, 167
Odostomia erjaveciana Brusina, 1869 [*O. nitens*]	11, 17, 19, 84		lm	M, bt, ep	405
Odostomia eulimoides Hanley, 1844 [*O. novegradensis*, *O. pallida*]	7, 16, 17, 19, 84	-70	clm	M, bt, mb	405
Odostomia plicata (Montagu, 1803)	16, 17, 19, 84	-20	clm	M, bt, ep	405
Odostomia scalaris MacGillivray, 1843 [*O. albella*, *O. rissoiformis*]	1-22	-15, 50	clm	M, bt, mb	166, 178, 249
Noemiamea dolioliformis (Jeffreys, 1848) [*Odostomia*]	17, 84		lm	M, bt, ep, r	405
Turbonilla delicata Monterosato, 1874 [*Odostomia*]	7	-35	clm	M, bt, ep-mb	166, 249, 392
Turbonilla pusilla (Philippi, 1844) [*T. elegantissima*, *T. pupaeformis*]	16, 17, 84		kclm	M, bt, ep, r	405
Cephalaspidea					
Retusidae					
Cylichnina umbilicata (Montagu, 1803) [*C. strigella*, *C. variabilis*, *Retusa*]	7, 11, 13, 16, 69	-50	clm	M, bt, mb, s, sg	91, 249, 389
? *Cylichnina robagliana* (Fischer, 1869) [*C. ovoides*, *Bulla*, *Retusa*]	7	-40	lm	M, bt, mb	84, 249, 389
Retusa truncatula (Bruguière, 1792) [*R. t. opima*, *Bulla*, *Cylichna*]	7, 13, 17, 24, 26, 27, 28, *69	0-140	eam	M, bt, eb, pe, ph, mc	84, 249, 389
Sacoglossa					
Stiligeridae (Hermaeidae)					
Calliopaea bellula (Orbigny, 1837) [*Stiliger*]	7, 24, 34, *69		clm	M, bt, ep, slc	249, 374, 389, 392
Limapontiidae (Stiligeridae)					
Limapontia capitata (O. F. Müller, 1774)	7, 24		clm, ce	M, bt, ep, slc	249, 392
Acochlidiida					
Microhedylidae (Parhedylidae)					
Parahedyle tyrtowii (Kowalewsky, 1901) [*Microhedyle*, *Hedyle*]	7, 11, 16, 25		m	M, bt, ep, ps	249, 392
Nudibranchia					
Pseudovermidae					
Pseudovermis paradoxus Perejaslawtzeva, 1890	7, 11, 25		lm	M, bt, ep, ps	249, 392
Tergipedidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Embletonia pulchra (Alder et Hancock, 1844) [*Aeolis*, *Eolis*, *Pterochilus*]	23, 24, *69, *79	-40	clm	M, bt, mb, slc, zc	249, 374, 386, 389
Corambidae					
Corambe obscura (Verrill, 1870) [*Doridella*]	7, 13	-5	vck, i	M, bt, ep	328
Doridiidae					
Doris ocelligera (Bergh, 1881)	7		lm	M, bt	358
Eupulmonata					
Ellobiidae					
Myosotella myosotis (Draparnaud, 1801) [*Alexia*, *Auricula*, *Ovtella*]	4, 45		amp	M-TL, spr, r	166, 249
Basommatophora					
Acroloxidae					
Acroloxus lacustris (Linnaeus, 1758)	58, 59, 60, 80		(wes, ? hoes)	L, bt, ph, sw, ♦	206, 218, 259
Lymnaeidae					
Lymnaea stagnalis (Linnaeus, 1758)	*68	0-4	(h)	L, 7‰, bt, ph, pe, ♦	118, 305, 389
Stagnicola corvus (Gmelin, 1791) [*S. palustris* var. *corvus*, *Lymnaea*, *Galba*]	58, *68, *69	0-50	(hop, ? e)	L, bt, sw, ph, ♦	118, 206, 305, 389
Radix auricularia (Linnaeus, 1758) [*Lymnaea*]	58, *68, *69, 71	0.2-25	(h, ? hop)	L, 6‰, bt, ph, rh, s, ♦	84, 118, 374, 389
Radix balthica (Linnaeus, 1758) [*R. ovata*, *Lymnaea*]	59, 60, 80, 96		(hop)	L, 3-10‰, bt, ph, eu, ♦	206, 218
Galba truncatula (O. F. Müller, 1774) [*Lymnaea*]	*68, *69	-6	(h)	L, bt, eu, pe, ph, ar	305, 389
Planorbidae					
Ferrissia fragilis (Tryon, 1862) [*F. wautieri*, *F. clessiniana*]	68, 83	0-8	(h, sk, i)	L, bt, eu, th, ph, r, is, ♦	6, 118
Planorbis carinatus O. F. Müller, 1774	77	-10, -18	(wes, ? h)	L, bt, sw, ph, pe, r, ♦	257, 258
Planorbis planorbis (Linnaeus, 1758) [*Tropidiscus umbilicatus*]	7, 58, 59, *68, *69, 70, 71, 77		(h)	L, bt, 2‰, sw, ph, pe, ♦	6, 84, 258, 389
Anisus septemgyratus (Rossmaessler, 1835) [*Paraspira*]	*68, *69, 71		(wes, ? e)	L, 8‰, sw, ph, α-β, r, ♦	6, 305, 389
Anisus vortex (Linnaeus, 1758) [*Planorbis*, *Spiralina*]	*68		(wces)	L, bt, 8‰, ph, α-β, r, ♦	6, 374, 389
Anisus vorticulus (Troschel, 1834)	60, 83		(wces, ? wes)	L, bt, pe, ph, rh, sw, r, ♦, HD	6, 118
Gyraulus crista (Linnaeus, 1758) [*Armiger*, *Planorbis*]	*68		(h)	L, 1.5‰, eu, ph, α-β, ♦	6, 118, 374, 389
Hippeutis complanatus (Linnaeus, 1758) [*Segmentina*]	59, 60		(wces, ? wcp)	L, bt, ph, s-ar, sw, α, r, ♦	6, 118
Segmentina nitida (O. F. Müller, 1774)	*68, *69, 83		(wcp)	L, bt, sw, ph, α-β, ♦	6, 118, 305, 389
Planorbarius corneus (Linnaeus, 1758) [*Coretus corneus* var. *ammonoceras*]	*68, *69, 71, 77	-9	(wces)	L, 5‰, sw, po, α-β, ♦	6, 305, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Physidae					
Physella acuta (Draparnaud, 1805)	58, 75, 76, 77, 87, 90		(na, sk, i)	L, bt, eu, pe, ph, po, sw, tx, α-β, is, ♦	6, 118, 257, 259
Physa fontinalis (Linnaeus, 1758)	*68, *69		(tp, ? h)	L, bt, sw, po, cr, ph, ps-pe, β, r, ♦	6, 84, 389
Bivalvia					
Arcoida					
Noetiidae					
Striarca lactea (Linnaeus, 1758) [*Arca*, *Arcopsis*, *Galactella*]	7, 16, 24	-20	eami, +	M, bt, ep, lt, r	84, 389
Arcidae					
Anadara kagoshimensis (Tokunaga, 1906) [*A. inaequivalvis*, *Cunearca*, *Scapharca*]	3, 6, 7, 12, 13, 25, 26, 69	-25, -40	miwp, i	M, bt, ep, ps, s, sg, is	183, 249, 255, 288
Mytiloida					
Mytilidae					
Mytilaster lineatus (Gmelin, 1791) [*M. l. pontica*, *M. minimus*, *M. monterosatoi*]	1-22, 24, 68, 69	0-30, 50	lm	M, bt, 5‰, sep, lt-slc	61, 84, 91, 249, 295
Mytilus galloprovincialis Lamarck, 1819 [*M. edulis* var. *galloprovincialis*]	1-22, 24, 27, 68, 69, 76	0-80	eamp	M, bt, eb, lt, s, s-ps	84, 91, 389
Gibbomodiola adriatica (Lamarck, 1819) [*Modiola*, *Modiolus*]	7, 11, 13, 16, 25, 26	20-36, 75	lm, ? clm	M, bt, mb, pe, s-ps	91, 249, 389
Modiolula phaseolina (Philippi, 1844) [*Modiola*, *Modiolus*]	1-22, 28	30-140	clmm	M, bt, shb, pe, phs	249, 389, 410
Ostreoida					
Pectinidae					
Flexopecten glaber (Linnaeus, 1758) [*Chlamys*, *Pecten glaber* var. *pontica*]	1-22, 25	3-40, 70	lm	M, bt, sep, ps, ps-s	84, 91, 249, 389
? *Pecten jacobaeus* (Linnaeus, 1758)	? 7		lmmg	M, bt	84, 389
? *Pecten maximus* (Linnaeus, 1758)	? 11		eam, ? clm	M, bt	84, 389
Anomiidae					
Anomia ephippium Linnaeus, 1758	7	-30	ami	M, bt, ep, ro	84, 389
Ostreidae					
Ostrea edulis Linnaeus, 1758 [*O. lamellosa*, *O. sublamellosa*, *O. taurica*]	3, 5, 7, 12, 16, 17, 24	7-23, 65	anamnep, i	M, bt, sep, ro, ■	67, 84, 91, 114, 249
Unionoida					
Unionidae					
Unio pictorum (Linnaeus, 1758) [*U. p. gaudioni*, *U. gemtilis*]	*68, *69, 92	-11	(e, ? ena)	L, bt, 2‰, pe-ar-ps, β	6, 84, 305, 374, 389
Unio tumidus Retzius, 1788	*69	-9	(e, ? wes)	L, bt, pe-ar, β	6, 84, 389
Anodonta cygnea (Linnaeus, 1758) [*A. c. piscinalis*, *A. piscinalis*]	*68, 92	-17	(e)	L, bt, 2‰, pe-ps, β	6, 84, 374, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Pseudanodonta complanata (Rossmaessler, 1835) [*Anodonta*]	92	-9	(e)	L, bt, ps-pe, β	6
Veneroida					
Lucinidae					
Lucinella divaricata (Linnaeus, 1758) [*Divaricella*, *Lucina commutata*, *Tellina*]	1-22, 25, 26, 69	-30	clm, ? lm	M, bt, ep, ps, ps-s	84, 249, 389
Loripes lacteus (Linnaeus, 1758; Poli, 1791) [*L. lucinalis*, *Lucina leucoma*, *Tellina*]	3, 7, 11, 16, 17, 20, 25	-25	lmm, ? clmm	M, bt, sep, ps, zc	67, 84, 249, 389
Leptonidae					
Hemilepton nitidum (Turton, 1822) [*Kellia compressa*, *Erycina*, *Lepton*]	25, *69, 84	0-25, 34	clm	M, bt, ps, ep-mb	164, 403
? *Kellia suborbicularis* (Montagu, 1803) [? *Hemilepton nitidum*]	69	2	namnep	M, bt, eb, ps	356
Montacutidae					
Kurtiella bidentata (Montagu, 1803) [*Mysella*]	16, 17	-50	eam	M, bt, sg, ro	403
Cardiidae					
Acanthocardia paucicostata (G. B. Sowerby, 1834) [*Cardium p.* var. *impedita*]	3, 7, 13, 16, 17, 25-27, 69	15-100	lm	M, bt, mb-eb, pe, sg	67, 84, 91, 249, 389
Cerastoderma glaucum (Poiret, 1789) [*Cardium edule*, *C. clodiense*, *C. lamarcki*]	1-22, 25, 26, 27, 68, *69, 76, 77, *78	-80	clm	M, bt, eh-3.9‰, eb, ps, ps-s, pe	84, 91,249, 295, 374, 389
Parvicardium exiguum (Gmelin, 1791) [*Cardium*]	3, 7, 13, 16, 25, 27, 69	10-120	clm	M, bt, eb, ps, ps-s, pe	67, 84, 91, 249, 389
Papillicardium papillosum (Poli, 1791) [*Cardium fasciatum*, *C. simile*]	3, 7, 17, 25, 27, 28	-30, 100	lm	M, bt, eb, pe, pe-ps	67, 84, 249, 389
Monodacna colorata (Eichwald, 1829) [*Didacna*, *Hypanis*]	3, 7, 25, 26, 27, 28	13, -148	pc, Rc, Sf, +	M-B, bt, ps-pe, s, ep	66, 68, 249, 389
Hypanis plicatum (Eichwald, 1829) [*Adacna relicta*, *H. p. relicta*]	3, 27, 28	35-90	pc, Rc, Sf, +	M-B, bt, pe, ar, s-ps	68, 172, 249, 389
Mactridae					
Spisula subtruncata (da Costa, 1778) [*Mactra s. triangula*, *M. triangula*]	1-22, 25-28, 69	5-140	clmm	M, bt, eb, pe, ps-s, sg	67, 84, 249, 389
Mesodesmatidae					
Donacilla cornea (Poli, 1795) [*Mesodesma*]	1-22, 51	0.2, -2	lm	M, bt, sep, ps, ■	114, 166, 249, 389
Solenidae					
Solen marginatus Pulteney, 1799 [*S. vagina*]	1-22, 25	0-10	clmm	M, bt, sep, ps, ■	84, 91, 114, 249
Tellinidae					
Gastrana fragilis (Linnaeus, 1758) [*Psammobia*, *Tellina*]	1-22, 25	-36	clm	M, bt, ep, ar, ar-ps, sg	84, 249, 389
Tellina donacina Linnaeus, 1758 [*Angulus*, *Moerella*]	1-22, 25, 26	-20, 30	clmm	M, bt, sep, ps-pe	84, 91, 249, 389
Tellina fabula Gmelin, 1791 [*Angulus*, *Fabulina*, *Moerella*]	7, 25	-10, 40	clm	M, bt, ep, ps, ps-s	84, 249, 389
Tellina tenuis da Costa, 1778 [*T. exigua*, *Angulus exiguus*, *Moerella*]	1-22, 25, 26, 77, *79	0.2-24	clm	M, bt, sep, ps, ps-s	84, 91, 249, 389
Donacidae					
Donax trunculus Linnaeus, 1758 [*D. t. julianae*, *D. julianae*]	1-22, 25	2-15	clm	M, bt, sep, ps	84, 91, 249, 295

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Donax semistriatus Poli, 1795 [*D. fabagella, D. venustus*]	16, 25	10-15, 20	lm	M, bt, ep, ps	84, 249, 389
Semelidae					
Abra alba (W. Wood, 1802) [*A. a. pontica, Syndesmya*]	1-22, 26, 27, 28, 69	-135, 170	clmm	M, bt, eb, pe, phs	84, 249, 389
Abra prismatica (Montagu, 1808) [*A. fragilis, A. milaschevichi, A. nitida*]	1-22, 26, 27, 69	5-90	clm, ? clmm	M, bt, eb, pe, s-ps	67, 84, 249, 389
Abra segmentum (Récluz, 1843) [*A. ovata, Syndesmya*]	7, 13, 23, 26, *66, 68, *69, 76, 77, *79, 85, *86	-15, 40	ml	M, bt, eh-6-60‰, ep, et, pe, ps-s	84, 91, 249, 374, 389
Dreissenidae					
Dreissena polymorpha (Pallas, 1771) [*D.* (*Dreissena*) *polymorpha polymorpha*]	58, 59, 60, *68, *69, 71, 76, 92, 96	-20	(h - i), Rc	B-L, bt, eh, is	84, 91, 152, 249, 305, 374, 375, 389
Dreissena rostriformis (Deshayes, 1838) [*D.* (*Pontodreissena*) *r. distincta*]	1-22, 27, 28	50-200	pc, Rc, Sf, +	B, bt, mb-eb	166, 172, 178, 249
Pisidiidae					
Sphaerium corneum (Linnaeus, 1758)	*67		(h)	L, bt, 5‰, sw, ph, s	6, 305, 389
Musculium lacustre (O. F. Müller, 1774)	42, 43, *67, 92		(tp)	L, bt, 3‰, sw, ph, s	4, 6, 305, 389
Veneridae					
Gouldia minima (Montagu, 1803) [*Circe, Venus*]	5, 16, 25, 26, 27	-25, 70	clm	M, bt, eb, ps-pe, mc	67, 91, 249, 389
Pitar rudis (Poli, 1795) [*Meretrix r.* var. *ochropicta, Cytherea, Venus ochropicta*]	3, 7, 13, 16, 17, 25, 26, 27	-40, 200	lmmg	M, bt, mb, ps-pe, sg	67, 84, 91, 249, 389
Irus irus (Linnaeus, 1758) [*Venerupis*]	3, 7, 24	0-10	eamiswp	M, bt, sep, lt, slr	67, 84, 249, 389
Chamelea gallina (Linnaeus, 1758) [*Chione gallina corrugata, Venus*]	1-22, 25, 69	-30, 90	clm, ce	M, bt, mb, ps, s-ps, sg	84, 91, 249, 389
Polititapes aureus (Gmelin, 1791) [*P. petalina, T. rugata, T. discrepans, T. lineatus*]	1-22, 25, 26, 27	2-65	clm	M, bt, mb, ps-pe, s	67, 84, 91, 249, 389
Petricolidae					
Petricola lithophaga (Philippson, 1788)	7, 11, 12, 13, 24	-10, 26	lmi	M, bt, sep, lt	84, 91, 249, 389
Myoida					
Myidae					
Mya arenaria Linnaeus, 1758 [*M. truncata*]	1-22, 25, 26, 68, 69	0.30-12	cbm, i	M, bt, ep, ps, ps-s, is	175, 249, 252, 253
Corbulidae					
Lentidium mediterraneum (O. G. Costa, 1829) [*Corbulomya maeotica, Corbula*]	7, 25, 69	2-20	m, ? lm	M, bt, sep, ps, ps-s	84, 249, 389
Pholadidae					
Pholas dactylus Linnaeus, 1758	5, 7, 10, 11, 12, 13, 24	-15	eamrs, amrs	M, bt, sep, lt, BA, BC	84, 91, 249, 389
Barnea candida (Linnaeus, 1758) [*Pholas*]	7, 24	-15	namnei, ami	M, bt, ep, lt, eh	84, 249, 389
Teredinidae					

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Teredo navalis Linnaeus, 1758	1-22, 69	-70	amip, K, i	M, bt, ep-me, c, is	84, 91, 249, 374,
Nototeredo norvagica (Spengler, 1792) [*Teredo utriculus*]	10, 17	-70	bam	M, bt, ep-me	75, 252
Anomalodesmata (Pholadomyoida)					
Thraciidae					
Thracia papyracea (Poli, 1791)	7, 25	0.2-22	clm, ? nam	M, bt, ep, ps, ps-pe	84, 249, 389
BRYOZOA				plankton larvae	
Gymnolaemata					
Cheilostomatida					
Membraniporidae					
Membranipora tenuis Desor, 1848	7, *69		nap	M, bt	84, 249, 389
Conopeum reticulum (Linnaeus, 1767) [*Membranipora denticulata*]	3	-40	ham	M, bt, eh, mb	67, 249, 389
Conopeum seurati (Canu, 1928)	84		neamswp	M-B, bt, eh, 8-10‰	141, 249, 252
Electridae (Membraniporidae)					
Einhornia crustulenta (Pallas, 1766) [*Electra*, *Membranipora*]	*69, 96		abapbp	M-B, bt, eh, 3‰	84, 249, 389
Electra monostachys (Busk, 1854)	13	0-60	ham	M, bt, ro, sg	252, 330
Electra pilosa (Linnaeus, 1767) [*Membranipora*]	7	10-50	namswp	M, bt, mb	84, 249, 389
Electra pontica Gruncharova, 1980	2, 84	0.2-0.7	● p, Er	M, bt, ep	142, 252
Tendridae (Membraniporidae)					
Tendra zostericola Nordmann, 1839 [*Electra*, *Membranipora*]	7, 11, 12, 13		adp	M, bt	67, 91, 249, 389
Cryptosulidae (Smittinidae)					
Cryptosula pallasiana (Moll, 1803) [*Lepralia*]	3, 7, 11, 16, *69		amp	M, bt, ep	66, 67, 91, 249, 389
Bitectiporidae (Schizoporellidae)					
Schizomavella linearis (Hassall, 1841) [*Schizoporella*]	7	10-	clm, bamnep	M, bt, mb-hb	84, 249, 389
Ctenostomatida					
Vesiculariidae					
? *Bowerbankia caudata* (Hincks, 1877)	*69, *79, 84, *86		aamip	M, bt, ep, 6‰	141, 249, 374, 384
Bowerbankia gracilis Leidy, 1855 [? *B. caudata*]	*69, *79, 84, *86	-10	amp	M, bt, ep, 6‰	141, 249, 374, 384
Bowerbankia imbricata (Adams, 1798)	84		amp	M, bt, eh, 10‰	141, 249, 252
Victorellidae					
Victorella pavida Saville Kent, 1870	*68, 71, *78, *79, 84, *86, 88, 90, 93, 94	5	pc, amp, Rc	M, bt, ep, eh, 0.4-20‰	141, 249, 374, 389

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Phylactolaemata					
Plumatellida					
Fredericellidae					
Fredericella sultana (Blumenbach, 1779)	84, 96		(k)	L, bt, 0-10‰	141, 249, 252
Plumatellidae					
Plumatella casmiana Oka, 1907	84, 96		(hptn, ? sk)	L, bt, 3-6‰	141, 249, 252
Plumatella emarginata Allman, 1844	84, 96		(k)	L, bt, 3-6‰	141, 249, 252
Plumatella fungosa (Pallas, 1768)	60, *68, *79, 84, *86, 88		(h)	L, bt, 1‰	141, 249, 374, 389
Plumatella repens (Linnaeus, 1758)	60, *68, 84, 92, 96		(k)	L, bt, 3-6‰	141, 249, 374, 389
PHORONIDA					
Phoronidae					
Phoronis psammophila Cori, 1889 [*Ph. euxinicola*]	1-22, 25-28, 35, 51, 69	0-100	amip, ? K	M-B, bt, eb, ps-pe, s	247, 249, 252
ENTOPROCTA (CAMPTOZOA)					
Coloniales (Urnatellida)					
Barentsiidae					
Barentsia benedeni (Foettinger, 1886) [*Arthropodoria kowalewskii*]	*69, *79, 84, *86, 88		bapp	M-B, bt, 8-16‰	249, 374, 389
CHAETOGNATHA					
Sagittoidea					
Aphragmophora					
Sagittidae					
Parasagitta setosa (Müller, 1847) [? *Sagitta euxinica*]	7, 11, 12, 17, 29, *69		bam	M, p, 12‰	91, 198, 319, 374
ECHINODERMATA					
Holothuroidea					
Dendrochirotida					
Cucumariidae					
Stereoderma kirchsbergii (Heller, 1868) [*Cucumaria*, ? *C. orientalis* – n. nudum]		30-70	m, hom, ? lm	M, bt, hb, pe	198, 249
Apodida					
Synaptidae					
Leptosynapta inhaerens (O. F. Müller, 1776) [? *Synapta hispida* – n. nudum]	1-22, 27, 28	60-100	anamnp	M, bt, hb, pe	223, 249, 392
Labidoplax digitata (Montagu, 1815) [*Ostergrenia adratica*]		-70	neamal	M, bt, eb, ps, pe	198, 249
? *Labidoplax thompsoni* (Herapath, 1865) [*Ostergrenia*]		-70	lm	M, bt, eb, ps	198, 249

Table 2. Continued

Taxa	Distribution			Ecological data	References
	Horizontal	Depth (m)	Zoogeo-graphical		
Ophiuroidea					
Ophiurida					
Amphiuridae					
? *Amphipholis squamata* (Delle Chiaje, 1828) [*Amphiura*]	11, 13, 21, 22		K	M, bt, eb	91, 389, 410
Amphiura stepanovi Djakonov, 1954	1-22, 27, 28	20-175	● p	M, bt, eb-hb, phs	198, 249
CHORDATA					
Ascidiacea					
Stolidobranchia					
Molgulidae					
Eugyra adriatica Drasche,1884	26, 27, 28	25-100	m, hom	M, bt, hb, pe	198, 249
Molgula appendiculata Heller, 1877 [*Ctenicella*]	7, 25, 26, 27, 28	20-120	lm	M, bt, hb, pe	198, 249, 358
Molgula euprocta Drasche, 1884 [*M. impura, M. ompura* ?]	5, 7, 69, *79		lm	M, bt, eh	67, 84, 249, 374
Styelidae (Botryllidae)					
Botryllus schlosseri (Pallas, 1766)	1-22, 24	0-60	namp, ? SK	M, bt, ep-mb, slc, eu	84, 91, 249, 295, 298, 374
Enterogona					
Ascidiidae					
Ascidiella aspersa (O. F. Müller, 1776)	3, 7	20-50	amiswp	M, bt, mb, sg, phc	67, 249, 295, 298
Cionidae					
Ciona intestinalis (Linnaeus, 1758)	2, 3	15-100	antamp	M, bt, mb-eb, phc	67, 249, 389
Larvacea (Appendicularia)					
Copelata					
Oikopleuridae					
Oikopleura dioica Fol, 1872 [*O. cophocerca*]	7, 11, 13, 29, 69		amip, ? SK	M, p, et, eh	91, 198, 319, 389
Leptocardii					
Amphioxiformes					
Branchiostomidae					
Branchiostoma lanceolatum (Pallas, 1774) [*Amphioxus*]	6-8, 11, 13, 16-21, 25	17, 21	amip	M, bt, ep, ps, ■	84, 91, 249, 389

Species, which are distributed either in the northern or in the southern part of the coast (with 1 to 3 localities), number 20-25%. Most of them are benthic forms that belong to poorly explored or rare taxa. A part of recently reported Black Sea endemics could be added to this group as well. In most cases, the species distribution is related to the level of study of the corresponding coastal region. It can be seen under juxtaposition of the found species in localities (Table 1). Three areas of good research are outlined (over 200 species established). Firstly are the vicinities of Varna (601 species) where the investigations of the Black Sea began a centure ago. The popular resort centers – Nesebar, Pomorie, Burgas and Sozopol (220 to 274 species) form an area of good research. Owing to Bulgarian and Romanian specialists, the region of Kaliakra Cape (230 species) is also well studied. Of coastal basins, the most studied (about 100 species recorded) are the lakes Durankulak, Ezerets-Shabla, Beloslav, Varna, Pomorie, Atanasovsko, Burgas, Mandra and the firth of Ropotamo River. The rich species composition of the lakes Varna and Beloslav is changed after the connection with sea (1909 and 1923) and their transformation into ports (after 1976). Fauna of the lakes Burgas (anthropogenic impact after 1960) and Mandra (dam since 1963) became considerably poor.

The Black Sea below the depths of 180-200 m is enriched with released H_2S, which makes the real deep-sea life impossible. The groups of **steno-** (epi- and hypo-), **meso-**, and **eurybathic** species are presented. The vertical distribution is analyzed for 800 species (75.9%) – marine and marine-brackish forms, according to available data (Table 4). Most species are found from 0 to 25 m on sand (396 species) and rocky (257 species) bottom.

The most numerous are the **stenoepibathic** species (465 species – 58.1%). The inhabitants of the supralittoral zone, shallow coastal zone (to 5-10 m), as well as species, which reach the depth of 15-30 m and approach to mesobathic forms, belong to this group. An intermediate niche, closer to mesobathic forms, is occupied by some representatives of the group, which reach higher depths. They are presented in 16 types, of which the most numerous are the representatives of Arthropoda, Annelida and Mollusca.

The group of **Eurybathic** (168 species – 21.0%) species includes Black Sea species, which are found in both little and great depths. Most eurybathic forms reach the depth of 130-150 m. They are presented in 12 types, of which the representatives of Arthropoda, Nematoda, Annelida and Mollusca predominate.

Table 3. Taxonomic diversity of the invertebrate animals from the Bulgarian Black Sea

Types	Classes	Orders	Families	Species
Porifera	2	6	13	23
Cnidaria	3	10	25	38
Ctenophora	2	3	3	4
Plathelminthes	1	5	16	29
Nemertini	2	3	9	26
Gastrotricha	1	2	6	13
Nematoda	2	8	34	112
Cephalorhyncha	1	2	3	4
Rotifera	1	4	22	121
Annelida	5	16	49	173
Tardigrada	2	3	5	5
Arthropoda	4	28	199	802
Mollusca	3	20	65	152
Bryozoa	2	3	9	19
Phoronida	1	1	1	1
Entoprocta	1	1	1	1
Chaetognatha	1	1	1	1
Echinodermata	2	3	3	6
Chordata	3	4	6	8
Total	39	123	470	1537

Table 4. Distribution of the invertebrate animals by categories according to depth (Note. Only marine and brackish species, for which data are available, are included.)

Types	Epi-bathic	Hypo-bathic	Meso-bathic	Eury-bathic
Porifera	2		4	9
Cnidaria	7	1	2	10
Ctenophora	1			1
Plathelminthes	13			
Nemertini	5	4	6	5
Gastrotricha	4			
Nematoda	21	14	11	29
Cephalorhyncha		1	1	1
Rotifera	12			
Annelida	79	3	16	19
Tardigrada	5			
Arthropoda	239	21	36	74
Mollusca	69	2	33	15
Bryozoa	5	1	3	
Phoronida				1
Entoprocta	1			
Chaetognatha	1			
Echinodermata		3		3
Chordata	1	2	3	1
Total	465	52	115	168

The **Mesobathic** (115 species – 14.4%) species reach the depth over 40 m in the Black Sea. Some species could be considered stenomesobathic forms. They are presented in 10 types, of which the representatives of Arthropoda and Mollusca prevail.

The **Stenohypobathic** species are the smallest group (52 species – 6.5%). They rarely could be found at smaller depth up to 25 m and usually reach highest density below 60-120 m. They are presented in 10 types, of which the representatives of Arthropoda and Nematoda predominate. Recently some species of Nematoda, Polychaeta and Harpacticoida have been estsblished in hypoxic habitats at depth below 200-250 m (Sergeeva & Zaika, 2013).

Formation of the Black Sea fauna is connected with the origin of the Black Sea basin itself. The Upper Miocene Sarmatian Sea (18-30‰, a descendant of Tethys) gave rise to the Pontian Sea-Lake, from which two separate basins were formed later, the Black Sea and the Caspian Sea. Initially, the Black Sea basin had been inhabited by fauna similar to the Caspian one [Chaudian Sea (12-14‰) and Paleoeuxinian Sea (6-8‰)]. Then, it had been connected with the Mediterranean Sea and became saline, so the Mediterranean fauna penetrated into it, whereas the Caspian fauna retreated to the brackish coastal parts [time of Uzunlar Sea (16‰) and Karangat Sea (22-30‰)]. Later, the connection with the Mediterranean Sea had been severed, and the brackish basin [the New Euxinian Sea (7‰)] originated, where the Mediterranean fauna disappeared. Recently, 7000-8000 years ago, this basin had been again connected with the Mediterranean Sea and its level increased. The marine fauna invaded it and the current Black Sea had been formed (Mischev & Popov, 1978; Shopov, 1993; Dimitrov et al., 1998; Evlogiev, 2009; Studencka & Jasionowski, 2011).

Then, before the last glaciation, a connection with the Caspian basin arose (via Manych channel), and Caspian interglacial immigrants invaded the Black Sea (Mordukhay-Boltovskoy, 1960; Nevesskaya, 1965; Starobogatov, 1970; Shopov, 1996). Most authors accept these species as Caspian relicts (known also as Sarmatian, Pontian, Pontian-Caspian, or autochthonous faunal elements). They are concentrated mainly in the coastal lakes-firths and the mouths of the Black Sea rivers and inhabit the freshwater and brackish basins. Part of them is subfossils for the sea itself. The Caspian relicts usually have Pontian or Pontian-Caspian ranges. Some of them have entered the river systems of Central and Western Europe (spread to other continents) where they are considered invasive species. According to Mordukhay-Boltovskoy (1960) the evolution of the Caspian fauna gave rise to the origin of eurybiontic oligohaline and freshwater forms, which began to acquire new habitats with their pervasion in Black Sea. The "relicts" *Dreissena polymorpha* Pallas and *D. bugensis* – one of the most invasive recent mollusk, are a typical example. Recent data for the distribution of many relict taxa (mainly in the latest electronic editions) contradict their relict nature. It has been established that these taxa are widespread outside the Pontian-Caspian region. These may be invasive relict forms (a small number of species) or species with uncleared distribution, accepted as relicts. The main portion of the Caspian relicts (41 species, or 3.9%) is benthic brackish forms (38 species, or 92.7%).

The marine and marine-brackish forms are divided into 162 zoogeographical (areographical) categories, combined into 4 main groups and 16 subgroups (Table 5).

The main portion of the Black Sea fauna (740 species, or 70.2 %) has an Atlantic–Mediterranean origin and represents the impoverished Atlantic-Mediterranean fauna. As this fauna was becoming impoverished, the stenobiotic Lusitanian-Mediterranean species were eliminated, so this category is defined by the eurybiontic forms, often distributed along the European coast up to Scotland, North Sea and Scandinavia. Thus an impression is created of the atlantization of this fauna, manifested differently in the various taxonomic groups, benthic and planktonic forms. The atlantization is poorly presented in the planktonic forms (50 species, or 42.4%) and most presented in the benthic forms (712 species, or 72.8%). There is no a considerable difference (in percentages) in the atlantization of the marine (716 species, or 69.9%) and the brackish (101 species, or 65.6%) species.

A portion of the Arctic- and Antarctic-Atlantic (high-latitude boreal and antiboreal) species (43 species, or 4.1%) is not presented in the Mediterranean Sea. Its percentage varies slightly as their number is insignificant in the brackish and planktonic forms. The Arctic-North-Atlantic-, Arctic-Boreal-Atlantic-Mediterranean and circumeuropean species predominate (total of 26 species, or 2.5%). Not all of the Holatlantic and North Atlantic species (99 species, or 9.4%) are presented in Mediterranean Sea. The marine and benthic forms prevail, of which the North-Atlantic-, Boreal-Atlantic- and Holatlantic-Mediterranean and Boreal Atlantic-Pontian species (total of 76 species, or 7.2%) predominate. Between the tropical- and subtropical Atlantic species (109

species, or 10.3%), the Lusitanian-Mediterranean forms (79 species, or 7.5%) predominate. The East and Northeast Atlantic species are most numerous (251 species, or 23.8%). The main portion of them is the Celtic-Lusitanian-Mediterranean (148 species, or 14.1%) and Celtic-Pontian (44 species, or 4.2%) forms. The Mediterranean species (90 species, or 8.5%) are poorly presented in the planktonic and brackish communities. Almost all Pontian-Caspian species (28 species, or 2.7%) are benthos and brackish (27 species, or 17.5%) forms.

The Pontian species (Black Sea endemics) are 118 (11.2%). The benthic (115 species, or 97.5%) and marine (114 species, or 96.6%) forms predominate. The brackish species (11 species, or 9.3%) most often are Caspian relicts. Some of the Pontian species is likely to be found in other seas under better research. This refers mainly to the groups of Nematoda, Ostracoda and Copepoda which are well-studied in the Black Sea. The most Black Sea endemic species are concentrated in several groups – Porifera, Nemertini, Nematoda, Rotifera, Ostracoda and Copepoda. Many endemic forms, known from previous data, are brought to synonyms or downgraded to subspecies today. Thus there are no data on the Black Sea endemic species in the recent malacological literature, of which there were more in the old literature [Kaneva-Abadjieva (1960a) recorded 24 species endemic mollusks from the Bulgarian Black Sea coast]. Many species have changed after their penetration into the Black Sea; they are described as new taxa. An interesting example is the hermit-crab *Clibanarius erythropus*. Because of the lack of large mollusks in the Black Sea, it was forced to use the shells of snails of the genus *Gibbula* and greatly reduces its size (became known as *C. misanthropus*). With the appearance of *Rapana venossa* in Black Sea, the crab begins to use large shells and again reaches the normal size for crabs in Mediterranean Sea.

The number of forms with Cosmopolitan (121 species – 11.5%), Atlantic-Pacific (120 species – 11.4%) and Atlantic-Indian (72 species – 6.8%) type of distribution is considerably smaller than the forms of Atlantic type. They predominate as species composition in the marine and benthic species but their percentage is highest in the plankton forms (from 8.5 to 28.0%). The differences in the percentages are not big for the benthic, marine and brackish forms (from 5 to 11%) with the exception of the brackish Atlantic-Pacific species (18.2%). Most Cosmopolitan forms (2/3) have Atlantic-Indian-Pacific distribution. The Holatlantic- and East Atlantic-Indian-Pacific species (58 species, or 5.5%) predominate, of which the Atlantic-Mediterranean-Indo-Pacific forms are the most numerous (37 species). The number of North Atlantic-Indian-Pacific (15 species) and the tropical and subtropical Atlantic-Indian-Pacific (6 species) species is smaller. About 1/3 of the Cosmopolitan forms have Arctic-Antarctic-Atlantic-Indian-Pacific distribution as the typical Cosmopolitans and Subcosmopolitans (a total of 25 species, or 2.4%) predominate. About 1/4 of the species with Atlantic-Pacific type of distribution belong to Arctic-Antarctic-Atlantic-Pacific forms (23 species – 2.2%). The Atlantic-Pacific species (97 species, or 9.2%) predominate, the main parts of which are with North and South Atlantic-, Hol- and North Atlantic- and North Atlantic-Pacific distribution (a total of 73 species, or 6.9%). The Atlantic-Mediterranean-Pacific species (14 species) are the most numerous. A small number of Hol- and South Atlantic-, East and West Atlantic- and Tropical and Subtropical Atlantic-Pacific species (a total of 24 species, or 2.3%) occur as well. Most forms with Atlantic-Indian type of distribution include Hol- and North Atlantic-Indian and East and Northeast Atlantic-Indian species (a total of 61 species, or 5.8%). The North Atlantic-Mediterranean-Indian and Celtic-Lusitanian-Mediterranean-Indian species (7 species each) are the most numerous. Seven tropical and subtropical Atlantic-Indian and 4 Arctic-Antarctic-Atlantic-Indian forms occur as well.

The freshwater-brackish, freshwater and terrestrial forms, connected with water, recorded from the Bulgarian Black Sea coast, are divided into 80 zoogeographical categories, combined into 2 main groups and 5 subgroups (Table 6).

Species distributed in Palaearctic and beyond it. This group (296 species, or 58.3%) includes 36 zoogeographical categories, of which 29 combine species of **Northern type** (widely distributed in Holarctic or Palaearctic) and 7 – species of **Southern type** (distributed only in southern Palaearctic. This group is important for the zoogeography of the coastal fauna because of its great species diversity. It is connected with the typical for the sea coasts natural habitats, optimum for the development of its representatives and is poorly presented in the interior. The difference among the brackish, freshwater and terrestrial forms is from 8.7% to 37.0% (from 74 to 271 species). The species of northern type have vast areas and ecological flexibility. The Cosmopolitan, Subcosmopolitan and Holarctic species (a total of 184 species, or 36.2%) are the most numerous. These species, except the Holarctic forms, are almost not presented in the terrestrial forms. In the brackish

Table 5. Zoogeographical characteristic of the marine and brackish Invertebrate fauna from the Bulgarian Black Sea coast

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
COSMOPOLITAN TYPE	**121**	**11.48**	**105**	**10.74**	**25**	**21.19**	**119**	**11.63**	**18**	**11.69**
Arctic-Antarctic-Atlantic-Indian-Pacific	**42**	**3.98**	**36**	**3.68**	**7**	**5.93**	**42**	**4.10**	**7**	**4.54**
Cosmopolitan (K)	15	1.42	10	1.02	5	4.24	15	1.47	5	3.25
Subcosmopolitan (SK)	10	0.95	10	1.02	1	0.85	10	0.98	2	1.30
Arctic-Antarctic-Atlantic-Mediterranean-Indo-Pacific (aanamip)	4	0.38	4	0.41			4	0.39		
Arctic-Atlantic-Mediterranean-Indo-Pacific (aamip)	6	0.57	6	0.61			6	0.59		
Arctic-Atlantic-Mediterranean-Indo-North Pacific (aaminp)	1	0.09	1	0.10			1	0.09		
Arctic-North Atlantic-Mediterranean-Indo-Pacific (anamip)	1	0.09	1	0.10			1	0.09		
Arctic-North Atlantic-Mediterranean-Indo-North Pacific (anaminp)	2	0.19	2	0.20			2	0.19		
Antarctic-Atlantic-Mediterranean-Indo-Pacific (antamip)	2	0.19	1	0.10	1	0.85	2	0.19		
Antarctic-Pontian-Indo-Pacific (anpip)	1	0.09	1	0.10			1	0.09		
Atlantic-Indian-Pacific	**79**	**7.49**	**69**	**7.05**	**18**	**15.25**	**77**	**7.53**	**11**	**7.14**
Hol- and East Atlantic-Indian-Pacific	**58**	**5.50**	**49**	**5.01**	**15**	**12.71**	**57**	**5.58**	**10**	**6.49**
Atlantic-Mediterranean-Indo-Pacific (amip)	37	3.51	31	3.17	12	10.17	36	3.52	7	4.54
Atlantic-Mediterranean-Indo-West Pacific (amiwp)	4	0.38	2	0.20	2	1.69	4	0.39	1	0.65
Atlantic-Mediterranean-Indo-Southwest Pacific (amiswp)	3	0.28	3	0.31			3	0.29		
Atlantic-Mediterranean-Indo-New Zealand (aminz)	4	0.38	4	0.41			4	0.39	2	1.30
Atlantic-Mediterranean-Indo-North Pacific (aminp)	2	0.19	2	0.20			2	0.19		
Atlantic-Mediterranean-Indo-Northwest Pacific (aminwp)	3	0.28	3	0.31			3	0.29		
Atlantic-Mediterranean-Red Sea-Pacific (amrsp)	2	0.19	1	0.10	1	0.85	2	0.19		
East Atlantic-Mediterranean-Indo-Pacific (eamip)	2	0.19	2	0.20			2	0.19		
East Atlantic-Mediterranean-Indo-Southwest Pacific (eamiswp)	1	0.09	1	0.10			1	0.09		
Tropical and Subtropical Atlantic-Indian-Pacific	**6**	**0.57**	**5**	**0.51**	**2**	**1.69**	**6**	**0.59**		
Circum[sub]tropical (cst)	3	0.28	2	0.20	1	0.85	3	0.29		
Lusitanian-Mediterranean-West Indo-West Pacific (lmwiwp)	1	0.09	1	0.10			1	0.09		
Mediterranean-Indo-West Pacific (miwp)	1	0.09	1	0.10			1	0.09		
Pontian-Indo-New Zealand (pinz)	1	0.09	1	0.10			1	0.09		
North Atlantic-Indian-Pacific	**15**	**1.42**	**15**	**1.53**	**1**	**0.85**	**14**	**1.37**	**1**	**0.65**
North Atlantic-Mediterranean-Indo-Pacific (namip)	3	0.28	3	0.31	1	0.85	2	0.19	1	0.65
North Atlantic-Mediterranean-Indo-West Pacific (namiwp)	1	0.09	1	0.10			1	0.09		
North Atlantic-Mediterranean-Indo-Malayan (namim)	2	0.19	2	0.20			2	0.19		
North Atlantic-Mediterranean-Indo-New Zealand (naminz)	5	0.47	5	0.51			5	0.49		

Table 5. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
North Atlantic-Mediterranean-Red Sea-Northeast Pacific (namrsnep)	1	0.09	1	0.10			1	0.09		
Northeast Atlantic-Mediterranean-Indo-New Zealand (neaminz)	3	0.28	3	0.31			3	0.29		
ATLANTIC-INDIAN TYPE	**72**	**6.83**	**67**	**6.85**	**10**	**8.47**	**70**	**6.84**	**7**	**4.54**
Arctic-Antarctic-Atlantic-Indian	**4**	**0.38**	**4**	**0.41**			**4**	**0.39**		
Arctic-Atlantic-Mediterranean-Indian (aami)	1	0.09	1	0.10			1	0.09		
Arctic-Atlantic-Mediterranean-North Indian (aamni)	1	0.09	1	0.10			1	0.09		
Arctic-North Atlantic-Mediterranean-Red Sea (anamrs)	1	0.09	1	0.10			1	0.09		
Antarctic-Atlantic-Mediterranean-Indian (antami)	1	0.09	1	0.10			1	0.09		
Atlantic-Indian	**68**	**6.45**	**63**	**6.44**	**10**	**8.47**	**66**	**6.45**	**7**	**4.54**
Tropical and Subtropical Atlantic-Indian	**7**	**0.66**	**5**	**0.51**	**2**	**1.69**	**7**	**0.68**	**2**	**1.30**
Lusitanian-Mediterranean-Indian (lmi)	1	0.09	1	0.10			1	0.09		
Lusitanian-Mediterranean-Mauritanian-West Indian (lmmwi)	1	0.09			1	0.85	1	0.09		
Lusitanian-Mediterranean-West Indian (lmwi)	1	0.09	1	0.10			1	0.09	1	0.65
Lusitanian-Mediterranean-Northeast Indian (lmnei)	2	0.19	2	0.20			2	0.19	1	0.65
Mediterranean-North Indian (mni)	1	0.09	1	0.10			1	0.09		
Mediterranean-Red Sea (mrs)	1	0.09			1	0.85	1	0.09		
Hol- and North Atlantic-Indian	**36**	**4.42**	**33**	**3.37**	**5**	**4.24**	**34**	**3.32**	**3**	**1.95**
Atlantic-Mediterranean-Indian (ami)	6	0.57	6	0.61			5	0.49	1	0.65
Atlantic-Pontian-Indian (api)	1	0.09	1	0.10			1	0.09		
Atlantic-Mediterranean-North Indian (amni)	1	0.09	1	0.10			1	0.09		
Atlantic-Mediterranean-Northeast Indian (amnei)	2	0.19	2	0.20			2	0.19		
Atlantic-Mediterranean-West Indian (amwi)	2	0.19	2	0.20	1	0.85	2	0.19		
Atlantic-Mediterranean-Red Sea (amrs)	2	0.19	2	0.20			2	0.19		
North Atlantic-Mediterranean-Indian (nami)	7	0.66	7	0.72	3	2.54	6	0.59		
North Atlantic-Mediterranean-North Indian (namni)	6	0.57	5	0.51	1	0.85	6	0.59		
North Atlantic-Mediterranean-Northeast Indian (namnei)	5	0.47	5	0.51			5	0.49	1	0.65
North Atlantic-Pontian-Northeast Indian (napnei)	1	0.09	1	0.10			1	0.09	1	0.65
North Atlantic-Mediterranean-West Indian (namwi)	1	0.09	1	0.10			1	0.09		
North Atlantic-Mediterranean-Red Sea (namrs)	2	0.19			2	1.69	2	0.19		
East and Northeast Atlantic-Indian	**25**	**2.37**	**25**	**2.56**	**3**	**2.54**	**25**	**2.44**	**2**	**1.30**
East Atlantic-Mediterranean-Indian (eami)	4	0.38	4	0.41	1	0.85	4	0.39	1	0.65
East Atlantic-Mediterranean-West Indian (eamwi)	1	0.09	1	0.10			1	0.09		

Table 5. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
East Atlantic-Mediterranean-Southwest Indian (eamswi)	1	0.09	1	0.10			1	0.09		
East Atlantic-Mediterranean-Red Sea (eamrs)	2	0.19	2	0.20			2	0.19		
Celtic-Lusitanian-Mediterranean-Indian (clmi)	7	0.66	7	0.72			7	0.68	1	0.65
Celtic-Lusitanian-Mediterranean-West Indian (clmwi)	5	0.47	5	0.51	2	1.69	5	0.49		
Celtic-Lusitanian-Mediterranean-Northwest Indian (clmnwi)	2	0.19	2	0.20			2	0.19		
Celtic-Lusitanian-Mediterranean-Northeast Indian (clmnei)	1	0.09	1	0.10			1	0.09		
Celtic-Pontian-Northeast Indian (cpnei)	2	0.19	2	0.20			2	0.19		
ATLANTIC-PACIFIC TYPE	**120**	**11.38**	**94**	**9.61**	**33**	**27.97**	**118**	**11.53**	**28**	**18.18**
Arctic-Antarctic-Atlantic-Pacific	**23**	**2.18**	**20**	**2.04**	**4**	**3.39**	**23**	**2.25**	**3**	**1.95**
Arctic-Antarctic-Atlantic-Mediterranean-Boreal Pacific (aanambp)	1	0.09	1	0.10	1	0.85	1	0.09		
Arctic-North Atlantic-Mediterranean-Pacific (anamp)	2	0.19	2	0.20			2	0.19		
Arctic-North Atlantic-Mediterranean-North Pacific (anamnp)	5	0.47	4	0.41	1	0.85	5	0.49		
Arctic-North Atlantic-Mediterranean-Northeast Pacific (anamnep)	4	0.38	4	0.41			4	0.39		
Arctic-North Atlantic-Pontian-Northeast Pacific (anapnep)	1	0.09			1	0.85	1	0.09	1	0.65
Arctic-Boreal Atlantic-Mediterranean-Boreal Pacific (abambp)	3	0.28	3	0.31			3	0.29		
Arctic-Boreal Atlantic-Pontian-Boreal Pacific (abapbp)	3	0.28	2	0.20	1	0.85	3	0.29	2	1.30
Arctic-Boreal Atlantic-Pontian-Northeast Pacific (abapnep)	1	0.09	1	0.10			1	0.09		
Arctic-Atlantic-Mediterranean-Southwest Pacific (aamswp)	1	0.09	1	0.10			1	0.09		
Arctic-Celtic-Mediterranean-New Zealand (acmnz)	1	0.09	1	0.10			1	0.09		
Antarctic-Atlantic-Mediterranean-Pacific (antamp)	1	0.09	1	0.10			1	0.09		
Atlantic-Pacific	**97**	**9.20**	**74**	**7.57**	**29**	**24.58**	**95**	**9.27**	**25**	**16.23**
Hol- and North Atlantic-Pacific	**26**	**2.47**	**22**	**2,25**	**6**	**5.08**	**26**	**2.54**	**3**	**1.95**
Atlantic-Mediterranean-Pacific (amp)	14	1.33	13	1.33	3	2.54	14	1.37		
Atlantic-Mediterranean-North Pacific (amnp)	1	0.09			1	0.85	1	0.09		
North Atlantic-Mediterranean-Pacific (namp)	6	0.57	4	0.41	2	1.69	6	0.59	2	1.30
Boreal Atlantic-Pontian-Pacific (bapp)	1	0.09	1	0.10			1	0.09	1	0.65
Atlantic-Mediterranean-Japonic (amj)	1	0.09	1	0.10			1	0.09		
Atlantic-Mediterranean-Northeast Pacific (amnep)	3	0.28	3	0.31			3	0.29		
Tropical and Subtropical Atlantic-Pacific	**7**	**0.66**	**6**	**0.61**	**1**	**0.85**	**7**	**0.68**		
Lusitanian-Mediterranean-West Pacific (lmwp)	1	0.09	1	0.10			1	0.09		
Mediterranean-Japonic (mj)	2	0.19	2	0.20			2	0.19		
Mediterranean-Mauritanian-Guinean-Tasmanian (mmgt)	1	0.09	1	0.10			1	0.09		

Table 5. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
Lusitanian-Mediterranean-New Zealand (lmnz)	2	0.19	1	0.10	1	0.85	2	0.19		
Mediterranean-New Zealand (mnz)	1	0.09	1	0.10			1	0.09		
North Atlantic-Pacific	**19**	**1.80**	**19**	**1.94**			**18**	**1.76**	**1**	**0.65**
North Atlantic-Mediterranean-North Pacific (namnp)	3	0.28	3	0.31			3	0.29		
Boreal Atlantic-Mediterranean-Boreal Pacific (bambp)	2	0.19	2	0.20			2	0.19		
Boreal Atlantic-Pontian-Boreal Pacific (bapbp)	1	0.09	1	0.10			1	0.09		
Circumboreal-Mediterranean (cbm)	2	0.19	2	0.20			2	0.19		
North Atlantic-Mediterranean-Northeast Pacific (namnep)	2	0.19	2	0.20			2	0.19		
Boreal Atlantic-Mediterranean-Northeast Pacific (bamnep)	2	0.19	2	0.20			2	0.19		
Northeast Atlantic-Mediterranean-North Pacific (neamnp)	2	0.19	2	0.20			2	0.19		
Northeast Atlantic-Mediterranean-Aleutian (neamal)	1	0.09	1	0.10			1	0.09		
Northeast Atlantic-Mediterranean-Japonic (neamj)	2	0.19	2	0.20			2	0.19		
Celtic-Pontian-Japonic (cpj)	1	0.09	1	0.10					1	0.65
Pontian-Northeast Pacific (pnep)	1	0.09	1	0.10			1	0.09		
North and South Atlantic-Pacific	**28**	**2.66**	**17**	**1.74**	**12**	**10.17**	**27**	**2.64**	**15**	**9.74**
Circumboreal-Mediterranean-Australian (cbma)	1	0.09	1	0.10	1	0.85	1	0.09	1	0.65
North Atlantic-Mediterranean-South Pacific (namsp)	2	0.19	1	0.10			2	0.19	1	0.65
North Atlantic-Mediterranean-Southeast Pacific (namsep)	1	0.09	1	0.10			1	0.09		
North Atlantic-Mediterranean-Southwest Pacific (namswp)	3	0.28	2	0.20	2	1.69	3	0.29	2	1.30
Boreal Atlantic-Mediterranean-Southwest Pacific (bamswp)	4	0.38	2	0.20	2	1.69	4	0.39	1	0.65
North Atlantic-Mediterranean-New Zealand (namnz)	9	0.85	4	0.41	5	4.24	8	0.78	6	
Carolinian-Celtic-Pontian-New Zealand (cacpnz)	1	0.09	1	0.10			1	0.09	1	0.65
Northeast Atlantic-Mediterranean-Southwest Pacific (neamswp)	2	0.19	2	0.20			2	0.19	1	0.65
Northeast Atlantic-Mediterranean-New Zealand (neamnz)	1	0.09	1	0.10			1	0.09		
Celtic-Lusitanian-Mediterranean-New Zealand (clmnz)	3	0.28	1	0.10	2	1.69	3	0.29	2	1.30
Celtic-Lusitanian-Pontian-New Zealand (clpnz)	1	0.09	1	0.10			1	0.09		
Hol- and South Atlantic-Pacific	**9**	**0.85**	**4**	**0.41**	**6**	**5.08**	**9**	**0.88**	**5**	**3.25**
Atlantic-Mediterranean-Southwest Pacific (amswp)	4	0.38	2	0.20	3	2.54	4	0.39	2	1.30
Atlantic-Pontian-Southwest Pacific (apswp)	1	0.09			1	0.85	1	0.09	1	0.65
Atlantic-Mediterranean-New Zealand (amnz)	4	0.38	2	0.20	2	1.69	4	0.39	2	1.30
East and West Atlantic-Pacific	**8**	**0.76**	**6**	**0.61**	**4**	**3.39**	**8**	**0.78**	**1**	**0.65**
East Atlantic-Mediterranean-Pacific (eamp)	1	0.09	1	0.10			1	0.09		

Table 5. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
Northeast Atlantic-Mediterranean-East Pacific (neamep)	1	0.09	1	0.10			1	0.09		
Atlantic-Mediterranean-West Pacific (amwp)	4	0.38	2	0.20	3	2.54	4	0.39	1	0.65
North Atlantic-Mediterranean-West Pacific (namwp)	2	0.19	2	0.20	1	0.85	2	0.19		
ATLANTIC TYPE	**740**	**70.20**	**712**	**72.80**	**50**	**42.37**	**716**	**69.99**	**101**	**65.58**
Arctic-Antarctic-Atlantic	**43**	**4.08**	**41**	**4.19**	**7**	**5.93**	**42**	**4.11**	**5**	**3.25**
Arctic-Antarctic-North Atlantic-Mediterranean (aannam)	1	0.09	1	0.10			1	0.09		
Arctic-Atlantic-Mediterranean (aam)	4	0.38	4	0.41			4	4.11		
Arctic-North Atlantic-Mediterranean (anam)	12	1.14	11	1.12	2	1.69	11	1.07	1	0.65
Arctic-North Atlantic-Pontian (anap)	1	0.09	1	0.10			1	0.09		
Arctic-Boreal Atlantic-Mediterranean (abam)	7	0.66	7	0.72	1	0.85	7	0.68	3	1.95
Arctic-Boreal Atlantic-Pontian (abap)	3	0.28	3	0.31			3	0.29	1	0.65
Arctic-Circumeuropean-Mauritanian (acem)	1	0.09	1	0.10			1	0.09		
Arctic-Circumeuropean (ace)	4	0.38	3	0.31	2	1.69	4	0.39		
Arctic-Celtic-Pontian (acp)	1	0.09	1	0.10			1	0.09		
Circumeuropean-Mauritanian (cem)	1	0.09	1	0.10			1	0.09		
Circumeuropean (ce)	7	0.66	7	0.72	2	1.69	7	0.68		
Antarctic-Celtic-Lusitanian-Mediterranean (anclm)	1	0.09	1	0.10			1	0.09		
Atlantic	**697**	**66.13**	**671**	**68.61**	**43**	**36.44**	**674**	**65.88**	**96**	**62.34**
Hol- and North Atlantic	**99**	**9.39**	**95**	**9.71**	**8**	**6.78**	**98**	**9.58**	**13**	**8.44**
Holatlantic-Mediterranean (ham)	13	1.23	12	1.23	2	1.69	12	1.17	5	3.25
Atlantic-Mediterranean (am)	5	0.47	5	0.51			5	0.49		
Atlantic-Pontian (ap)	2	0.19	2	0.20			2	0.19		
North Atlantic-Mediterranean (nam)	27	2.56	25	2.56	3	2.54	27	2.64	3	1.95
North Atlantic-Pontian (nap)	5	0.47	5	0.51			5	0.49	1	0.65
Boreal-Antiboreal Atlantic-Pontian (baap)	1	0.09	1	0.10			1	0.09		
Boreal Atlantic-Mediterranean (bam)	23	2.18	22	2.25	2	1.69	23	2.25	3	1.95
Boreal Atlantic-Pontian (bap)	13	1.23	13	1.33	1	0.85	13	1.27	1	0.65
Virginian-Celtic-Lusitanian-Mediterranean (vclm)	1	0.09	1	0.10			1	0.09		
Carolinian-Celtic-Lusitanian-Mediterranean (cclm)	4	0.38	4	0.41			4	0.39		
Carolinian-Celtic-Pontian (ccp)	1	0.09	1	0.10			1	0.09		
Caribbean-Celtic-Lusitanian-Mediterranean (kclm)	4	0.38	4	0.41			4	0.39		

Table 5. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Benthos		Plankton		Marine		Brakish	
	number	%	number	%	number	%	number	%	number	%
Tropical and Subtropical Atlantic	**109**	**10.34**	**99**	**10.12**	**8**	**6.78**	**108**	**10.56**	**9**	**5.84**
Tropical Atlantic-Mediterranean (tam)	1	0.09	1	0.10			1	0.09		
Virginian-Carolinian-Caribbean (vck)	2	0.19	1	0.10	1	0.85	2	0.19		
Carolinian-Lusitanian-Mediterranean (calm)	2	0.19	2	0.20			2	0.19		
Carolinian-Lusitanian-Pontian (calp)	1	0.09	1	0.10			1	0.09		
Caribbean-Lusitanian-Mediterranean (klm)	5	0.47	4	0.41			5	0.49		
Caribbean-Mediterranean-Mauritanian (kmm)	1	0.09	1	0.10			1	0.09		
Lusitanian-Mediterranean-Mauritanian-Guinean (lmmg)	5	0.47	5	0.51			5	0.49		
Lusitanian-Mediterranean-Mauritanian (lmm)	11	1.04	8	0.82	2	1.69	11	1.07		
Lusitanian-Mediterranean-South African (lmsa)	1	0.09	1	0.10			1	0.09		
Lusitanian-Mediterranean (lm)	79	7.49	74	7.57	5	4.24	78	7.62	9	5.84
Lusitanian-Pontian (lp)	1	0.09	1	0.10			1	0.09		
East and Northeast Atlantic	**251**	**23.81**	**244**	**24.94**	**16**	**13.56**	**247**	**24.14**	**32**	**20.78**
East Atlantic-Mediterranean (eam)	10	0.95	10	1.02			10	0.98		
Celtic-Lusitanian-Mediterranean-Mauritanian (clmm)	26	2.47	26	2.66	1	0.85	26	2.54	1	0.65
Celtic-Lusitanian-Mediterranean (clm)	148	14.04	147	15.03	7	5.93	147	14.37	21	13.64
Celtic-Lusitanian-Pontian (clp)	15	1.42	12	1.23	4	4.24	13	1.27	5	3.25
Celtic-Mediterranean (cm)	6	0.57	6	0.61			6	0.59		
Celtic-Pontian-Caspian (cpc)	2	0.19	1	0.10	1	0.85	2	0.19	2	1.30
Celtic-Pontian (cp)	44	4.17	42	4.29	3	2.54	43	4.20	3	1.95
Mediterranean-Pontian-Caspian	**238**	**22.58**	**233**	**23.82**	**11**	**9.32**	**221**	**21.60**	**42**	**27.27**
Holomediterranean (hom)	23	2.18	22	2.25	1	0.85	23	2.25	3	1.95
Mediterranean (m)	28	2.66	28	2.86			28	2.74		
East Mediterranean (em)	9	0.85	9	0.92	1	0.85	9	0.88		
North Mediterranean (nm)	3	0.28	3	0.31			3	0.29		
Adriatic-Aegean-Pontian (adep)	3	0.28	3	0.31			3	0.29		
Adriatic-Pontian (adp)	10	0.95	10	1.02			10	0.98		
Aegean-Pontian (ep)	14	1.33	14	1.43	1	0.85	13	1.27		
Pontian-Caspian-Aral (pca)	2	0.19	2	0.20	1	0.85	2	0.19	1	0.65
Pontian-Caspian (pc)	28	2.66	27	2.76	2	1.69	16	1.56	27	17.53
Pontian (p)	118	11.19	115	11.76	5	4.24	114	11.14	11	7.14
Caspian relict	**41**	**3.89**	**39**	**3.99**	**4**	**3.39**	**21**	**2.05**	**38**	**24.67**
Total	**1054**		**978**	**92.88**	**118**	**11.21**	**1023**	**97.15**	**154**	**14.62**

communities, the Holarctic species are poorly represented (17 species). The species of southern type are best represented in the terrestrial forms (11 species, or 5.5%). The presence of this group in different taxa depends on whether they include highly mobile and widely distributed forms or combine less mobile and more closely connected with certain conditions species. In the latter case, more important are the specific natural habitats to which species are adapted.

Species distributed only in Palaearctic but in more than one subregion (Palaearctic type). A total of 79 species (15.5%) that belong to this group, combined into 11 zoogeographical categories, has been established along the coast. The group includes from 8.1% to 25.9% (from 14 to 65 species) of the brackish, freshwater and terrestrial forms. Its character is determined by Transpalaearctic, West Palaearctic, West and Central Palaearctic and Holopalaearctic species (a total of 63 species, or 12.4%) that are the most numerous. This correlation remains almost the same and varies from 1.9% to 8.5% (from 4 to 18 species) in the freshwater and terrestrial forms. In brackish forms the group is poorly presented – from 0.6% to 2.3% (from 1 to 4 species). The number of the European-North African species (from 3 to 5 species in the group) varies insignificantly. Two species have a longitudinal disjunction of their areas that includes parts of Siberia and Central Asia (Table 2).

Species distributed within one subregion of Palaearctic. This group (126 species, or 24.8%) includes species with **Eurosiberian** and **Mediterranean type** of distribution. The Mediterranean-Central Asian species are also included here according to many authors who combine Mediterranean and Central Asian subregions. The species with Mediterranean type of distribution are accepted in a general way and include elements (Submediterranean, Subiranian, and Pontian), that could be considered separately as well (Gruev & Kusmanov, 1994, 1999; Gruev 1995, 2000). The **Eurosiberian species** are 55 (10.8%), of which the European species (31 species, or 6.1%) are the most numerous. They are combined into 9 zoogeographical categories and include from 6.9% to 11.5% (from 12 to 48 species) of the brackish, freshwater and terrestrial forms. The Eurosiberian species are best represented in freshwater forms and poorly represented in brackish forms. Thirty-six species have European distribution only, of which 31 are wide-spread in Europe and 5 – in its separate regions (Central and South Europe). The **Mediterranean species** are 71 (13.9%), of which the Holomediterranean species (19 species – 3.7%) are most numerous. This group combines 24 zoogeographical categories with different origin, distribution and ecological peculiarities. It includes from 7.7% to 28.4% (19-57 species) of the brackish, freshwater and terrestrial forms. The group is best represented in terrestrial forms and poorly represented in freshwater forms. The endemics (11 species – 2.2%) are poorly represented – their number varies from 4 to 7 species. More are the regional endemics that have been found in the terrestrial forms. The specific conditions along the coast do not favor the formation of endemic taxa, which mostly are newly described forms or rare species with unclear distribution. The only local endemic (*Hauffenia lucidula*) is a crenobiontic species of the family Hydrobiidae – 95.5% of the species of this group are freshwater endemic forms.

Zooplankton. It includes representatives of Protozoa, Coelenterata, Ctenophora, Rotifera, Annelida (larvae), Arthropoda, Mollusca (larvae) and Chordata (Valkanov, Dimov & Naidenov, 1978; Konsulov, 1991, 1998; Konsulov & Konsulova, 1993, 1998). In regard to species diversity, the Black Sea zooplankton is characterized as poor (in comparison with the Mediterranean Sea). According to thermal conditions in the water mass the zooplankton is divided to thermophilic, eurythermic and cryophilic. The thermophilic representatives are found mainly in surface water layers to 25 m. The cryophilic and eurythermic forms dominate below the zone of thermowedge. The vertical distribution depends on the oxygen penetrating in the depth (100-175 m). The zooplankters have a specific distribution according to seasons and depth, which is determined by their temperature and trophic requirements. The eurythermic forms occur throughout the year as they are not influenced by temperature. The cryophilic forms occur in all depths in winter and fall below 50-60 m in summer. The thermophilic forms are found mainly in summer and disappear in winter. The bottom larvaton (meroplankton) is of great importance for species diversity of the benthic fauna. It is represented by Mollusca – veliger, Cyripedia – nauplius and cypris, Polychaeta – larvae, Pisces ova and larvae. The average annual biomass of the zooplankton in front of the Bulgarian coast is 74.25 mg/m^3 and varies by seasons: in winter – 27 mg/m^3, in spring – 77 mg/m^3, in summer – 135 mg/m^3 and in autumn – 48 mg/m^3 (Valkanov, Dimov & Naidenov, 1978). After 10 years, these values are lower. The average annual spring biomass of zooplankton in the coastal zone is highest in front of Cape Galata (72.58 mg/m^3), lower in front of Cape Kaliakra (58.79 mg/m^3) and the lowest in front of Cape Emine (35.39 mg/

Table 6. Zoogeographical characteristic of the brackish, freshwater and terrestrial Invertebrate fauna from the Bulgarian Black Sea coast

Zoogeographical scheme of the used categories and main taxa	Total		Brakish (rare marine)		Freshwater		Terrestrial	
	number	%	number	%	number	%	number	%
Species distributed in Palaearctic and out of it	296	58.27	127	73.84	271	65.14	74	36.81
NORTHERN TYPE	282	55.51	126	73.25	262	62.98	63	31.34
Cosmopolitan (k)	75	14.76	54	31.40	74	17.79	2	0.99
Subcosmopolitan (sk)	41	8.07	22	12.79	39	9.37		
Holarctic-Paleotropical-Neotropical (hptn)	5	0.98	2	1.16	4	0.96	1	0.50
Holarctic-Paleotropical-Australian (hpta)	2	0.39			1	0.24	1	0.50
Holarctic-Paleotropical (hpt)	3	0.59	2	1.16	3	0.72		
Holarctic-Neotropical-Oriental-Australian (hnoa)	3	0.59	1	0.58	3	0.72	1	0.50
Holarctic-Neotropical-Oriental (hno)	8	1.57	4	2.32	7	1.68	4	1.99
Holarctic-Neotropical-Afrotropical-Australian (hnata)	3	0.59			2	0.48	1	0.50
Holarctic-Neotropical-Afrotropical (hnat)	6	1.18	3	1.74	5	1.20	1	0.50
Holarctic-Neotropical-Australian (hna)	5	0.98	2	1.16	4	0.96	1	0.50
Holarctic-Afrotropical-Australian (hata)	3	0.59	1	0.58	3	0.72		
Holarctic-Oriental-Australian (hoa)	3	0.59	1	0.58	3	0.72		
Holarctic-Neotropical (hn)	5	0.98	3	1.74	5	1.20	1	0.50
Holarctic-Afrotropical (hat)	7	1.38	3	1.74	5	1.20	2	0.99
Holarctic-Oriental (ho)	8	1.57	2	1.16	7	1.68	4	1.99
Holarctic-Australian (ha)	2	0.39	1	0.58	2	0.48		
Palearctic-Paleotropical-Australian (ppta)	3	0.59			3	0.72		
Palearctic-Afrotropical-Australian (pata)	2	0.39			1	0.24	1	0.50
Palearctic-Oriental-Australian (poa)	2	0.39			2	0.48	2	0.99
Palearctic-Paleotropical (ppt)	1	0.20	1	0.58	1	0.24	1	0.50
Palearctic-Afrotropical (pat)	8	1.57	2	1.16	8	1.92	1	0.50
Palearctic-Oriental (po)	9	1.77	3	1.74	9	2.16	6	2.98
West Palearctic-Paleotropical (wppt)	1	0.20			1	0.24	1	0.50
Transpalaearctic-Oriental (tpo)	2	0.39			2	0.48	2	0.99
West and Central Palaearctic-Oriental (wcpo)	1	0.20			1	0.24	1	0.50
West Palearctic-Afrotropical (wpat)	3	0.59			1	0.24	2	0.99
West Palearctic-Oriental (wpo)	2	0.39	1	0.58	2	0.48	2	0.99
Holarctic (h)	68	13.39	17	9.88	63	15.14	23	11.44

Table 6. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Brakish (rare marine)		Freshwater		Terrestrial	
	number	%	number	%	number	%	number	%
European-Australian (ea)	1	0.20					1	0.50
South type	14	2.76	1	0.58	9	2.16	11	5.47
Paleotropical-South Palearctic (ptsp)	2	0.39			2	0.48	1	0.50
Paleotropical-Mediterranean-Central Asian (ptmca)	1	0.20			1	0.24	1	0.50
Paleotropical-Mediterranean (ptm)	2	0.39			1	0.24	2	0.99
Afrotropical-Mediterranean (atm)	3	0.59			1	0.24	2	0.99
Oriental-Mediterranean-Central Asian-Australian (omcaa)	1	0.20	1	0.58				
Oriental-Mediterranean-Central Asian (omca)	3	0.59			2	0.48	3	1.49
Oriental-Mediterranean (om)	2	0.39			2	0.48	2	0.99
Species with Palaearctic distribution	205	40.35	45	26.16	145	34.85	127	63.18
Palaearctic type	79	15.55	14	8.14	65	15.62	52	25.87
Holopalaearctic (hop)	10	1.97	1	0.58	10	2.40	4	1.99
Transpalaearctic (tp)	21	4.13	1	0.58	18	4.33	17	8.46
West and Central Palaearctic (wcp)	14	2.76	2	1.16	13	3.12	11	5.47
West Palaearctic (wp)	18	3.54	2	1.16	14	3.36	10	4.97
Disjunct Palaearctic (dp)	2	0.39	1	0.58	1	0.24	1	0.50
Eurosiberian-Central Asian (esca)	1	0.20			1	0.24	1	0.50
European-Central Asian (eca)	3	0.59	1	0.58	2	0.48	1	0.50
European-West Central Asian (ewca)	1	0.20			1	0.24	1	0.50
European-Iran-Turanian (eit)	1	0.20	1	0.58	1	0.24		
European-Turanian (et)	2	0.39	1	0.58	1	0.24	1	0.50
European-North African (ena)	6	1.18	4	2.32	3	0.72	5	2.49
Eurosiberian type	55	10.83	12	6.98	48	11.54	18	8.95
Holoeurosiberian (hoes)	2	0.39	1	0.58	3	0.72	3	1.49
West and Central Eurosiberian (wces)	7	1.38			5	1.20	2	0.99
West Eurosiberian-Anatolian (wesa)	2	0.39			2	0.48	1	0.50
West Eurosiberian (wes)	6	1.18			5	1.20	2	0.99
European-Anatolian (ean)	1	0.20	1	0.58	1	0.24		
Central and Southeast European-Anatolian (cseea)	1	0.20	1	0.58	1	0.24		
European (e)	31	6.10	9	5.23	26	6.25	8	3.98

Table 6. Continued

Zoogeographical scheme of the used categories and main taxa	Total		Brakish (rare marine)		Freshwater		Terrestrial	
	number	%	number	%	number	%	number	%
Central and South European (cse)	2	0.20			1	0.24	1	0.50
Central and Southeast European (csee)	4	0.79			4	0.96	1	0.50
MEDITERRANEAN TYPE	71	13.98	19	11.05	32	7.69	57	28.36
Mediterranean-Central Asian (mca)	5	0.98	1	0.58	3	0.72	5	2.49
Mediterranean-West Central Asian (mwca)	3	0.59	2	1.16	2	0.48	2	0.99
North Mediterranean-West Central Asian (nmwca)	1	0.20			1	0.24		
East Mediterranean-Central Asian (emca)	1	0.20					1	0.50
Northeast Mediterranean-Iran-Turanian (nemit)	1	0.20			1	0.24	1	0.50
Central and Southeast European-Iran-Turanian (cseeit)	1	0.20					1	0.50
Central and South European-North African (csena)	2	0.39			1	0.24	2	0.99
Holomediterranean (hom)	19	3.74	3	1.74	10	2.40	16	7.96
Atlantomediterranean (am)	3	0.59					3	1.49
North Mediterranean (nm)	4	0.79			1	0.24	4	1.99
Atlantic-South European (ase)	1	0.20	1	0.58			1	0.50
South European (se)	3	0.59	1	0.58	2	0.48	3	1.49
Southeast European-Pontian-Caspian (seepc)	1	0.20	1	0.58	1	0.24		
Southeast European-Pontian (seep)	1	0.20			1	0.24		
Southeast European-Anatolian (seea)	1	0.20			1	0.24		
Southeast European (see)	1	0.20					1	0.50
East Mediterranean (em)	4	0.79	2	1.16	3	0.72	4	1.99
Northeast Mediterranean (nem)	5	0.98	1	0.58			4	1.99
Pontomediterranean (pm)	3	0.59	1	0.58	1	0.24	2	0.99
Pontian endemic (Ep)	3	0.59	3	1.74			2	0.99
Balkan endemic (Eb)	2	0.39			1	0.24	1	0.50
Bulgarian endemic (Ebg)	1	0.20	1	0.58	1	0.24		
Regional Bulgarian endemic (Er)	4	0.79	2	1.16	1	0.24	4	1.99
Local Bulgarian endemic (El)	1	0.20			1	0.24		
Total	508		172	34.33	416	83.03	201	40.12

m^3). In the autumn zooplankton, almost all summer zooplankters are established but with lower average value of the biomass (36.13 mg/m^3) in comparison with the summer value (102.10 mg/m^3). The highest average value of the autumn biomass (78.17 mg/m^3) is recorded in coastal waters east of Cape Galata and the lowest one (16.76 mg/m^3) – east of Cape Maslen Nos (Konsulov & Konsulova, 1993, 1998). The layer, richest in plankton, is at a depth to 23 m (31.1% of the total biomass). The layer up to 50 m depth contains plankton equivalent to 51.8% of the total biomass. The increase of biomass at a depth of 100-125 m is due to the accumulation of cryophilic plankters. With highest amounts in the period 1970-1988 are the species *Oithona minuta* (to 2813 ind/m^3), *Acartia clausi* (to 2388 ind/m^3), *Penilia avirostris* (2044 ind/m^3) and *Pleopis polyphaemoides* (to 767 ind/m^3) in summer and *Paracalanus parvus* (364 ind/m^3) in autumn (Konsulov & Konsulova, 1993, 1998). Significant impact on the planktonic cenoses in the 80s and 90s has *Mnemiopsis leidyi*, with maximum numbers of 450 ind/m^3 recorded (Konsulov, 1989, 1990; Konsulov & Konsulova, 1993, 1998; Kamburska, 2004). Maximum values of 12 kg/m^3 are established in the shelf water areas in April of 1990 (Bogdanova & Konsulov, 1993). As a determining factor for zooplankton development, the species has become an indicator of the pelagic ecosystem and threat to the species diversity of planktonic cenoses. After 2000 the number of *M. leidyi* decreased as a result of the predatory pressure of *Beroe ovata* and the structure of the dominant groups began to recover. Most appreciable are changes in the coastal zone. The Crustacea (predominantly Copepoda and Cladocera) usually comprise 70-80% of the zooplankton biomass. Of these crustaceans, about 11280 ind/m^3 were established in the summer of 2005 in front of Cape Galata (Shigalova et al., 2008).

Zoobenthos. The number of zoobenthos species is about 1000 (1370 species with Protozoa and parasitic forms), belonging to 19 types. It is studied better in Bulgaria than in other Black Sea countries. Arthropoda, Annelida, Mollusca and Nematoda have the greatest species diversity. Since some taxonomic groups have not yet been sufficiently investigated, it could be accepted that the species composition is higher. Three main zones are established – **supralittoral**, **mediolittoral** (littoral, pseudolittoral) and **sublittoral** (infralittoral, circalittoral). In these zones 12 biocenoses and a great number of series are differentiated, which are characterized by definite species composition (Kaneva-Abadjieva, 1960, 1962; Valkanov & Marinov, 1978; Marinov, 1990; Konsulov & Konsulova, 1993, 1998; Revkov et al., 2008).

Rocky supralittoral. A characteristic species are *Chthamalus stellatus*, *Melarhaphe neritoides* and *Ligia italica*, found up to 2-3 m above the water on the rocks. The highest settled specimens of *Ch. stellatus* and *M. neritoides* are active only during rough sea. The density of *Ch. stellatus* reaches thousands ind/m^2. *Myosotella myosotis* is found sometimes under the stones in that biocenosis and *Pachygrapsus marmoratus* temporarily goes out (Valkanov & Marinov, 1978; Marinov, 1990).

Sandy supralittoral and washed out algae. The species of family Talitridae are typical forms, of which *Orchestia bottae* (to 3500 ind/m^2 and 90 g/m^2) is a typical mass species (Stoykov, 1975). Many insects, inhabiting the coast, of the orders Collembola, Heteroptera, Coleoptera and Diptera are presented. A part of their larvae grow up in washed out algae. Marine forms as *Orchestia gammarellus* (to 2831.7 mg/100 g algae), connected with algae and sea grass and other washed ashore species, are presented. The highest biomass (8661.6 mg/m^2) is established in autumn (Beschovski, 1964a, 1975a, 1978; Marinov, 1990).

Rocky mediolittoral (Enteromorpha zone). The most abundant species are *Spirorbis pussilla*, *Chthamalus stellatus*, *Balanus improvisus*, *Idotea balthica*, *Mytilus galloprovincialis* and the larvae forms of *Thalassomyia frauenfeldi*. The species *Patella ulyssiponensis* is a typical inhabitant which is rare now but formerly it occurred in great quantity along the southern coastal zone, according to older literature (Kaneva-Abadjieva, 1960a). *Eriphia verrucosa* and *Pachygrapsus marmoratus* are observed during the warm months (Marinov, 1990; Konsulov, 1998).

Sandy mediolittoral. A very typical and abundant species is *Donacilla cornea*, the maximum density of which reaches 9800 ind/m^2 at Alepu. A comparatively high density is established at Stomoplo (6000 ind/m^2) and Ahtopol (2000 ind/m^2). *Ophelia bicornis* is also a mass species with density of 2000 ind/m^2; it is found on the beach at Lozenetz Village. The Caspian relict *Euxinia maeoticus* occurs rarely. Over 60 species have been found in the subterranean beach waters, of which Harpacticoida (29 species), Polychaeta (10 species), Turbellaria and Halacaridae (7 species each) are best represented. The average density of the meiobenthos varies from 14552 to 74000 ind/m^2, as Oligochaeta and Harpacticoida predominate. The maximum density of Oligochaeta reaches 76760 ind/m^2 (Marinov, 1990; Konsulov & Konsulova, 1993, 1998).

Cystoseira overgrowths. An exceptionally rich biocenosis, connected to the algae *Cystoseira barbata* and *C. crinita* that develop on the rocky bottom from 0.5 to 20 m of depth. Over 130 species have been established, of which Crustacea (68 species) and Polychaeta (31 species) are best represented. Characteristic species are *Caprella acanthifera*, *Palaemon adspersus*, *Clibanarius erythropus*, *Macropodia longirostris*, *Pilumnus hirtellus*, *Nereis zonata*, *Spirorbis pussila*, etc.. Eight mollusk species develop on the thallus of the algae, the majority of which are *Tricolia pullus*, *Bittium reticulatum*, *Rissoa splendida* and *Mytilaster lineatus* (which densely overgrows the base of the thallus). Some Cnidaria (*Sarsia tubulosa*, *Aglaophenia pluma*, *Lucernariopsis campanulata*, etc.) and Bryozoa (*Electra pilosa*) are attached to the algae. The average density of the macro- and meiobenthos is 709424 ind/m^2, the average biomass – 20.9 g/kg algae. The maximum density reaches 1040000 ind/m^2, and the biomass – 400 g/m^2. Harpacticoida has a high density (113396 екз./kg algae). The density and biomass are highest in spring and summer (212668 ind/m^2 and 58.5 g/kg algae). The biomass is formed mainly from the mollusks (Kaneva-Abadjieva & Marinov, 1977; Marinov, 1990).

Rocky sublittoral. This biocenosis spreads in depth from 0.5 to 30 m and comprises over 130 species with average density of 105105 ind/m^2. Representatives of Crustacea (40 species), Mollusca (36 species) and Polychaeta (31 species) predominate. Many Porifera (*Petrosia ficiformis*, *Dysidea fragilis*, genus *Haliclona*, etc..), cnidarians (*Aglaophenia pluma*, *Orthopyxis integra*, *Actinia aquina*, etc..), sedentary Polychaeta (*Sabellaria taurica*, *Spirobranchus triqueter*, *Vermiliopsis infundibulum* and *Spirorbis pusilla*), Bryozoa (*Membranipora* and *Cryptosula*) and Ascidiacea (*Botryllus schlosseri*) are presented. The decapods (*Palaemon adspersus*, *Palaemon elegans*, *Hippolyte sapphica*, *Clibanarius erythropus*, *Eriphia verrucosa*, *Pachygrapsus marmoratus*) are most represented. However, the mass species *Carcinus aestuarii* has declined sharply in numbers lately. The species *Lepidochitona cinerea* and *Rapana venosa* are permanent inhabitants of the rocky bottom. The most abundant snails are *Tricolia pullus*, *Gibbula divaricata* and *Rissoa splendida*. The mussels *Mytilus galloprovincialis* and *Mytilaster lineatus* occur in large quantities. The karst and mergel rocks are pierced by the holes of *Petricola lithophaga*, *Pholas dactylus* and *Barnea candida* (Marinov, 1990). Great aggregations of *Ostrea edulis* occurred in the past around Cape Maslen Nos – reef, made of oysters, but now living forms there are not established (Todorova et al., 2008a).

Sandy sublittoral. Extends from 0 to 17-20 m depth and is the richest in terms of species biocenosis. Above 300 species have been established, some of which penetrated from neighboring biocenoses. Polychaeta (above 60 species), crustaceans (about 50 species), mollusks (above 30 species) dominate as well as great number of other groups, in which psammophilous and psammobiontic species are presented. The zoocenosis has been divided into 5 subcenoses according to the qualitative composition and ground characteristics (Marinov, 1990). Some Polychaeta (*Scolelepis squamata*, *Glycera convoluta* and *Prionospio cirrifera*), crustaceans (*Bathyporeia guilliamsoniana*, *Ampelisca diadema*, *Diogenes pugilator*) and common mollusks (*Chamelea gallina*, *Lucinella divaricata* and *Bittium reticulatum*) are dominated forms. Characteristic psammophilous Polychaeta are *Arenicola marina*, *Pisione remota*, *Prionospio malmgreni* and *Polygordius lacteus*, some Cumacea from crustaceans (*Pseudocuma*, *Bodotria*, *Cumopsis* and *Cumella*) and many mollusks (*Loripes lacteus*, *Solen marginatus*, *Tellina donacina*, *T. tenuis*, *T. fabula*, *Donax trunculus* and *Gouldia minima*). *Actinothoe clavata* and *Branchiostoma lanceolatum* (related to a certain structure of the sand) are typical representatives. The density and biomass are determined by psammobiontic forms and as exception by some eurybionts (*Balanus improvisus* and *Ampelisca diadema*). The highest is the density of Polychaeta; Mollusca have the highest biomass. The average density varies from 1484 ind/m^2 to 2576 ind/m^2; as Polychaeta comprise 55%, followed by crustaceans – 16%, mollusks – 27% and other groups – about 1.5-2%. The average biomass is 136.4 g/m^2 as the mollusks comprise 92.8% (126.5 g/m^2) of it (Valkanov et al., 1978; Marinov, 1990). The average density of mollusks is 398 ind/m^2; it is the highest for *Lentidium mediterraneum* (168 ind/m^2) which can reaches a maximum density up to 21000 ind/m^2. For Polychaeta, *Spio filicornis* reaches a maximum density of 8320 ind/m^2 (Valkanov et al., 1978; Marinov, 1990). The maximum biomass for mollusks, from 1542 to 1787 g/m^2 (density about 2700 ind/m^2), is established for *Ch. gallina* (Kaneva-Abadjieva & Marinov, 1966; Marinov, 1990). The invasive immigrants *Rapana venosa* (biomass up to 400 g/m^2), *Anadara kagoshimensis* (biomass up to 4282 g/m^2) and *Mya arenaria* (biomass up to 4596 g/m^2) are also represented here.

Coastal silt. This zone begins from where the sandy bottom ends. It extends from 15-20 to 30-40 m

depth and is better developed in the northern coastal zone. Relatively poor biocenosis, in which about 50 species have been established. It can be divided into 2 subcenoses depending on the abundance of *Melinna palmata* (Polychaeta) – high occurrence of *M. palmata* and low occurrence of *M. palmata*. The former comprises 2/3 of the entire cenosis, has a richer species diversity, density and biomass. The maximum density of *M. palmata* reaches to 2010 ind/m^2 and the biomass – to 44.9 g/m^2 (Nguen Suan Li, 1984; Marinov, 1990). The average density of the biocenosis is 564 ind/m^2 and the maximum one – 2543 ind/m^2. The average biomass is 76.3 g/m^2 and the maximum one – 280.7 g/m^2. Polychaeta comprises 82.4% of the density and Mollusca forms about 77.9% of the biomass of this zoocenosis. *Spisula subtruncata* and *Chamelea gallina* have the highest density. *Polititapes aureus* and *Ch. gallina* have the highest biomass, to 84.7 g/m^2 and 56.1 g/m^2 respectively. In some places the biomass is determined by the presence of *Mytilus galloprovincialis*. Of Crustacea, *Ampelisca diadema* and *Upogebia pusilla* have the highest density as the latter forms the biomass as well. Characteristic species of the sandy-oozy ground are *Actinothoe clavata*, *Lagis koreni*, *U. pusilla* and many mollusks of the orders *Caecum*, *Calyptraea*, *Cyclope*, *Nassarius*, *Lucinella*, *Spisula*, *Abra* and *Gouldia* (Valkanov & Marinov, 1978; Nguen Suan Li, 1984; Marinov, 1990).

Mytilus silt. This zone begins to the north of Cape Kaliakra from the depth of 45 m and reaches the depth of about 70 m; at the Cape Emine – 80 m. The width of this zone varies from 2-3 miles to 10-15 miles. Ahead of Burgas Bay the zone is the widest and begins from the depth of 13-20 m. In the southern part of the Bulgarian coast (from Sozopol to Rezovo) this biocenosis begins very close to the shore. Typical for the Black Sea is a zone at a depth of 40 to 140 m, composed of *Mytilus galloprovincialis* (to about 70 m) and *Modiolula phaseolina* (from 70 to 140 m). Nowhere *M. galloprovincialis* reaches such quantity as in the Black Sea. In the southern half of the Bulgarian shelf the higher biomass is concentrated to 50 m isobath, while the northern half of it reaches 80 m isobath. Whenever the biomass is over 500 g/m^2 it is caused by *Mytilus galloprovincialis* which is the main dominant. In front of Pomorie a biomass to 2694 g/m^2 is established, in front of Tsarevo – 3354 g/m^2, in front of Burgas – 4865 g/m^2 and in front of Krapets – 5900 g/m^2 (Kaneva-Abadjieva, 1962; Marinov, 1990; Marinov & Stoykov, 1995; Stoykov & Uzunova, 1999). The biomass of *M. galloprovincialis* shows 3 maximums, of which the maximum at 45 m depth is the biggest. The species composition (over 100 species) is represented by eurybathic as well as typical for this depth species. This biocenosis is considered one of the richest in species and also ranks highest in biomass. Polychaeta is best presented, followed by Crustacea and Mollusca. *Aglaophenia pluma*, *Sertularella polyzonias*, *Cerebratulus ventrosulcatus*, *Aricidea claudiae*, *Ciona intestinalis* and *Ascidiella aspersa* are characteristic inhabitants of this biocenosis. Of mollusks, *Spisula subtruncata*, *Abra alba* and *Polititapes aureus* have a very high density. Biomass of the zoocenosis is formed mainly by the mollusks (94.3%). *M. galloprovincialis* alone gives 63.6% from the biomass. However, as a result of its patchy distribution, the coefficient of permanency of this species is only 25.6%, followed by *S. subtruncata* with the coefficient of permanency 79.2% but with a twice less biomass. The average density is 666 ind/m^2; the maximum one – 4185 ind/m^2. The average biomass is 134.4 g/m^2; the maximum one – 3817 g/m^2. About 57.2% of the density is formed by Polychaeta as *A. claudiae* predominates (Valkanov & Marinov, 1978; Marinov, 1990; Konsulov & Konsulova, 1993, 1998; Konsulov, 1998).

Phaseolina silt. This zone extends from 60-65 m to 184 m of depth. In the southern region, due to the larger slope of the bottom, the zone is narrower. *Modiolula phaseolina* is a dominant species, with the coefficient of permanency from 22.2% (south of Kamchiya River) to 96.5% (in the north). The higher biomass (200-900 g/m^2) below 60 m isobath is due to this species. In the south *M. phaseolina* is poorly represented, therefore the average biomass is often below 50 g/m^2. Its density and biomass show many peaks, of which the density maximum (4963 ind/m^2) is at 110-120 m of depth and the biomass maximum (389 g/m^2) – at 65 m (Kaneva-Abadjieva & Marinov, 1960b). Recently, this species was recorded at the depth of 55 m in front of Cape Kaliakra, with a density up to 13040 ind/m^2 and biomass up to 995.6 g/m^2 (Marinov & Stoykov, 1995). The greater species diversity of this biocenosis (over 60 species) is up to 100 m depth. Below 150 m of depth occur only *Sycon ciliatum*, *Actinothoe clavata*, *Pachycerianthus solitarius*, *Nephtys hobergii* and *Leptosynapta inchaerens* (Marinov, 1990). The average density is 853 ind/m^2 and the maximum one is 5125 ind/m^2. Mollusks comprise 81.7% of the density, and *M. phaseolina* alone, forms 79.9% of the total density. The average biomass is 44 g/m^2 and the maximum one is 394 g/m^2. The mollusks account for 86.5% of the whole biomass, and *M. phaseolina* alone, for 79.2% (Marinov, 1990). Of Gastropoda,

Trophon muricatus is the only representative. This conspicuous predator feeds on the mussels with thinner shells, such as *M. phaseolina*, *Parvicardium exiguum*, *Papillicardium papillosum*, *Spisula subtruncata*, *Abra alba* and *A*. Prismatica. Characteristic of this biocenosis are *Suberites carnosus*, *P. solitarius*, *L. inchaerens*, *Amphiura stepanovi*, etc. The mass species *Terebellides stroemii* and *A. stepanovi* are widely distributed. (Valkanov & Marinov, 1978; Marinov, 1990; Konsulov, 1998).

Meiobenthos in the sublittoral zone. Nematoda, Polychaeta and Harpacticoida dominate on sand and silt bottoms from 5 to 150 m of depth. Cephalorhyncha, Chalacaridae, Cyclopoida are often found; Oligochaeta and Ostracoda are rarely found. Over 100 species have been established as the most representatives have a low frequency of occurrence. The total number is 164152 ind/m^2 and the maximum number reaches up to 1181000 ind/m^2. The density is formed mainly by Nematoda (77.5%); its maximum number reaches up to 1034000 ind/m^2. The maximum number of Oligochaeta and Harpacticoida is 65000 and 102000 ind/m^2 respectively. Ostracoda is rarely found; its number amounts to 1000-2000 ind/m^2. Due to the spotty distribution of meiobenthos depth is not always determinative for the number that decreases below 35 m (Marinov, 1990; Konsulov, 1998).

Coastal basins. There are about 40 lakes, marshes and areas, flooded by rivers along the Bulgarian coast (Varbanov, 2002; Hristova, 2012; Table 1). Most common are firth lakes (blocked estuaries) and lagoon lakes (areas separated from the open sea). The presence of brackish elements is a special feature of their fauna. A "saline wedge" is formed at the lower parts of the rivers, which is situated below the fresh waters. In this "wedge" the bottom inhabitants are marine or brackish, whereas those in upper water layers are freshwater species. A specific fauna inhabits the lakes, firths and marshes along the coast. The marine brackish species endure water down to 1 ‰ salinity and the freshwater forms withstand water salinization from 1.5 ‰ to 8 ‰. Many euryhaline sea species also take part in the formation of the coastal basins's fauna, which could vary from marine to freshwater, depending on the water salinity. Nineteen rivers enter the Bulgarian Black Sea (12 rivers enter the Black Sea and 8 rivers discharge into the coastal lakes). Their mouth areas have firth nature where oligo- or euryhaline forms are presented. It is therefore difficult the fauna of these rivers to be scrutinized separately from the coastal stagnant basins (Valkanov, 1935, 1936; Drensky, 1947; Petrbok, 1947; Kaneva-Abadjieva, 1957, 1976; Zaschev & Angelov, 1959; Mihailova-Neikova, 1961; Kaneva-Abadjieva & Marinov, 1967; Stoykov, 1979; Marinov, 1990; Trayanova, 2003, 2008).

The mass development of the mussel *Dreissena polymorpha* that reaches to 3-4 m depth and forms a ring around the shore is characteristic for the lakes **Durankulak**, **Ezerets** and **Shabla**. The Caspian relict *Hypania invalida* has a high density (thousands ind/m^2) and in the zone of *D. polymorpha* Ostracoda reaches 8595 ind/m^2 (Cvetkov, 1958; Kaneva-Abadjieva & Marinov, 1967; Valkanov et al., 1978; Kovachev & Uzunov, 1981; Marinov, 1990; Naidenov, 1998; Stoichev, 1998; Kovachev et al., 1999, 2002; Petrova & Stoykov, 2002). *Cordylophora caspia*, many species of the families Corophiidae and Gammaridae, *Astacus leptodactylus* and *Theodoxus fluviatilis* are common species. In Shabla Lake the average biomass is about 19.4 g/m^2 and the maximum biomass reaches 842 g/m^2. In Durankulak Lake the maximum biomass is 60 g/m^2 (Valkanov et al., 1978). The lakes have been investigated recently as protected areas and have a rich fauna (from 101 to 137 species).

Fauna of the **Beloslav** Lake, before its transforming into port, was formed mainly by freshwater Crustacea and Chironomidae larvae (Valkanov, 1935, 1936, 1937; Cvetkov, 1955a, 1955b, 1957). In the Chironomidae complex haloxenes are presented but there is a lack of typical halophils and halobionts. The freshwater species are best represented in most crustaceans as there are brackish and marine forms. Ostracoda comprises a significant percentage (15 species, or 35.7%). Copepoda includes more haloxenes and halobionts. All Amphypoda, Mysida, *Iera sarsi* and *Rhitropanopeus harrissi* are brackish forms. *Cordilophora caspia*, *Leander adspersus*, *Astacus leptodactylus*, *Potamon ibericum*, *Theodoxus fluviatilis*, *Unio pictorum* and *Dreissena polymorpha* occur. In quantitative terms Oligochaeta, Ostracoda and Chironomidae predominate (Cvetkov, 1957). After 1964-1966 the state of the lake got worse and it became to a chironomid type. Typical are periodic extinctions due to oxygen deficiency. In 1990-1991 the species composition is poor, there are lack of mollusks, dead zones and single species communities. After 2000 the species diversity increases, 5 mollusk species appear and there are no permanent dead zones (Trayanova, 2003, 2008).

After the connection of **Varna** Lake with the sea, the freshwater species disappeared there and the fauna was formed by euryhaline marine and brack-

ish forms (Kaneva-Abadjieva, 1957). The following species dominate: *Hydrobia ventrosa* (up to 24520 ind/m^2), *Mytilaster lineatus* (up to 37400 ind/m^2 and 620 g/m^2), *Mytilus galloprovincialis* (to 1837 ind/m^2 and 6023 g/m^2), *Cerastoderma glaucum* (to 968 ind/m^2) and *Abra segmentum* (to 1177 ind/m^2). The reserves of *M. galloprovincialis* were estimated as ca. 5000 t and were of great economical importance. Mass overgrowths, causing problems of TPP Varna in the 70s, are *Ficopomaticus enigmaticus*, *Amphibalanus improvisus* and *M. galloprovincialis*. The maximum overgrowth reaches 39260 g/m^2 for 3 months (Dimov et al., 1970). In the last decades, the lake underwent profound transformations and its fauna changed (Marinov, 1990; Konsulov & Konsulova, 1993, 1998). In the 50s crustaceans and mollusks prevail. In the 90s the number of mollusks decreased, whereas Polychaeta increased and dominated in numbers (70.6%). In recent years, the number of species is increased (especially in crustaceans). An increase in numbers (from 5787 ind/m^2 to 18841 ind/m^2) and a shift of Polychaeta (38%) by Crustacea (50.9%) was established. The biomass is formed mainly by mollusks (58.7%) and crustaceans (39.0%) (Trayanova, 2003, 2008; Todorova et al, 2008b).

The halobionts *Artemia parthenogenetica* and *A. salina* are typical for the hyper-saline lagoon lakes **Pomorie** and **Atanasovsko** [salinity from 30-60‰ to 100-250‰ (Ivanov et al., 1964)]. Of marine forms, *H. ventrosa*, *Nassarius reticulatus*, *C. glaucum* and *A. segmentum* are presented. The density and biomass of *Cyprideis torosa* reach 312532 ind/m^2 and 37.1 g/m^2; of *C. glaucum* – 3234 ind/m^2 (maximum to 134376 ind/m^2) and 338.7 g/m^2 (Cvetkov, 1958). The number of *Acartia clausi* in the Pomorie Lake reaches 130000 ind/m^3 (Vassilev, 1994). The lakes are protected areas, recently explored in connection with the plans of their management (Michev, 1997, 2003; Georgiev & Nikolov, 2010; Pechlivanov, 2010; Varadinova et al., 2010). In these lakes specific rich fauna is stored (106-113 species).

In **Burgas** Lake, *A. segmentum* in 1954 reached average density 5544 ind/m^2 and biomass 790 g/m^2; its total biomass was estimated as 16957 t (Zaschev & Angelov, 1959). The average density of *H. ventrosa* during the same period was 3256 ind/m^2, biomass – 10.4 g/m^2 and the total biomass – 216 t. For *C. glaucum* these data are, respectively: 1840 ind/m^2, 201.8 g/m^2 and 3081 t. Later, because the salinity decreased from 11‰ to 0.7-1.9‰ these mollusks completely disappeared and currently no living specimens have been found (Pandourski, 2001). The density of the following crustaceans was high: *Crassicorophium crassicorne* (10806 ind/m^2 – 31.1 g/m^2) and *Gamarus subtypicus* (748 ind/m^2 – 3.7 g/m^2), with total biomass 549 t and 41.1 t respectively (Kaneva-Abadjieva & Marinov, 1967; Kaneva-Abadjieva, 1976; Stoykov, 1979). Nowadays 93% of the total biomass of the zoobenthos (16.6 g/m^2) is formed by Chironomidae larvae (Valkanov et al., 1978).

In **Mandra** Lake, before the dam construction, many marine forms (*Hediste diversicolor*, *Corophium volutator*, *Palaemon adspersus*, *Upogebia pusilla*, *Liocarcinus vernalis*, *H. ventrosa*, *C. glaucum* and *A. segmentum*) have been recorded, which can be found now in the lakes **Uzungeren** and **Poda**, remaining outside of the dam (Valkanov, 1936; Mihailova-Neikova, 1961; Kaneva-Abadjieva & Marinov, 1967; Kaneva-Abadjieva, 1976). Over 100 species benthos forms have been found, which average biomass is 14 g/m^2 (57.5% Chironomidae). After the dam construction, the zoobenthos (11.8 g/m^2) is formed mainly by Oligochaeta and Chironomidae (60%). Changes in biomass (2.4-4.2 g/m^2 to 10.7-15.7 g/m^2) and a dominance of Chironomidae larvae are observed (Kaneva-Abadjieva, 1976; Stoykov, 1979).

The firth of **Ropotamo River** is well-studied and over 100 species have been established there (Valkanov, 1934, 1935, 1936; Cvetkov & Gruncharova, 1976, 1979; Gruncharova, 1977). It is abundant in the invasive forms *Ficopomaticus enigmaticus* (up to 18400 ind/dm^2 – 360 g/dm^2), *Amphibalanus eburneus* and *Rhithropanopeus harrisii*. The following species are often found: *Blackfordia virginica*, *Cordylophora caspia*, some Chironomidae larvae, *Palaemon adspersus*, *Hydrobia acuta*, *Mytilus galloprovincialis*, *Mytilaster lineatus*, *Cerastoderma glaucum*, *Abra segmentum*, *Barentsia benedeni* (to 8000 zooids/dm^2) and many Bryozoa.

In the firth of **Veleka River**, *Dreissena polymorpha* covers the shells of *Anodonta cygnaea*, *Pseudanodonta complanata* and *Unio pictorum*. A significant number have the populations of *Astacus leptodactilus*, *Potamon ibercum* and *T. fluviatilis* (often and *P. planorbis*); of the marine forms *H. ventrosa*, *C. glaucum* and *A. segmentum* are presented.

Some coastal basins were explored comparatively long ago and the investigations do not reflect the recent condition of their fauna (Shabla Tuzla, Nanevska Tuzla, Balchishka Tuzla, Batovsko Swamp, Nesebarsko Swamp, the swamps Alepu, Arkutino, Stomoplo and Dyavolsko, the firths of the rivers Batova, Kamchiya, Dvoynitsa, Dyavolska, Karaagach, Veleka, Silistar and Rezovska). Furthermore, the

Table 7. Alien invertebrate animals, recorded from the Bulgarian Black Sea coast (Note. The years in brackets show finding of the species in Bulgaria, * – invasive species)

Taxa	Year of introduction or finding	Donor region
Coelenterata		
Blackfordia virginica Mayer, 1910	1925 (1935)	North Atlantic and North America
Garveia franciscana (Torrey, 1902)	1933 (1933)	North Atlantic and North America
Rathkea octopunctata (Sars, 1835)	(1957)	Atlantic Ocean and Mediterranean Sea
Diadumene lineata (Verrill, 1869)	(1960)	Northwest Pacific Ocean
Ctenophora		
**Mnemiopsis leidyi* Agassiz, 1865	1982 (1986)	Western Atlantic Ocean
**Beroe ovata* Bruguière, 1789	1997 (1997)	North Atlantic Ocean
Bolinopsis vitrea (L. Agassiz, 1860)	2010 (2010)	Tropical and Subtropical
Annelida: Polychaeta		
**Ficopomatus enigmaticus* (Fauvel, 1923)	1929 (1935)	Indian Ocean
Hesionides arenaria Friedrich, 1937	1950-те (1954)	Pacific Ocean or Atlantic Ocean
Streblospio shrubsolii (Buchanan, 1890)	1957 (1957)	North Atlantic Ocean
Streptosyllis varians Webster & Benedict, 1887	1966 (1966)	North Atlantic or Pacific Ocean
**Polydora cornuta* Bosc, 1802	2005 (2008)	North and West Atlantic Ocean
**Dipolydora quadrilobata* (Jacobi, 1883)	(1990)	Atlantic Ocean and Pacific Ocean
Arthropoda: Crustacea		
Acartia tonsa Dana, 1849	1976 (2000)	Indian Ocean and Pacific Ocean
Oithona davisae Ferrari F. D. & Orsi, 1984	2001 (2009)	Northwest Pacific Ocean
Triconia minuta (Giesbrecht, 1893 [1892])	(2000)	Indian Ocean and Pacific Ocean
Amphibalanus eburneus Gould, 1841	1892 (1933)	North America
* *Amphibalanus improvisus* Darwin, 1854	1844 (1912)	North America
Palaemon macrodactylus Rathbun, 1902	(2009)	Pacific Ocean and Souteast Asia
Rhithropanopeus harrisii (Gould, 1841)	1937 (1934, 1953)	North America
Callinectes sapidus Rathbun, 1896	1967 (1968)	North Atlantic Ocean
Eriocheir sinensis (H. Milne Edwards, 1854)	2006 (2005)	East and Southeast Asia
Mollusca		
Potamopyrgus antipodarium (J. E. Gray, 1843)	1952 (2008)	coast of New Zeland
**Rapana venosa* (Valenciennes, 1846)	1946 (1956)	Sea of Japan
Neptunea arthritica (Valenciennes, 1858)	(2000)	Indian Ocean and Pacific Ocean
Corambe obscura (Verrill, 1870)	1980 (1986)	North Atlantic Ocean
Ferrissia fragilis (Tryon, 1862	(1983)	North America
Physella acuta (Draparnaud, 1805)	(1927)	North America
**Anadara kagoshimensis* (Tokunaga, 1906)	1982 (1984)	Indian Ocean and Pacific Ocean
**Mya arenaria* Linnaeus, 1758	1966 (1973)	Circumboreal
Teredo navalis Linnaeus, 1758	750-500 B.C.	Atlantic Ocean and Pacific Ocean

coast is exposed to strong anthropogenic presence and changes that reqiure a continuous update of the information.

Alien immigrants. The penetration of alien species through ballast waters and/or as fouling organisms on ship hulls is one of the greatest threats for the world's oceans. The assessment whether a certain species is invasive and harmful to the Black Sea ecosystem is complex. During a certain point of time the species may be harmful and subsequently to get a positive effect – food base for other species, an element for increasing the diversity or resource. Lists of species, introduced in the Black Sea, have been published by several authors (Cvetkov & Marinov, 1986; Gomoiu & Scolka, 1996; Konsulov, 1998; Shadrin, 2000; Zaitsev & Öztürk, 2001; Gomoiu et al., 2002; Moncheva & Kamburska, 2002; Kamburska & Moncheva, 2003; Zaitsev et al., 2004; Konsulova & Stefanova, 2007). Thirty-one invertebrate species are known from the Bulgarian Black Sea coast, occurring at different times (Table 7). The most significant changes in the Black Sea

communities are caused by 5 species, introduced in the last 60 years – *Mnemiopsis leidyi*, *Beroe ovata*, *Rapana venosa*, *Anadara kagoshimensis* and *Mya arenaria* (Cvetkov & Marinov, 1986; Marinov, 1990; Konsulova & Stefanova, 2007; Todorova & Moncheva, 2013).

The introduction of the ctenophore ***Mnemiopsis leidyi*** in the Black and Azov Seas in the 1980s caused the decline of anchovies' and sprat' stocks, estimated at 200 millions USD per year (Zaitzev & Mamaev, 1997). This species becomes a determinative factor for the development of zooplankton and indicator of the pelagic community. *M. leidyi* is a self-fertile hermaphrodite with broad food spectrum (from microzooplankton to crustaceans, eggs and fish larvae) and a high tolerance to temperature and salinity. It is reproductively mature 12 days after hatching and produces over 2000-3000 eggs. In the 80s *M. leidyi* caused a drop in pelagic fish reserves, by competing for the same food resources. A maximum number of *M. leidyi* (450 ind/m^3) was recorded in Varna Lake in 1986 (Konsulov, 1986; Konsulov & Konsulova, 1993, 1998; Kamburska, 2004). After 2000 the number of *M. leidyi* decreases, affected by the predatory pressure from *B. ovata*.

Beroe ovata is known to feed on planktivorous ctenophores and, in particular, on *M. leidyi*. There is a trophic type predator-prey relationship between *B. ovata* and *M. leidyi*. The development of *B. ovata* depends on the seasons; the species occurs mostly in summer and autumn. Its reproductive potential is closed to the potential of *M. leidyi.* The dynamics of *B. ovata*, its seasonal and annual variations, development and survival depend on *M. leidyi* (Konsulov & Kamburska, 1998). Like *M. leidyi*, this species was transported in ships ballast waters from the Northwest Atlantic. The arrival of *B. ovata* appears to have stabilized the Black Sea ecosystem, leading to a reduction in *M. leidyi* populations and subsequent recovery of plankton and fish populations.

The first specimen of ***Rapana venosa*** in the Bulgarian aquatory was found in 1956 in Varna Bay, near Cape Galata (Kaneva-Abadjieva, 1958). Development of this snail in the rocky sublittoral has a substantial impact on *Mytilus* and *Ostrea*, and in the sand sublittoral – on *Chamelea gallina*. The great eurybiontness, high fecundity and lack of competitors allowed this predator to reach mass development in the Black Sea and aroused discussion for eventual measures for a struggle with it. In a single trawling, up to 1500 specimens have been caught, and in some regions between Balchik and Kavarna the entire bottom was covered with Rapa whelks. Very high numbers was observed in Byala, in the region of Cape Cherni Nos (Klissurov, 2008). During the last 20 years, the snail was gathering for food with all possible means. After conquest of the Black Sea the species penetrated the Aegean, Adriatic and Mediterranean Seas, Atlantic coast of France, North Sea, East coast of USA, the mouth of the Rio de la Plata River between Uruguay and Argentina and around New Zealand. The way how the species was transported in the Black Sea is unclear. *R. venosa* is an eurythermal and euryhaline species that develops in the coastal zone on solid substrate and sandy and silty bottom at a depth to 30-40 m. The snail withstands temperature changes (from 0 to 30°C), water pollution and reduced oxygen content. There is a huge fertility (a snail delayed approximately 220000 eggs) which compensates its exploitation by man. It lives about 10 years. There are no precise data on the population of Rapa on the Bulgarian coast (Konsulov & Konsulova, 1993, 1998; Konsulov, 1998).

Mya arenaria has been first reported for the Bulgarian coast in the Bay of Burgas in 1973 (Kaneva-Abadjieva, 1974). The mussel inhabits the sandy sublittoral and reaches the wash zone. It has a high ecological plasticity and easy endures variations of the salinity and temperature, and oxygen deficiency. It reaches a high density (over 300-400 to 4862 specimens/m^2) in the bays in front of the river mouths. *M. arenaria* is found along the beaches all over the Bulgarian coast but the greatest number of it occurs in front of Durankulak and Albena, in the Varna Bay, Varna Lake, at the influx of the Kamchiya River and Burgas Bay (Stoykov, 1983; Cvetkov & Marinov, 1986; Marinov, 1990). Spawning by eggs thrown straight into the water during the summer months (rarely re-spawning in autumn). From fertilized eggs planktonic larvae develop which 5-6 days after egg hatching convert to mussels. In the 1970s, this mussel is a dominant species in the Romanian coastal zone as 4-5 years after its appearance reaches biomass 16 kg/m^2 and numbers more than 8000 ind/m^2 (Gomoiu & Porumb, 1969). In many areas of the Black Sea shelf *M. arenaria* is a dominant species in new zoocenosis, called her name.

The first specimens of ***Anadara kagoshimensis*** for the Bulgarian coast were found in 1982 in Varna Bay (Marinov et al., 1983; Kaneva-Abadjieva & Marinov, 1984). Much later, a high density of the species has been found in Burgas Bay (up to 400 specimens/m^2 and biomass 4280 g/m^2). This mussel is a eurythermal and euryhaline species that endures very low oxygen concentrations in the water due to

Table 8. Conservation status of invertebrare animals of the Bulgarian Black Sea coast

Taxa	Black Sea Red Data Book	Ecological data, Bulgarian Red Data Book, IUCN and European category	Distribution (area and depth)
Halichondria panicea (Pallas, 1766)	VU	M, bt, eb, lt	K, 2-65
Odessia maeotica (Ostroumoff, 1896)	VU	M-B, 25‰, bt-p	lm, ? Rc
Hesionides arenaria Friedrich, 1937	EN, VU	M, bt, sep, sls, ps, gw	aminwp, 0-10
Ophelia bicornis Savigny, 1918	EN	M, bt, sep, l-sl, ps	bam, 0.5-1.5
Hirudo verbana Carena, 1820		L, bt, ph, 10‰, ▲-VU	(cse)
Halacarellus procerus (Viets, 1927)	EN	M-B, bt, l-sl, ps, gw	bam
Branchinella spinosa (H. Milne Edwards, 1840)	EN	B-M, 30‰, p	lm, (atm)
Centropages ponticus Karavaev, 1895	EN	M, p	mrs
Anomalocera patersoni Templeton, 1837	EN	M, p, et	amip
Labidocera brunescens (Czerniavsky, 1868)	EN	M, p, eh, th	lmm
Pontella mediterranea (Claus, 1863)	EN	M, p	lmm
Oithona minuta (Krichagin, 1877; Scott, 1894)	EN	M-B-L, p, eh	amip, 20
Hemimysis anomala G. O. Sars, 1907	EN	B-L, bt, ep, lt	pc, clm, (h), -20
Chaetogammarus ischnus (Stebbing, 1899)	VU	M-B, eh, sep, ro, l-sl	pc, cpc, Rc
Dikerogammarus villosus (Sowinsky, 1894)	VU	B-L, bt, ep, ro, ph	pc, cpc, Rc, (ean)
Iphigenella andrussowi (G. O. Sars, 1896)	LR	B-L, bt, ep, ps, ps-s	pc, Rc
Shablogammarus shablensis (Carausu, 1943)	VU	B-L, bt, ep, ps, ps-s	pc, Rc
Apseudopsis ostroumovi Bacescu & Carausu, 1947	LR	M, bt, sg, ms, phs	p, 27, -100
Upogebia pusilla (Petagna, 1792)	EN	M, bt, ep (p), ps-pe	clmm, -22
Diogenes pugilator (Roux,1829)	EN	M, bt, mb, ps, sg	eam, ? eami, 0-40
Carcinus aestuarii Nardo, 1847	VU	M, bt, ps, zc, ro, r	lm, ? amp, 0-70
Liocarcinus navigator (Herbst, 1794)	VU	M, bt, eb, ps, sg, s	acem, 3-80
Eriphia verrucosa (Forskål, 1775)	EN	M, bt, ep, sp-l-sl, lt, ▲-VU	lmm, ?lmmg, 0-30
Pilumnus hirtellus (Linnaeus, 1761)	VU	M, bt, mb, ph, mc, lt	clmm, 0-40
Xantho poressa (Olivi, 1792)	VU	M, bt, eb, ro	lmm, 1-15, 100
Potamon ibericum (Bieberstein, 1808)	DD, EN	L, eu	(nmwca)
Pachygrapsus marmoratus (Fabricius, 1787)	VU	M, bt, sep, spr-slr, lt	cmm, 0-7
Calopteryx splendens (Harris, 1782)	LR, VU	L-TL, ♦-LC	(wcp)
Calopteryx virgo (Linnaeus, 1758)	VU	L-TL, ♦-LC	(tp)
Epallage fatime (Charpentier, 1840)	NE, DD, VU	L-TL, ▲-VU, ♦-NT	(om)
Lestes viridis (Vander Linden, 1825)		L-TL, ▲-VU, ♦-LC	(wp)
Anax imperator Leach, 1815	NE, DD, VU	L-TL, ♦-LC	(wppt)
Sympetrum depressiusculum (Sélys, 1841)		L-TL, ▲-VU, ♦-VU	(tp)
Sympetrum vulgatum (Linnaeus, 1758)		L-TL, ▲-VU, ♦-LC	(ewca)
Patella ulyssiponensis Gmelin, 1791	EN	M, bt, sep, lt-ro, l-sl, r	clm, 0-10
Theodoxus pallasi Lindcholm, 1924		M-B, eh-14‰, ro, ▲-EX	pc, Rc, Sf, +, 4-10
Hauffenia lucidula Angelov, 1967		L, bt, cr, 1‰, ▲-CR, ♦-CR	(El)
Valvata cristata O. F. Müller, 1774		L, 0.5‰, bt, ph, s, r, ♦-LC	(wes)
Valvata piscinalis (O. F. Müller, 1774)		L, 0.4‰, bt, sw, ph, pe, x, ♦-LC	(wcp, i - h), 3, 80
Hydrobia acuta (Draparnaud, 1805)		B-M, 60‰, bt, ep, sw, ph, ro, s, ♦-LC	lm, ? hm, 0-22
Bithynia tentaculata (Linnaeus, 1758)		L, bt, ph, ro, s, ps, ♦-LC	(wp, ? h - i), 5
Turricaspia lincta (Milaschewitch, 1908)		M-B, 8‰, bt, s, sw, ♦-LC	pc, Rc, Sf, +, -148
Acroloxus lacustris (Linnaeus, 1758)		L, bt, ph, sw, ♦-LC	(wes, ? hoes)
Lymnaea stagnalis (Linnaeus, 1758)		L, 7‰, bt, ph, pe, ♦-LC	(h), 0-4
Stagnicola corvus (Gmelin, 1791)		L, bt, sw, ph, ♦-LC	(hop, ? e), 0-50
Radix auricularia (Linnaeus, 1758)		L, 6‰, bt, ph, rh, s, ♦-LC	(h, ? hop), 0.2-25

Table 8. Continued

Taxa	Black Sea Red Data Book	Ecological data, Bulgarian Red Data Book, IUCN and European category	Distribution (area and depth)
Radix balthica (Linnaeus, 1758)		L, 3-10‰, bt, ph, eu, ♦-LC	(hop)
Ferrissia fragilis (Tryon, 1862		L, bt, eu, th, ph, r, is, ♦-DD	(h, sk - i), 0-8
Planorbis carinatus O. F. Müller, 1774		L, bt, sw, ph, pe, r, ♦-LC	(wes, ? h), -10, -18
Planorbis planorbis (Linnaeus, 1758)		L, bt, 2‰, sw, ph, pe, ♦-LC	(h)
Anisus septemgyratus (Rossmaessler, 1835)		L, 8‰, sw, ph, α-β, r, ♦-LC	(wes, ? e)
Anisus vortex (Linnaeus, 1758)		L, bt, 8‰, ph, α-β, r, ♦-LC	(wces)
Anisus vorticulus (Troschel, 1834)		L, bt, pe, ph, rh, sw, r, ♦-NT, HD	(wces, ? wes)
Gyraulus crista (Linnaeus, 1758)		L, 1.5‰, eu, ph, α-β, ♦-LC	(h)
Hippeutis complanatus (Linnaeus, 1758)		L, bt, ph, s-ar, sw, α, r, ♦-LC	(wces, ? wcp)
Segmentina nitida (O. F. Müller, 1774		L, bt, sw, ph, α-β, ♦-LC	(wcp)
Planorbarius corneus (Linnaeus, 1758)		L, 5‰, sw, po, α-β, ♦-LC	(wces), -9
Physella acuta (Draparnaud, 1805)		L, bt, pe, tx, α-β, is, ♦-LC	(na, sk - i)
Physa fontinalis (Linnaeus, 1758)		L, bt, sw, po, ph, β, r, ♦-LC	(tp, ? h)
Ostrea edulis Linnaeus, 1758	EN, VU	M, bt, sep, ro	anamnep, i, 7-65
Donacilla cornea (Poli, 1795)	EN	M, bt, sep, ps	lm, 0.2, -2
Solen marginatus Pulteney, 1799	EN	M, bt, sep, ps	clmm, 0-10
Pholas dactylus Linnaeus, 1758		M, bt, sep, lt, BA, BC	eamrs, amrs, -15
Branchiostoma lanceolatum (Pallas, 1774)	VU	M, bt, ep, ps	amip, 17, 21

the presence of hemoglobin in the haemolimph. It has a long life cycle and low coefficient of mortality. In a short time, *A. kagoshimensis* became a significant element of psammo- and pelophilous zoocenoses, and started to displace some local species. Thus the „*Chamelea gallina*" group in front of Balchik, Varna and Burgas transforms into „*A. kagoshimensis*" group. The distribution of this species in the Bulgarian part of the Black Sea is restricted from Balchik to the south part of Burgas Bay (Cvetkov & Marinov, 1986; Marinov, 1990; Konsulov, 1998).

Resource species and overgrowers. In 1978 a decline in the population of ***Mytilus galloprovincialis*** was found although the harvesting was gradually halted. The main reasons for mass mortalities appear to have been the eutrophication and destruction of natural mussel fields by trawling and predatory pressure from *Rapana venosa*. A decrease in predatory pressure in deeper waters and stopping of trawling has resulted in a progressive restoration of mussel resources. In 1990s, the commercial farming of *M. galloprovincialis* on artificial substrata was mostly near the town of Sozopol, where the harvest had reached 150 tons per year (Konsulov & Konsulova, 1993, 1998; Konsulov, 1998). In 2009, the harvest reached 812 t. Today the number of mussel farms is 17; the farm near Kavarna alone has the capacity of 2000 t per year. Industrial catch of ***Rapana venosa*** in Bulgaria began in 1991 when to 500 t of meat were exported. In the following years the catch increased and during 1992-1994 period was about 27000 t (weight with shells). The maximum was reached in 2004 (1195 t meat of Rapa), then a decrement of catches was observed (Konsulova & Stefanova, 2007). According to Ministry of Agriculture and Food, in 2012 the harvest reached 3100 t, and the export of Rapa meat is 1000-1500 t. There is an interest in the populations of ***Mya arenaria*** and ***Chamelea gallina*** but it is not clear how much their exploitation is realized. The foreign interest in these mussels is great.

Essential roles as overgrowers along the Bulgarian Black Sea coast have *Ficopomaticus enigmaticus*, *Amphibalanus improvisus* and *Mytilus galloprovincialis* (Marinov, 1990). These species cause problems to port facilities, craft and TPP Varna (Dimov et al., 1970). Surveys conducted in the old channel connecting Varna Lake with the sea show that for six months *A. eburneus* and *M. galoprovincialis* give 8205 g/m^2 (Kaneva-Abadjieva & Marinov, 1965, 1977). In spring the biomass reaches 3357.5 g/m^2 and is composed mostly by *A. improvisus* and *M. galoprovincialis*. In summer the total biomass reaches 17504 g/m^2 and is composed mainly by *F. enigmaticus* and *A. improvisus*. For a year, the total overgrowth (and other overgrowers as well) can reach 84 kg/m^2

(Marinov, 1990). The total biomass of the overgrowers in the region of TPP Varna in June reaches 6480 g/m^2; in August the overgrowth is mainly of *F. enigmaticus*. The number of attached specimens of this species reaches 3000000 ind/m^2 for 15 days (Dimov et al., 1970). In 2 months the overgrowth by *F. enigmaticus* exceeds a thickness of 15 cm. In the 90s, the species mass developed in the Varna Bay.

The first reported problems with *Dreissena polymorpha* in the country is related to the glass factory, located by the canal between Beloslavsko Lake and Varna Lake (Russev, 1965). Since 90 years the mussel invades freshwater basins inside the country and now is presented almost in all river systems (Trichkova et al., 2009). There are problems in TPP Maritsa Iztok 2 where losses of several million leva are registered. Temperature conditions in Ovcharitsa dam created by this plant are optimum for the mussel development which reaches from 300000 to 500000 ind/m^2.

Conservation significanse of the fauna. A total of 35 species from the Bulgarian Black Sea invertebrates are included in the Black Sea Red Data Book (1 of Porifera, 1 of Cnidaria, 2 of Annelida, 26 of Arthropoda, 4 of Mollusca and 1 of Chordata); of which 7 are included in the European Red List as well (Table 8). *Pholas dactylus* is included in the international conventions for European and Mediterranean fauna. There are differences in the levels of threat of the species in the separate Black Sea countries (Dumont et al. 1999). Most species (34 species) belong to the categories endangered (EN) and vulnerable (VU). Five species have a Pontian-Caspian distribution, the Caspian relicts also are 5 species and *Apseudopsis ostroumovi* is a Black Sea (Pontian) endemic. Most often the species are widely distributed as *Halichondria panicea* is a Cosmopolitan species. Some taxa, included in the Black Sea Red Data Book, have stable populations along the Bulgarian coast and are not threatened at this stage. Red Data Book of the Republic of Bulgaria includes 8 species invertebrate animals from the Bulgarian Black Sea (*Hirudo verbana*, *Eriphia verrucosa*, *Epallage fatime*, *Lestes viridis*, *Sympetrum depressiusculum*, *S. vulgatum*, *Theodoxus pallasi* and *Hauffenia lucidula*). The species *T. pallasi* – Pontian-Caspian brackish relict species, is accepted as extincted. The species *Carcinus aestuarii* and *Pholas dactylus* which are exceptionally rare recently are not included. Twenty species of freshwater Gastropoda with Eurosiberian, Palaearctic or Holarctic distribution, included in the European Red List and IUCN Red List are known from the coastal brackish basins (Table 8). These include the North American invasive species *Physella acuta* and *Ferrissia fragilis*, which until recently were considered European forms. The snail *Turricaspia lincta*, a Caspian subfossil relict, established only by shells, has a Pontian-Caspian area. A total of 118 Black Sea endemic forms have been found along the Bulgarian coast, of which 12 species are accepted as regional endemics (Table 2). The local endemics are an exception in the marine forms and usually are newly described taxa with unclear distribution. A total of 98 rare species and 41 Caspian relict forms have been established. The number of rare species depends on the level of study of the respective groups. Some relitcts are eurybiontic invasive forms with secondary anthropogenic areas.

In Bulgaria the Kaliakra Reserve and protected area Sand Bank Koketrays are marine protected areas. These include 0.2% of the territorial waters of Bulgaria, 0.1% of the shelf zone to 100 m depth and 0.2% of the protected areas of the country (Todorova et al., 2008a).

References

1. Abbott R., Dance R. 1991. Compendium of Seashells. London, Charles Letts & Co. 411 p.
2. Althaus B. 1957. Neue Sandbodenrotatorien aus dem Schwarzen Meer. – Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg, Mathematisch-naturwissenschaftliche Reihe, **6** (3): 445-458.
3. Andrássy I. 1958. Erd-und Susswassernematoden aus Bulgarien. – Acta zoologica hungarica, **4**: 1-88.
4. Angelov A. 1976. Revision der Fam. Pisididae Gray, 1857 (Bivalvia – Mollusca) in Bulgarien. – Annuaire de l'Université de Sofia "Kliment Ohridski", Faculté de Biologie, **69** (1 – Zoology): 109-119. (In Bulgarian with German summary).
5. Angelov A. 1983. *Ferrissia wautieri* (Mirolli) (Gastropoda, Ancylidae) – a new representative of the Bulgarian freshwater fauna. – Acta zoologica bulgarica, **21**: 95-97. (In Bulgarian with English summary).
6. Angelov A. 2000. Mollusca (Gastropoda et Bivalvia) aquae dulcis. – In: Catalogus faunae bulgaricae. 4. Sofia & Leiden, Pensoft & Backhuys Publishers BV. 57 p.
7. Anistratenko V., Anistratenko O. 2001. Fauna of Ukraine. **29** (1-1). Mollusks. Class Polyplacophora or Chitons, class Gastropoda – Cyclobranchia, Scutibranchia and Pectinibranchia (part). Kiev, Veles. 240 p. (In Russian).
8. Anistratenko V., Stadnichenko A. 1994. Fauna of Ukraine. **29** (4, 2). Mollusks. Littoriniformes, Rissoiformes. Kiev, Naukova dumka. 174 p. (In Russian).
9. Apostolov A. 1967. Zwei neue Harpacticoidenarten

(Crustacea, Copepoda) aus dem Schwarzmeerbecken. – Zoologischer Anzeiger, **179** (3/4): 303-310.

10. Apostolov A. 1968. Neue und bemerkenswerte Harpacticoiden der Ruderfuskrebse (Crustacea, Copepoda) aus dem Küstengrundwasser Bulgariens. – Zoologischer Anzeiger, **180** (5/6): 395-402.
11. Apostolov A. 1969a. *Phyllopodopsyllus ponticus* n. sp., eine neue Art Schwarzmeerharpacticoides. – Fragmenta balcanica Musei Macedonici Scientiarum Naturalium, **6** (23/158): 209-213.
12. Apostolov A. 1969b. Harpacticoiden (Crustacea, Copepoda) von der bulgarischen Küste. – Zoologischer Anzeiger, **183** (3/4): 206-267.
13. Apostolov A. 1969c. Marine Harpacticoiden aus dem Küstensand von Bulgarien. – Acta Musei Macedonici Scientiarum Naturalium (Skopje), **11** (6): 111-127.
14. Apostolov A. 1970. Katalog der Harpacticoidenfauna Bulgariens. – Zoologischer Anzeiger, **184** (5/6): 412-427.
15. Apostolov A. 1971a. Recherches sur la systématique et la distribution de Copepodes harpacticoides de la côte bulgare. – Zoologischer Anzeiger, **186** (5/6): 337-347.
16. Apostolov A. 1971b. Ein Beitrag zur Kenntnis der harpacticoidenfauna Bulgariens. – Zoologischer Anzeiger, **187** (5/6): 345-356.
17. Apostolov A. 1972. Catalogue des Copepodes Harpacticoides marins de la Mer Noire. – Zoologischer Anzeiger, **188** (3/4): 202-254.
18. Apostolov A. 1973a. Sur divers Harpacticoides (Copepodes) de la Mer Noire. – Zoologischer Anzeiger, **190** (1/2): 88-110.
19. Apostolov A. 1973b. Notes sur les Harpacticoides (Crustacea, Copepoda) de la Mer Noire. – Zoologischer Anzeiger, **190** (3/4): 174-189.
20. Apostolov A. 1973c. Apporte vers l'étude d'Harpacticoides pontiques habitant les algues marines. – Zoologischer Anzeiger, **191** (3/3): 263-281.
21. Apostolov A. 1973d. Harpacticoides des eaux saumâtres et des étangs côtières. – Zoologischer Anzeiger, **191** (3/4): 281-294.
22. Apostolov A. 1973e. Le genre *Schizopera* G. O. Sars (Copepoda, Harpacticoida) de la Mer Noire. – Acta Musei Macedonici Scientiarum Naturalium, **13** (5): 81-107.
23. Apostolov A. 1974. Copépodes harpacticoides de la Mer Noire. – Travaux du Museum National d'histoire Naturelle "G. Antipa", **15**: 130-139.
24. Apostolov A. 1975. Les Harpacticoides de la Mer Noire. Description de quelques formes nouvelles. – Vie et Milieu, **25** (1, A): 165-178.
25. Apostolov A. 1976. New species Copepoda (Harpacticoida) from Bulgaria. – Zoologicheskii zhurnal, **55** (3): 453-458. (In Russian with English summary).
26. Apostolov A. 1977. Harpacticoides nouveaux de la Mer Noire et de la faune bulgare. – Acta zoologica bulgarica, **7**: 8-21.
27. Apostolov A. 1978. Le genre *Robertgurneya* Lang, 1948 (Cop. Harpac.) de la Mer Noire. Description du mâle iconnu de l'especè *Robertgurneya oligochaeta* Noodt. – Acta zoologica bulgarica, **11**: 55-59.
28. Apostolov A. 1980a. Deux formes nouvelles de genre *Nitocra* Boeck (Copepoda, Harpacticoida) de la Mer Noire (côte bulgare). – Acta zoologica bulgarica, **15**: 36-42.
29. Apostolov A. 1980b. Description de deux genres nouveaux de la famille Cletodidae Sars (Copepoda, Harpacticoida) de la Mer Noire. – Fragmenta balcanica Musei Macedonici Scientiarum Naturalium, **10** (19): 167-174.
30. Apostolov A. 1982. Genre et sous-genre nouveaux de la famille Diossacidae Sars et Cylindropsyllidae Sars (Cop. Harpact.). – Acta zoologica bulgarica, **19**: 37-43.
31. Apostolov A., T. Marinov. 1988. Fauna bulgarica. **18**. Copepoda, Harpacticoida. Sofia, Bulgarian Academy of Sciences Publishing House. 384 p. (In Bulgarian).
32. Arndt W. 1947. Verzeichnis der bisher von der Schwarzen Meer-Küste Bulgariens und Rumäniens angegebenen Schwämme. – Arbeiten aus der Biologischen Meeresstation in Varna, **13**: 1-29.
33. Băcescu M. 1936. *Hemimysis lamorne* sbsp. *reducta* n. sbsp. et *Hemimysis anomala* dans les eaux roumaines de la Mer Noire. – Annales scientifiques de l'université de Jassy, **23**: 70-93.
34. Băcescu M. 1937. Cateva animale noui pentru fauna marina romaneasca si unele date biologice asupra lor. – Buletinul Societatii Naturalistilor din România, **11**: 8-19.
35. Băcescu M. 1940. Les Mysidacés des eaux roumaines. – Annales scientifiques de l'université de Jassy, **26** (2): 1-352.
36. Băcescu M. 1948. Donneés sur la faune carcinologique de la Mer Noire le long de la côte bulgare. – Arbeiten aus der Biologischen Meeresstation in Varna, **14**: 1-24.
37. Băcescu M. 1951a. Fauna Republicii Populare Romîne. **4** (1). Cumacea, Crustacea. Bucharest, Editura Academiei Republicii Populare Romîne, 94 p. (In Romanian).
38. Băcescu M. 1951b. *Nannastacus euxinicus* n. sp., Cumaceu nou gasit în apele marii negre. – Comunicările Academiei Republicii Populare Române, **1** (7): 585-592. (In Romanian with French summary).
39. Băcescu M. 1953. Contributions à la connaissance des Pycnogonides de la Mer Noire. – Academiei Republicii Populare Romîne, Bul. St. Sec. Biol., **5**: 263-270.
40. Băcescu M. 1967. Fauna Republicii Socialiste Romania. **4** (9). Decapoda, Crustacea. Bucuresti, Editura Academiei Republicii Populare Romîne, 351 p. (In Romanian).
41. Băcescu M., Cărăuşu A. 1947. *Apseudopsis ostroumowi* n. sp. dans la Mer Noire. – Bulletin de la Section Scientifique, Académie Roumaine, **29** (6): 366-383.
42. Băcescu M., Dimitrescu M., Manea V., Por F. and Mayer R. 1957. Les sables à *Corbulomya* (*Aloides*) *maeotica* Mill., base trophique de prèmier ordre pour les poissons de la Mer Noire. – Travaux du Museum National d'histoire Naturelle "G. Antipa", **1**: 305-373.
43. Băcescu M., Müller G. and Gomoiu M.-T. 1971. Cercetări de ecologie bentală în Black Sea. Analiza cantitativă, calitativă şi comparată a faunei bentale pontice. Ecologie marină (Bucureşti), **4**: 1-357.
44. Bănărescu P. 1990. Zoogeography of Fresh Waters. 1. General Distribution and Dispersal of Freshwater Animals. Wiesbaden, Aula-Verlag. 511 p.
45. Beshovski V. 1964a. Diptera aus dem litoralen Gebiet der bulgarischen Schwarzmeerküste. – Bulletin de l'Institut de pisciculture et de pêcherie (Varna), **4**: 91-98. (In Bulgarian with German summary).
46. Beshovski V. 1964b. Beitrag zum Studium der halobionten und halophilen Diptera Brachycera vom Bulgarischen Küstenbereich des Schwarzen Meeres. – Zoologischer Anzeiger, **172** (4): 261-264.

47. Beshovski V. 1965. The Insects of the Bulgarian Black Sea Coast. Varna, Darzhavno izdatelstvo. 96 p. (In Bulgarian).
48. Beshovski V. 1966a. Several families of Diptera unknown to Bulgarian fauna: Dryomyzidae, Chamaemyiidae, Trichoscelidae, Astiidae, Canaceidae and Milichidae. – Bulletin de l'Institut de zoologie et musée, **21**: 11-13. (In Bulgarian with English summary).
49. Beschovski V. 1966b. Unbekannte Ephydridae (Dipt.) in der Fauna Bulgariens. – Zoologischer Anzeiger, **176**: 270-276.
50. Beshovski V. 1972a. Ecologic investigations on the representatives of Diptera-Brachycera from the salt biotops along the Bulgarian Seaside. I. Dipteral fauna from the cliffs. – Bulletin de l'Institut de zoologie et musée, **35**: 5-21. (In Bulgarian with English summary).
51. Beshovski V. 1972b. The sea-weeds cast ashore around the city of Varna (Bulgaria) and their fauna. – Bulletin de l'Institut de zoologie et musée, **35**: 31-40. (In Bulgarian with English summary).
52. Beshovski V. 1973a. Ecologic investigations on the representatives of Diptera-Brachycera from the salt biotops along the Bulgarian Black Sea coast. II. The dipteral fauna from the sea-weeds cas. – Bulletin de l'Institut de zoologie et musée, **38**: 5-20. (In Bulgarian with English summary).
53. Beshovski V. 1973b. Ökologische Untersuchungen über Diptera, Brachycera Vertreter aus den salzigen Biotopen des bulgarischen Schwarzmeerstrands. III. Die Diptera-Fauna des von Wellen überfluteten sandigen Strandes. – Bulletin de l'Institut de zoologie et musée, **38**: 195-230. (In Bulgarian with German summary).
54. Beshovski V. 1975a. The Black Sea coast inundated by waves and its Dipterous fauna (Diptera-Brachycera). – Hydrobiology, **2**: 3-18. (In Bulgarian with English summary).
55. Beschovski V. 1975b. Ökologische Untersuchungen über Vertreter von Diptera Brachycera von den Salzbiotopen der bulgarischen Schwarzmeerküste. – Ecology, **1**: 64-74. (In Bulgarian with German summary).
56. Beschovski V. 1976. Diptera-Brachycera in the dunes along the Bulgarian Black Sea coast. – In: Terrestrial fauna of Bulgaria. Materials. 35-59. (In Bulgarian with English summary).
57. Beshovski V. 1978. Invertebrata. – In: Valkanov A., Danov Ch., Vladev P. (eds.): The Black Sea. Varna, Georgi Bakalov, 218-230. (In Bulgarian with English summary).
58. Beshovski V. 1993. Taxonomic and systematic notes on the genera *Tethina* Haliday, 1838, and *Rhicnoessa* Loew, 1862 (Insecta: Diptera: Tethinidae). – Reichenbachia, 30 (16): 103-107.
59. Beshovski V. 1994a. Fauna bulgarica. **23**. Insecta, Odonata. Sofia, Bulgarian Academy of Sciences Publishing House. 373 p. (In Bulgarian).
60. Beshovski V. 1994b. Contribution to the study of the West Palaearctic Tethinidae (Diptera). – Acta zoologica bulgarica, **47**: 16-29.
61. Beshovski V. 1996. Qualitative composition and distribution of the Ephydridae species (Diptera) on the moist zones of the Shablenska like system. – Acta entomologica bulgarica, **1**: 16-20. (In Bulgarian with English summary).
62. Beshovski V. 2009. Fauna bulgarica. **28**. Insecta: Diptera: Ephydridae, Tethinidae, Canacidae. Sofia, Editio Academica "Professor Marin Drinov". 423 p. (In Bulgarian).
63. Beschovski V., Zatwarnicki T. 2002. Faunstic Review of the Subfamily Gymnomyzinae (Insecta: Diptera: Ephydridae) in Bulgaria with Some Data from Other European Countries. – Acta zoologica bulgarica **53** (3): 3-18.
64. Biserkov V., Golemanski V. (eds.). 2011. Red Data Book of the Republic of Bulgaria. Digital edition. Sofia, Bulgarian Academy of Sciences & Ministry of Environment and Water.
65. Bogdanova D., Konsulov A. 1993. On the distribution of the new Ctenophora species *Mnemia maccradyi* in the Black Sea along the Bulgarian coastline in the summer of 1990. – In: Comptes rendus de l'Academie bulgare des Sciences, **46** (3): 71-74.
66. Borcea I. 1926. Note sur les moules et sur les faciès ou biocénoses à moules de la région littorale roumaine de la Mer Noire. – Annales scientifiques de l'Université de Jassy, **14**: 129-139.
67. Borcea I. 1931. Nouvelles contributions à l'étude dela faune bentique dans la Mer Noire près du littoral roumain. – Annales scientifiques de l'Université de Jassy, **16**: 655-750.
68. Borcea I. 1937. Les résultats de l'expédition de recherches dans la Mer Noire du 28 août – l septembre 1935. – Annales scientifiques de l'Université de Jassy, **23**: 1-26.
69. Brandis D., Storch V. and Türkay M. 2000. Taxonomy and zoogeography of the freshwater crabs of Europe, North Africa, and the Middle East. – Senkerbergiana biologica, **80** (1-2): 5-56.
70. Bruyne R. 2003. The complete encyclopedia of shells. Lisse, Rebo. 336 p.
71. Bulgurkov K. 1938a. Study of Rhizocephala and Bopyridae from the Bulgarian Black Sea Coast. – Arbeiten aus der Biologischen Meeresstation in Varna, **7**: 69-81. (In Bulgarian with English summary).
72. Bulgurkov K. 1938b. Some freshwater and marine Decapoda drom the Varna and Sozopol. – Arbeiten aus der Biologischen Meeresstation in Varna, **7**: 83-116. (In Bulgarian with English summary).
73. Bulgurkov K. 1939. On certain more important fresh- and saltwater Crustacea – Decapoda from Bulgaria. – Travaux de la société bulgare des sciences naturelles, **18**: 103-160. (In Bulgarian with English summary).
74. Bulgurkov K. 1961. Systematik, Biologie und zoogeographische Verbreitung der Süsswasserkrebse der Familien Astacidae und Potamonidae in Bulgarien. – Bulletin de l'Institut de zoologie et musée, **10**: 165-192. (In Bulgarian with German summary).
75. Bulgurkov K. 1963. Faunistic findings of Crustacea and Mollusca along the western coast of the Black Sea. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **3**: 265-267. (In Bulgarian with English summary).
76. Bulgurkov K. 1968. *Callinectes sapidus* Rathbun in Black Sea. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **9**: 97-99. (In Bulgarian with German summary).
77. Bulgurkov K. 1970. On the reproduction and fertility of certain Decapoda (Crustacea) along the Bulgarian coast of the Black Sea. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **10**: 65-74. (In Bulgarian with English summary).
78. Bulgurkov K. 1973. Finding of *Alpheus dentipes* Guerin (Crustacea, Decapoda) along the Bulgarian coast of the Black Sea. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **12**: 103-105. (In Bulgarian with English summary).
79. Buresch I. 1940. Das tropische Reisen-Wasserinsekt

Belostoma niloticum Stal. (*Lethoceros cordophanus* Meyr), gefunden in Bulgarien. – Mitteilungen der Bulgarischen Entomologischen Gesellschaft in Sofia, 11: 138-160. (In Bulgarian with German summary).

80. Caraion F. 1960. *Loxoconcha bulgarica* n. sp. a new Ostracod collected in the bulgarien waters of the Black Sea (Sozopol). – Revu de Biol., **5** (3): 21.
81. Căr ăuşu S., Căr ăuşu A. 1942. Amphipodes provenant des dragages effectués dans les eaux roumaines de la Mer Noire (28 août – 1 sept. 1935). – Annales scientifiques de l'Université de Jassy, **28**: 1-18.
82. Căr ăuşu S. 1943. Amphipodes de Roumanie. I. Gamaridés de type caspien. Bucuresti, Instit. de cercet. piscic. al României, 293 p.
83. Căr ăuşu S., Dobreanu E. and Manolache C. 1955. Amphipoda, forme salmastre si di apa dulce. – In: Fauna Republicii Populare Romîne. Crustacea. 4 (4). Bucharest, Editura Academiei Republicii Populare Romîne. 409 p. (In Romanian).
84. Caspers H. 1951a. Quantitative Untersuchungen über die Bodentierwelt des Schwarzen Meeres im bulgarischen Küstenbereich. – Archiv für Hydrobiologie, **45** (1-2): 1-192.
85. Caspers H. 1951b. Biozönotische Untersuchungen über die Strandarthropoden im bulgarischen Küstenbereich des Schwarzen Meeres. – Hydrobiologia, den Haag, **3** (2): 131-193.
86. Caspers H. 1952. Untersuchungen über die Tierwelt von Meeressalinen an der bulgarischen Küste des Schwarzen Meeres. – Zoologischer Anzeiger, **148** (5/8): 243-259.
87. Černosvitov L. 1935. Über einige Oligochaeten aus dem See- und Brackwasser Bulgariens. – Mitteilungen aus den Königl. Naturwissenschaftlichen Instituten in Sofia, **8**: 186-189.
88. Černosvitov L. 1937. Die Oligochaetenfauna Bulgariens. – Mitteilungen aus den Königl. Naturwissenschaftlichen Instituten in Sofia, **10**: 69-92.
89. Chichkoff, G. 1907. Contribution à l'étude de la faune de la Mer Noire. Halacaridae des côtes bulgares. – Archives de zoologie expérimentale et générale, 4-e sér., **7** (6): 247-268.
90. Chichkoff, G. 1908. Materials to the study of the Fauna of Bulgaria. I. Free-living Copepoda. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **3-4**: 300-350. (In Bulgarian with English summary).
91. Chichkoff, G. 1912. Contribution à l'étude de la faune de la Mer Noire. Animaux récoltés sur les côtes bulgares. – Archives de zoologie expérimentale et générale, 5e sér., **10** (2): 29-39.
92. Chichkoff, G. 1924. Sur quelques espèces de Triclades d'eau douce de la Bulgarie. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **20** (2): 113-120. (In Bulgarian with French summary).
93. Cihodaru M. 1937. Notes sur quelques Isopodes du littoral roumain de la Mer Noire. – Annales scientifiques de l'Université de Jassy, **23**: 256-260.
94. Codreanu M., Codreanu R. 1956. Sur l'*Anisarthrus pelseneeri*, Epicaride parasite abdominal de la crevette *Athanas nitescens*; sa presence dans la Mer Noire et la dispersion du genre *Anisarthrus*. – Bulletin biologique de la France et de la Belgique, **90** (2): 111-121.
95. Cvetkov L. 1953. New inhabitants of the Black Sea. – Priroda, **4**: 66-68. (In Bulgarian).
96. Cvetkov L. 1955a. Die Chironomidenfauna der Bulgarischen Schwarzmeerseen. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **4-5**: 215-249. (In Bulgarian with German summary).
97. Cvetkov L. 1955b. Untersuchungen über das Futter der Fische im Beloslavsko-See. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **4-5**: 329-352. (In Bulgarian with German summary).
98. Cvetkov (Zvetkov) L. 1957. Zoobenthos des Beloslav-Sees. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **6**: 381-439. (In Bulgarian with German summary).
99. Cvetkov (Tsvetkov) L. 1958. Investigations into the microbenthos of the Bulgarian Black Sea lakes. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **7**: 219-250. (In Bulgarian with English summary).
100. Cvetkov L. 1960. *Branchinella spinosa* (M. Edwards) in Bulgaria. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **9**: 397-398. (In Bulgarian with German summary).
101. Cvetkov L., Gruncharova T. 1976. Fouling in the liman of the Ropotamo River. I. Conditions for the development of the fouling biocenosis. – Hydrobiology, **4**: 3-18. (In Bulgarian with English summary).
102. Cvetkov L., Gruncharova T. 1979. Fouling in the liman of the Ropotamo River. III. Composition and quantitative development of the zoocenosis. – Hydrobiology, **8**: 26-43. (In Bulgarian with English summary).
103. Cvetkov L., Marinov T. 1986. Faunistic enrichment of the Black Sea and changes in its benthic ecosystems. – Hydrobiology (Sofia), **27**: 3-20 (In Russian with English summary).
104. Czapic A. 1952a. Unterzuchungen über die Infusorien und Rotatorien des Küstengrundwassers und des Sandbodens der Stalinbucht. – Arbeiten aus der Biologischen Meeresstation in Varna, **17**: 61-66.
105. Czapic A. 1952b. Die Infusorien und Rotatorien des Stalin-Sees. – Arbeiten aus der Biologischen Meeresstation in Varna, **17**: 67-72.
106. Czapic A. 1952c. Unterzuchungen über die Lithotelmen der bulgarischen schwarz-Meerküste. – Arbeiten aus der Biologischen Meeresstation in Varna, **17**: 73-82.
107. Dimitrov M. 1962. The benthos of the „Studen Kladenets" Dam. – Rep. Exper. Station of Freshwater Pisciculture (Plovdiv), **1**: 81-94. (In Bulgarian with English summary).
108. Dimitrov P., Michova E. and Peichev V. 1998. Palaeooceanological reconstruction in the West Back sea part during the Quaternary. – Institute of Oceanology, **2**: 127-139. (In Bulgarian with English summary).
109. Dimoff I. 1960. Le zooplankton de la Mer Noire devant la cote Bulgare pendant les annes 1954, 1955 et 1956. –Travaux de l'Institut de recherches scientifiques sur la pêche et les industries s'y rattachant (Varna), **2**: 85–147.
110. Dimoff I. 1964. Cladocera et Copepoda d'Eau Douce, Trouvees dans la Mer Noire. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **4**: 31-37. (In Bulgarian with French summary).
111. Dimoff I. 1966. Zooplankton of the western shores of the Black Sea in 1960-1964. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **7**: 45-68.
112. Dimov I., Marinov T., Konsulov A. 1970. Some hydrologi-

cal and hydrobiological particularities of the northwestern section of the Varna Lake and the cooling system of theVarna thermoelectric power station during 1968. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **10**: 27-47. (In Bulgarian with English summary).

113. Drensky P. 1947. Synopsis and distribution of freshwater Mollusca in Bulgaria. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **43** (3): 33-54. (In Bulgarian with English summary).
114. Dumont H., Mamaev V., Zaitsev Y. 1999 (eds.): Black Sea Red Data Book. New York, UNOPS. 413 p.
115. Earle S., Glover L. 2009. Ocean an illustrated atlas. Washington, National Geographic. 352 p.
116. Elder D., Pernetta J. 1991. The Random House atlas of the oceans. IUCN, New York, Random House. 200 p.
117. Evlogiev Y. 2009. Pliocene surface and high Quaternary terraces in the Batova River valley, Northeast Bulgaria. – Review of the Bulgarian Geological Society, **70** (1-3): 91-101. (In Bulgarian with English summary).
118. Georgiev D. 2012. The freshwater snails (Mollusca: Gastropoda) in Bulgaria. Dr. Sci. thesis, Plovdiv, Plovdiv University "P. Hilendarski", Faculty of Biology, 420 p. (In Bulgarian).
119. Georgiev B., Nikolov P. 2010. Invertebrates in the Pomorie Wetland. – In: Collection with reports Pomorie Lake region (Protected Site "Pomorie Lake", Ramsar Site, NATURA 2000 sites "Pomorie" BG 0000620 and "Pomorie Lake" BG 0000152), 72-87. (In Bulgarian).
120. Georgieva D. 1998. The structure of the zooplankton in the Black Sea in front the Bulgarian coast, formeted in the summer 1990. – Proceedings of the Institute of Oceanology (Varna), **2**: 140-145. (In Bulgarian with English summary).
121. Gerlach S. 1951. Freilebende Nematoden aus Varna an der bulgarischen Küste des Schwarzen Meeres. – Archiv für Hydrobiologie, **45**: 193-213.
122. Golemansky V. 2007. Biodiversity and ecology of the Bulgarian Black Sea Invertebrates. – In: Fet V., Popov A. (eds.). Biogeography and ecology of Bulgaria. Dordrecht, Springer, 537-553.
123. Golikov A. 1982. On principles of regionalization and unification of terminology in marine biogeography. – In: Kusakin O. (ed.): Marine Biogeography, Its Subject, Methods, and Principles of Regionalization. Moscow, Nauka, 94-98 (In Russian with English summary).
124. Golikov A., Starobogatov Y. 1966. Ponto–Caspian gastropod molluscs in the Azov–Black Sea basin. – Zoologicheskii zhurnal, **45** (3): 352-362. (In Russian with English summary).
125. Golikov A., Starobogatov Y. 1968. Zoogeographical characteristics of the gastropod mollusks of Black and Azov Seas. – In: Biological Studies of the Black Sea and Its Fishery Resources. Moscow, Nauka, 70-83. (In Russian).
126. Golikov A., Starobogatov Y. 1972. Class Gastropoda. – In: Mordukhay-Boltovskoy F. (ed.): The Keys to the Fauna of Black and Azov Seas. **3**. Kiev, Naukova dumka, 65-166. (In Russian).
127. Gomoiu M., Porumb I. 1969. *Mya arenaria* L. bivalve presently penetrated into the Black Sea. – Revue Roumaine de biologie, Sèrie de zoologie, **14** (3): 199-202.
128. Gomoiu M., Skolka M. 1996. Changements recents dans la biodiversite de la mer Noire dus aux immigrants. GEO-ECO-MARINE, RCGGM, Danube Delta – Black Sea System under Global Changes Impacts, Bucharest – Constanta, 49-65.
129. Gomoiu M.-T., Alexandrov B., Shadrin N., Zaitsev Y. 2002. The Black Sea – a recipient, donor and transit area for alien species. – In: Geppäkaki E., Gellasch S., Olonin S. (eds.): Invasive aquatic species of Europe. Distribution, impacts and management. Dordrecht, Kluwer Academic publishers, 341-350.
130. Grabowski M., Pešić V. 2007. New data on the distribution and checklist of fresh- and brackishwater Gammaridae, Pontogammaridae and Behningiellidae (Amphipoda) in Bulgaria. – Lauterbornia, **59**: 53-62.
131. Grinchuk T., Michailova P. 1979. The karyotypic variation of *Glyptotendipes barbipes* (Staeger) (Diptera, Chironomidae) from various localities. – Tsitologya, **21**: 859-964. (In Russian with English summary).
132. Grossu A. 1962. Fauna Republicii Populare Romîne. **3** (3). Mollusca, Bivalvia. Bucharest, Editura Academiei Republicii Populare Romîne. 426 p. (In Romanian).
133. Grossu A. 1983. Gastropoda Romanie. 4. Ordo Stylommatophora. Bucharest, Litera. 563 p. (in Romanian).
134. Grossu A. 1986. Gastropoda Romanie. 1. Prosobranchia et Opistobranchia. Bucharest, Litera. 524 p. (In Romanian).
135. Grossu A. 1987. Gastropoda Romanie. 2. Pulmonata. Bucharest, Litera. 443 p. (In Romanian).
136. Grossu, A. 1993. The Catalogue of the Molluscs from Romania. – Travaux du Museum National d'histoire Naturelle "G. Antipa", **33**: 291-366.
137. Gruev B. 1995. About the mediterranean faunistic complex in Bulgaria. – Annuaire de l'Université de Sofia "Kliment Ohridski", Faculté de Biologie, **86/87** (1 – Zoology): 75-82.
138. Gruev B. 2000. About the submediterranean zone of the Palaearctic realm and the submediterranean faunistic element in Bulgaria. – Travaux Scientifiques Universite de Plovdiv, Biologie – Animalia, **36** (6): 73-94. (In Bulgarian with English summary).
139. Gruev B., Kusmanov B. 1994. General biogeography. Sofia, Univ. K. Ohridski, 498 p. (In Bulgarian).
140. Gruev B., Kusmanov B. 1999. General biogeography. Plovdiv, Univ. P. Hilendarski, 344 p. (In Bulgarian).
141. Gruncharova T. 1977. Under-water fouling in the liman of Ropotamo River. II. Bryosoan fauna. – Hydrobiology, **6**: 89-100. (In Bulgarian with English summary).
142. Gruncharova T. 1980. *Electra pontica* sp. n. (Bryozoa, Membraniporida) on the Bulgarian Black Sea coasr. – Acta zoologica bulgarica, **14**: 88-91.
143. Guéorguiev V. 1987. Fauna bulgarica. **17**. Coleoptera, Hydrocanthares. Sofia, Bulgarian Academy of Sciences Publishing House. 161 p. (In Bulgarian).
144. Guéorguiev V. 1991. Contribution to the study of family Hydrophilidae (Coleoptera) in Bulgaria. – Acta zoologica bulgarica, **42**: 66-69. (In Bulgarian with English summary).
145. Guryanova Ye. 1964. Zoogeographic regionalization of the benthic fauna of the World Ocean. – In: Physico-geographical Atlas of the World, Moscow, Map 68 B, 291-292. (In Russian).
146. Harin N. 1972. Rotatoria. – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 3. Kiev, Naukova dumka, 183-220. (In Russian).

147. Hayward P., Nelson-Smith T. and Shields Ch. 1996. Sea Shore of Britain and Europe. London, Collins. 352 p.

148. Hesse P. 1916. Mollusken von Varna und Umgebung. – Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft, Frankfurt am Main, **48** (4): 145-157.

149. Hook P. 2008. A concise guide to the seashore. Melbourne, Parragon. 256 p.

150. Hrabě S. 1967. Two new species of the famili Tubificidae from Black Sea with remarks about various species of subfamily Tubificinae. – Spicy Prir. Faculty Brno University, **485**: 311-365.

151. Hristova N. 2012. Hydrology of Bulgaria. Sofia, Tip-Top, 830 p. (In Bulgarian).

152. Hubenov Z. 2005a. *Dreissena* (Bivalvia: Dreissenidae) – systematics, autochthonous and anthropogenic areas. – Acta zoologica bulgarica, **57** (3): 259-268.

153. Hubenov Z. 2005b. Malacofaunistic diversity of Bulgaria. – In: Petrova A. (ed.): Current state of Bulgarian biodiversity – prblems and perspectives. Sofia, Bulgarian Bioplatform, Drakon, 199-246. (In Bulgarian with English summary).

154. Hubenov Z. 2007a. Fauna and zoogeography of marine, freshwater, and terrestrial mollusks (Mollusca) in Bulgaria. – In: Fet V., Popov A. (eds.): Biogeorraphy and ecology of Bulgaria. Springer, Dodrecht, 141-198.

155. Hubenov Z. 2007b. Faunistic review, distribution and zoogeographical characteristic of the bulgarian Black Sea mollusks (Mollusca: Polyplacophora, Gastropoda et Bivalvia). – Annuaire de l'Université de Sofia "Kliment Ohridski", Faculté de Biologie, **96/98** (1 – Zoology): 17-38.

156. Ivanov K., Sotirov A., Rozhdestvensky A. and Vodenicharov D. 1964. The lakes of Bulgaria. – Proceedings of the Institute of Hydrology and Meteorology, **16**: 1-243. (In Bulgarian).

157. Jacubisiak S. 1938. Les Harpacticoides de la Mer Noire (Côtes Roumaines). – Annales scientifiques de l'université de Jassy, **24**: 382-402.

158. Josifov M. 1961. Die halobionten und halophilen Heteropteren an der Schwarzmeerküste. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **10**: 5-37. (In Bulgarian with German summary).

159. Josifov M. 1981. Nasekomite ot razred Heteroptera na Balkanskiya poluostrov. Dr. Sci. thesis, Sofia, Bulgarian Academy of Sciences, 31-288. (In Bulgarian)

160. Kamburska L. 2004. The role of nonindigenous ctenophores *Mnemiopsis leidyi* and *Beroe ovata* for the zooplancton alterations along the Bulgarian Black Sea coast. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 171 p. (In Bulgarian).

161. Kamburska L., Moncheva S. 2003. The least wanted in the Black Sea. International Conference NEAR 2 "The Impact of Global Environmental Problems on Continental & Coastal Marine Waters", 16-18 July, Geneva, Switzerland, Abstract volume, 31-32.

162. Kamburska L., Moncheva S., Konsulov A., Krastev A. and Prodanov K. 2003. The invasion of *Beroe ovata* in the Black Sea a warning signal for ecosystem concern. – Proceedings of the Institute of Oceanology (Varna), **4**: 111-123.

163. Kamburska L., Valcheva V. 2003. On the peculiarities of the zooplankton spatial distribution in Burgas Bay – May, 1996. – Proceedings of the Institute of Oceanology (Varna), **4**, 124-131. (In Bulgarian with English summary).

164. Kaneva-Abadjieva V. 1957. Mollusca and Malacostraca im Varnasee. – Arbeiten aus der Biologischen Meeresstation in Varna, Bulgarien, **19**: 127-154. (In Bulgarian with German summary).

165. Kaneva-Abadjieva V. 1958. A new harmful snail on our coast of Black Sea. – Nature (Sofia), 7(3): 89-91. (In Bulgarian with English summary).

166. Kaneva-Abadjieva V. 1960a. Materials to the study of the mollusc fauna in the Back Sea at the Bulgarian shores. –Travaux de l'Institut de recherches scientifiques sur la pêche et les industries s'y rattachant (Varna), **2**: 149–172. (In Bulgarian with English summary).

167. Kaneva-Abadjieva V. 1960b. Researches on zoobenthos of the Bay of Varna in respect of Mollusca and Malacostraca. – Travaux de l'Institut de recherches scientifiques sur la pêche et les industries s'y rattachant (Varna), **2**: 173-194. (In Bulgarian with English summary).

168. Kaneva-Abadjieva V. 1960c. Higher crustaceans in mussel overgrowths in the gulf of Varna. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **9**: 399-403. (In Bulgarian with English summary).

169. Kaneva-Abadjieva V. 1961. Contribution a l'etude des Cumacees de la Mer Noire devant le littoral Bulgare. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **1**: 221-228. (In Bulgarian with French summary).

170. Kaneva-Abadjieva V. 1962. Répartition des mollusques de la Mer Noire dans les eaux littorales bulgares. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **2**: 67-79. (In Bulgarian with French summary).

171. Kaneva-Abadjieva V. 1964. On the Amphipod fauna on the Black Sea along the Bulgarian coast and in the area near the Bosphorua. – Bulletin de l'Institut de pisciculture et de pêcherie (Varna), **4**: 73-89. (In Bulgarian with English summary).

172. Kaneva-Abadjieva V. 1968a. Distribution des mollusques subfossiles devant le littoral bulgare de la Mer Noire. Report. Comité internationale Mer Méditerranée, **19** (2) : 213-215.

173. Kaneva-Abadjieva V. 1968b. Une nouvelle espece pour la faune de la Mer Noire: *Cheirocratus sundevalli* (Rathke), Amphipoda, Gammaroidea. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **9**: 93-96. (In Bulgarian with French summary).

174. Kaneva-Abadjieva V. 1972. A contribution to the study of the Amphipodus Fauna in the Black-Sea-coast lakes and river mouths. – Bulletin de l'Institut de zoologie et musée, **35**: 165-178. (In Bulgarian with English summary).

175. Kaneva-Abadjieva V. 1974. A new mussel species for our Black Sea Coast. – Nature (Sofia), **23** (2): 64-65. (in Bulgarian).

176. Kaneva-Abadjieva V. 1976. On the alimentary zoobenthos dynamics in Bourgas Lake and Mandra Dam during the 1967–1974 period. – Proceedings Institute of Fisheries (Varna), **14**: 43-56. (In Bulgarian with English summary).

177. Kaneva-Abadjieva V., Marinov T. 1960a. Nourriture de quelques poissons benthophaques. – Travaux de l'Institut de recherches scientifiques sur la pêche et les industries s'y rattachant (Varna), **2**: 41-72. (In Bulgarian with French summary).

178. Kaneva-Abadjieva V., Marinov T. 1960b. Zoobenthos distribution in the Bulgarian Black Sea area. – Arbeiten des

Zentralen Forschungsinstitutes für Fischzucht und Fischerei Varna, **3**: 117-166. (In Bulgarian with English summary).

179. Kaneva-Abadjieva V., Marinov T. 1965. Fouling organisms along the Bulgarian Black Sea Coast. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **6**: 137-145. (In Bulgarian with English summary).
180. Kaneva-Abadjieva V., Marinov T. 1966. Distribution of the zoobenthos in the sand biocoenosis of the Bulgarian Black Sea coast. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **7**: 69-95. (In Bulgarian with English summary).
181. Kaneva-Abadjieva V., Marinov T. 1967. Dynamics of the zoobenthos in the lakes along the Bulgarian Black Sea coast in the 1964-1966 period. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **8**: 177-194. (In Bulgarian with English summary).
182. Kaneva-Abadjieva V., Marinov T. 1977. The zoobenthos in the cystozyr fouling biocenosis. – Hydrobiology, **6**: 76-88. (In Bulgarian with English summary).
183. Kaneva-Abadjieva V., Marinov T. 1984. A new mollusk species for the Black Sea, *Cunearca cornea* (Reeve). – Nature (Sofia), **33**(5): 63-64. (In Bulgarian).
184. Karnoschitzky N. 1949. Review of halobiont and halophl Coleopterae of Bulgarian Black Sea shores . – Arbeiten der Biologischen Meeresstation in Varna, **15**: 1-66. (In Russian with English summary).
185. Klie W. 1937. Ostracoden und Harpacticoiden aus brakkigen Gewässer aus der bulgarischen Küste des Schwarzen Meeres. – Mitteilungen aus den Königl. Naturwissenschaftlichen Instituten in Sofia, **10**: 1-42.
186. Klie W. 1942. Adriatische Ostracoden. – Zoologischer Anzeiger, **138**:
187. Klissurov L. 2008. The Black Sea underwater. Varna, Passat Press. 232 p.
188. Konsuloff S. 1912. Materials for Fauna Study of Bulgaria. Rotatoria. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **7**: 1-72. (In Bulgarian with English summary).
189. Konsuloff S. 1930. Die Hummer (*Hommarus vulgaris* M. Edw.) im Schwarzen Meere. – Zoologischer Anzeiger, **87**: 11-12.
190. Konsulov A. 1973. Seasonal and annual dynamics of the zooplankton of the Bourgas Lake and of the Mandra dam during the 1967-1970 period. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **12**: 67-85. (In Bulgarian with English summary).
191. Konsulov A. 1974. Seasonal and annual dynamics of zooplankton in the Black Sea coast in the 1967-1970 period. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **13**: 64-78. (In Bulgarian with English summary).
192. Konsulov A. 1979a. On zooplankton dynamics in Bourgas Lake. – Institute of Fisheries (Varna), **17**: 24-31. (In Bulgarian with English summary).
193. Konsulov A. 1979b. Dynamics of the zooplankton of the Mandra dam. – Institute of Fisheries (Varna), **17**: 33-45. (In Bulgarian with English summary).
194. Konsulov A. 1986. Seasonal and annual dynamics of zooplankton in the Black Sea along the Bulgarian coast for the 1974-1984 period. – Ocenology, **16**: 23-33.
195. Konsulov A. 1989. One more new-comer. A new species in the Black Sea - Dangerous or harmless for ecology. – Morski svjat, **2**: 8. (In Bulgarian).
196. Konsulov A. 1990. *Leucothea multicornis* Eschckoltz – a new species for the Black Sea. – Oceanology, **19**: 98-99.
197. Konsulov A. 1991. Biology, ekology and significance of zooplankton along the Bulgarian Black Sea coast. Dr. Sci. thesis, Sofia, Bulgarian Academy of Sciences. 300 p. (In Bulgarian).
198. Konsulov A. 1998. Black Sea Biological Diversity (Bulgaria). Black Sea Environmental programme. Series. 5. Istanbul, UN Publications. 131 p.
199. Konsulov A., Kamburska L. 1997. Sensitivity to anthropogenic factors of the plankton fauna adjacent to the Bulgarian coast of the Black Sea. – In: Oszoy E., Mykaleian E. (eds.): NATO ASI Series, Environment, Kluwer Academic Publishers, **2**/27: 95-104.
200. Konsulov A., Kamburska L. 1998. Ekological determination of the new Ctenophora-*Beroe ovata* invasion in the Black Sea. – Institute of Oceanology (Varna), Bulgarian Academy of Sciences, **2**: 195-198.
201. Konsulov A., Konsulova T. 1993. Biodiversity of the Black Sea benthos and plankton. – In: Sakalian M. (ed.): The National Biological Diversity Conservation Strategy. 1. Biodiversity Support Program, Sofia, Pensoft, 473-514. (In Bulgarian).
202. Konsulov A., Konsulova T. 1998. Biological diversity of the Black Sea zoobenthos and zooplankton. – In: Meine C. (ed.): Bulgaria's Biological Diversity: Conservation Status and Needs Assessment. 1/2. Biodiversity Support Program, Washington, Pensoft, 319-346.
203. Konsulova T. 1978. Turbellaria from the Bulgarian Black Sea coast. – Institute of Fisheries (Varna), **16**: 87-102. (In Bulgarian with English summary).
204. Konsulova T., Stefanova K. 2007. Black Sea Species. – In: Evaluation of the alien for the Bulgarian fauna species and measures to reduce their impact on natural ecosystems and native species. National Report, Ministry of Environment and Water of Bulgaria.
205. Kovachev S., Uzunov Y. 1981. The macrozoobenthos of the Durankulak Lake. Structure and dynamics of numbers and biomass. – Hydrobiology, **15**: 74-80. (In Bulgarian with English summary).
206. Kovachev S., Stoichev S., Hainadjieva V. 1999. The zoobenthos of several lakes along the Northern Bulgarian Black Sea coast. – Lauterbornia, **35**: 33-38.
207. Kovachev S., Hainadjieva V., Stoichev S. 2002. Quantitative characteristics of the zoobenthos of several coastal lakes in North-East Bulgaria. – Annuaire de l'Université de Sofia "St. Kliment Ohridski". Faculté de Biologie, **93/94** (1 – Zoology): 19-22.
208. Kovalev A. 2003. Taxonomic composition of zooplankton in the Black Sea. – In: Eremeev V., Gaevskaya A. (eds.): Modern condition of biological diversity in near-shore zone of Crimea (the Black Sea sector). Institute of Biology of the southern Seas, NAS Ukraine, Sevastopol, Ekosi-Gidrophizika, 44-49. (In Russian).
209. Kozuharov D. 2007. Catalogue of the Bulgarian Rotifera fauna. – Lauterbornia, **59**: 95-114.
210. Kozuharov D., Topalova J., Andreev S., Botev I., Stojneva M., Stojchev S. 1999. Hydrobiological investigations of the protected coastal water basins in the South Dobrudza – North East Bulgaria. – In: Reports of the scientific project supported by Le Balkan foundation, 1-35.
211. Kumanski K. 1985. Fauna bulgarica. **15**. Trichoptera, Annulipalpia. Sofia, Bulgarian Academy of Sciences Publishing

House. 244 p. (In Bulgarian).

212. Kutikova L. 1970. The Rotifera of the USSR Fauna (Rotataoria). Leningrag, Nauka. 742 p. (In Russian).
213. Lattin G. de. 1967. Grundriss der Zoogeographie. Hochschullehrbücher für Biologie. Band 12. Jena, VEB Gustav Fischer Verlag. 602 p.
214. Makarov Y. 2004. Fauna Ukraini. **26** (1-2). Desyatinogie rakoobraznie. Kiev, Naukova Dumka. 430 p. (In Russian).
215. Marinov M. 2000. Pocket field guide of the dragonflies of Bulgaria. Sofia, Eventus. 104 p. (In Bulgarian).
216. Marinov M. 2003. Chorology, biotopical and habitatic commitments of the Insects from Odonata in Bulgaria. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 196 p. (In Bulgarian).
217. Marinov M. 2005-2009. Dragonflies of Bulgaria. Bulgarian Foundation Biodiversity. http://www.odonata. biodiversity. bg/index.htm
218. Marinov M., Kovachev A. 2002. Management plan of the protected area Poda. Sofia, Ministry of Environment and Water, Bulgarian-Swiss Biodiversity Conservation Programme, Bulgarian Society for the Protection of Birds. 75 p. and Annexes. (In Bulgarian).
219. Marinov T. 1957a. Beitrag zur kenntnis unserer Schwarzmeer-Polychaetenfauna. – Arbeiten aus der Biologischen Meeresstation in Varna, Bulgarien, **19**: 105-119. (In Bulgarian with German summary).
220. Marinov T. 1957b. Beitrag zur kenntnis unserer Schwarzmeer-Archiannelidenfauna. – Arbeiten aus der Biologischen Meeresstation in Varna, Bulgarien, **19**: 121-126. (In Bulgarian with German summary).
221. Marinov T. 1959a. Beitrag zur Erforschung der Polychätenfauna der Bulgarischen Schwarzmerküste. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **8**: 83-104. (In Bulgarian with German summary).
222. Marinov T. 1959b. Sur la faune de polychètes des amas be moules de la Mer Noire. – Comptes rendus de l'Académie bulgare des Sciences, **12** (5): 443-446.
223. Marinov T. 1959c. Echinoderm animals of the Black Sea. – Priroda, **3**: (In Bulgarian).
224. Marinov T. 1960. On the finding of *Mercierella enigmatica* Fuvel (Polychaeta) along the Bulgarian Black Sea coast. – Bulletin de l'Institut zoologique de l'Academie des sciences de Bulgarie, **9**: 405-409. (In Bulgarian with English summary).
225. Marinov T. 1962. Über die Muschelkrebs Fauna des westlichen Schwarzmeerstrandes. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **2**: 82-108. (In Bulgarian with German summary).
226. Marinov T. 1963a. Über die Polychaeten Faune der Sandzoocenose vor der Bulgarischen Schwarzmeerküste. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **3**: 61-78. (In Bulgarian with German summary).
227. Marinov T. 1963b. *Pontocytheroma arenaria* n. g. n. sp. Eine neue Ostracoden der Sandbiocönosen in dem Schwarzen Meer. – Comptes rendus de l'Académie bulgare des Sciences, **16** (5): 557
228. Marinov T. 1964a. Contribution to Ostracoda fauna of the Black Sea. – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **4**: 39-60. (In Bulgarian with German summary).
229. Marinov T. 1964b. On macrozoobenthic fauna of the Black Sea (Kinorhyncha and Halacaridae). – Bulletin de l'Institut central de recherche scientifique de pisciculture et de pêcherie (Varna), **4**: 61-71. (In Bulgarian with German summary).
230. Marinov T. 1964c. Composition and features of the polychaetous fauna of the Bulgarian Black Sea coast. – Bulletin de l'Institut de zoologie et musée, **17**: 79-107. (In Bulgarian with German summary).
231. Marinov T. 1964d. *Loxoconcha aestuarii* n. sp. Eine neue Ostracodenart aus dem Schwarzen Meer. – Comptes rendus de l'Académie bulgare des Sciences, **16** (7): 757-67.
232. Marinov T. 1964e. Untersuchungen über die Ostracodenfauna des Schwarzen Meeres. – Kieler Meeresforsch, **20** (1): 82-91.
233. Marinov T. 1965. Zwei unbekannte Ostracoda aus dem Schwarzen Meer. – Bulletin de l'Institut de zoologie et musée, **18**: 193-198. (In Bulgarian with German summary).
234. Marinov T. 1966a. Uknown Black Sea Polychaetas of the Bulgarian coast. – Bulletin de l'Institut de zoologie et musée, **21**: 69-75. (In Bulgarian with English summary).
235. Marinov T. 1966b. Polychaete fauna in the brackish basins along the Bulgarian Black Sea coasts (lakes, marshes, estuaries). – Bulletin de l'Institut de zoologie et musée, **21**: 139-152. (In Bulgarian with English summary).
236. Marinov T. 1967a. Species of the genus *Ophelia* Savigny (Opheliidae, Polychaeta) in Black Sea. – Zoologicheskii zhurnal **46** (2), 187–191 (In Russian with English summary).
237. Marinov T. 1967b. Le specie del genera *Leptocythere* (Ostracoda) del littorale Bulgaro del Mar Nero. – Pubblicazioni della Stazione Zoologica di Napoli, **35**: 273-285.
238. Marinov T. 1968. *Petitia amphophthalma* Siewing: une nouvelle Polychaete de la Mer Noire. – Proceedings of the Research Institute of Fisheries and Oceanography (Varna), **9**: 89-92. (In Bulgarian with French summary).
239. Marinov T. 1971a. Polychètes et Archiannelides des eaux souterraines de plages du littoral bulgare de la Mer Noire. – Rapp. Comm. Int. Mer Médit., **20**: 207-209.
240. Marinov T. 1971b. Harpacticoides of the Bulgarian Black Sea coast. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **11**: 43-87. (In Bulgarian with English summary).
241. Marinov T. 1973a. Quelques espèces de la famille Ameridae (Copepoda, Harpacticoida) dans la Mer Noire. – Crustaceana, **24** (2): 231-241.
242. Marinov T. 1973b. Quelques harpacticoides psammophiles inconus pour le bassin de la Mer Noire. – Vie et Mil., **22** (2-A): 309-326.
243. Marinov T. 1974. Supplement to the studi of the Harpacticoid fauna from Bulgarian Black Sea coast. – Proceedings of the Institute of Oceanography and Fisheries (Varna), **13**: 71-92. (In Bulgarian with English summary).
244. Marinov T. 1975. Peculiarities of the Meiobenthos from the Sandy pseudolittoral and the Ground water of a Sandy Beaches. – Institute of Fisheries (Varna), **14**: 103-135. (In Bulgarian with English summary).
245. Marnov T. 1977. Fauna bulgarica. **6**. Polychaeta. Sofia, Bulgarian Academy of Sciences Publishing House. 257 p. (In Bulgarian).
246. Marinov T. 1978. Qualitative composition and quantitative distribution of the meiobenthos of the Bulgarian Black Sea waters. I. – Proceedings of the Institute of Fisheries (Varna), **16**: 35-49. (In Bulgarian with English summary).
247. Marinov T. 1979. Composition, ecology and economic

importance of zoobenthos in the Bulgarian Black Sea shelf. Dr. Sci. thesis, Sofia, Bulgarian Academy of Sciences. 414 p. (In Bulgarian).

248. Marinov T. 1980. Qualitative composition and quantitative distribution of the meiobenthos of the Bulgarian Black Sea waters. II. – Proceedings of the Institute of Fisheries (Varna), **18**: 85-93. (In Bulgarian with English summary).
249. Marinov T. 1990. The Zoobenthos from the Bulgarian Sector of the Black Sea. Sofia, Publishing House of the Bulgarian Academy of Sciences. 195 p. (In Bulgarian with English summary).
250. Marinov T., Apostolov A. 1982. Contribution à l'étude des copepodes harpacticoides de la mer Adriatique (côte Yougoslave). 2. Sur le meiobenthos du Cap Piran. – Acta zoologica bulgarica, **18**: 23-30.
251. Marinov T., Apostolov A. 1983. Zoogeography and ekology of the Black Sea Harpacticoids. – Proceedings of the Institute of Fisheries (Varna), **20**: 135-144. (In Bulgarian with English summary).
252. Marinov T., Golemansky V. 1989. Second suplement to the catalogue of the Bulgarian Black Sea fauna. – Acta zoologica bulgarica, **37**: 3-34. (In Bulgarian with English summary).
253. Marinov T., Stoykov S. 1982. Findings of sand gaper (*Mya arenaria*) in front of the Bulgarian Black Sea coast. – Bulletin of the National Oceanographic Committee, **3**: 9-16. (In Bulgarian with English summary).
254. Marinov T., Stoykov S. 1995. Zoobenthos distribution in Bulgarian continental shelf of the Black Sea. – Proceedings of the Institute of Fisheries (Varna), **23**: 119-137. (In Bulgarian with English summary).
255. Marinov T., Stoykov S., M'Barek M. 1983. The zoobenthos of the sublittoral and muddy bottom of bay of Varna. – Proceedings of the Institute of Fisheries (Varna), **20**: 109-133. (In Bulgarian with English summary).
256. Marinova V., Trayanov T., Michneva V. 2004. Acoustic and video study on diurnal vertical migration of zooplankton in the central part of the Bulgarian Black Sea shelf. – Comptes rendus d l'Académie bulgare des Sciences, **57** (4): 55-58.
257. Michev T. (ed.). 1997. Ecology and conservation of Atanasovsko Lake nature reserve. Collection of final scientific reports of experts, Sofia, Bulgarian-Swiss Biodiversity Conservation Programme. 76 p.
258. Michev T. (ed.). 2003. Management Plan of Atanasovsko Lake. Sofia, Ministry of Environment and Water & Bulgarian-Swiss Biodiversity Conservation Programme. 65 p. and Annexes. (In Bulgarian).
259. Michev T., Stoyneva M. (eds.). 2007. Inventory of Bulgarian wetlands and their biodiversity. Part 1: Non-lotic wetlands. Sofia, Publ. Hous Elsi-M. 364 p. + CD supplement.
260. Mihailova-Neikova M. 1961. Hydrobiological research of the Mandra Lake with regard to its importance as a fishing ground. – Annuaire de l'Université de Sofia, Faculté de Biologie, Géologie et Géographie, **53** (1 – Zoology): 57-123. (In Bulgarian with English summary).
261. Mihailova-Neikova M. 1966. *Schizopera gligici* Petkovski, 1957 (Copepoda, Harpacticoida) of Bulgaria. – Fragmenta balcanica, **5** (19): 129-133.
262. Mihailova-Neikova M. 1968. About the Harpacticoida of Bulgaria. – Annuaire de l'Université de Sofia, Faculté de Biologie, **60** (1 – Zoology): 201-223.
263. Mihailova-Neikova M., Voynova-Stavreva F. 1971. Contribution to the study of Harpacticoida (Crustacea, Copepoda) from the Bulgarian Black Sea coast. – Annuaire de l'Université de Sofia, Faculté de Biologie, **63** (1 – Zoology): 37-43. (In Bulgarian with English summary).
264. Michailova P. 1973. Unterzsuchungen über den Chromosomen Polymorphismus bei *Chironomus salinarius* Kieff., *Chironomus valkanovi* Michailova and *Chironomus anchialicus* Michailova (Diptera, Chironomidae) von der bulgarischen Schwarzmerküste. – Zoologischer Anzeiger, **191** (5/6): 348-365.
265. Michailova P. 1974. Zwei neue Arten der Gattung *Chironomus* (Diptera, Chironomidae) von der bulgarischen Schwarzmeer Küste. – Zoologische Beiträge, **20**: 339-357.
266. Michailova P. 1975. Karyological characteristics of *Cricotopus varians* Staeg., and *Cricotopus vitripennis* Meig. (Diptera, Chironomidae) from Bulgarian Black Sea coast. – Acta zoologica bulgarica, **2**: 25-36. (In Bulgarian with English summary).
267. Michailova P. 1980. A review of the genus *Clunio* Haliday, 1855 (Diptera, Chironomidae). – Zoologischer Anzeiger, **200** (5/6): 417-432.
268. Michailova P. 1982. External morphological and caryological characteristics of *Orthocladius bipunctellus* Zett. (Diptera, Chironomidae). – Zoologischer Anzeiger, **208** (1/2): 82-91.
269. Mihneva V., Stefanova K. 2013. The non-native copepod *Oithona davisae* (Ferrari F. D. and Orsi, 1984) in the Western Black Sea: seasonal and annual abundance variability. – Bioinvasions Records, **2** (2): 119–124.
270. Mischev K., Popov V. 1978. Morphographische Charakteristik des Schwarzmeerbeckens. – In: The Black Sea. Varna, G. Bakalov, 36-46. (In Bulgarian).
271. Moncheva S., Kamburska L. 2002. The control of ballast waters – why a crucial issue to safeguard the Black Sea biodiversity and ecosystem health? MEET/MARIND'2002, Proceedings of First International congress on mechanical and electrical engineering and technology and Fourth International conference on marine industry. **4**: 249-257.
272. Mordukhay-Boltovskoy F. 1960. The Caspian Fauna in the Azov–Black Sea Basin. Moscow & Leningrad, Publishing House of the Academy of Sciences of the USSR. 288 p. (In Russian).
273. Mordukhay-Boltovskoy F. 1972. General characteristic of the fauna of the Black and Azov Seas – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 3. Kiev, Naukova dumka, 316-324. (In Russian).
274. Motaş C., Băcescu M. 1938. Sur quelques Cumacés limicoles et maricoles de Roumanie. Bucuresti, Vol. Jubilee "Grigore Antipa", 369-377.
275. Motaş C., Soarec J. 1940. Sur quelques Halacarides de la Mer Noire. – Annales scientifiques de l'Université de Jassy, II Section, **26** (1): 140-175.
276. Naidenov W. 1966. Katalog der Copepodenfauna Bulgariens. – Bulletin de l'Institut de zoologie et musée, **21**: 109-138.
277. Naidenow W. 1967. Hydrobiologische Untersuchungen der Wasserbecken an der südlichen Schwarzmeerküste und im Strandža-Gebirge. I. Cladocera, Calanoida, Cyclopoida. – Bulletin de l'Institut de zoologie et musée, **24**: 57-95. (In Bulgarian with German summary).
278. Naidenow W. 1981. Struktur und Dynamik des Zooplanktons aus dem See Durankulak. – Hydrobiology, **15**: 62-73. (In Bulgarian with German summary).

279. Naidenow W. 1994. Wandel in der Zusammensetzung der Cladocera- und Copepoda-Fauna des Süsßwassers in Bulgarien im letzten Jahrhundert. – Lauterbornia, **19**: 95-106.

280. Naidenow W. 1998. Struktur und Horizontalverteilung des Zooplanktons in zwei Küstenseen am Schwarzen Meer in Nordostbulgarien (Schabla-See und Eserez-See). – In: Golemansky V., Naidenov W. (eds.): Biodiversity of Schabla Lake System, Sofia, "Prof. Marin Drinov" Academic Publishing House, 51-68.

281. Naumov D. 1968. Coelenterata. – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 1. Kiev, Naukova dumka, 56-81. (In Russian).

282. Necrassov O. 1937. Contribution à l'étude des Gastéropodes du littoral roumain de la Mer Noire. – Annales scientifiques de l'Université de Jassy, **23**: 117-129.

283. Nedelkov N. 1912. Sexthe contribution to the entomlogical fauna of Bulgaria. Revue Academy Sciences de Bulgarie, **2**: 177-218. (In Bulgarian).

284. Nesis K. 1982. Zoogeographical position of the Mediterranean Sea. – In: Kusakin O. (ed.): Marine Biogeography, Its Subject, Methods, and Principles of Regionalization. Moscow, Science, 270-299. (In Russian with English summary).

285. Nevesskaya L. 1965. Poznechetvertichnye dvustvorchatye mollyuski Chernogo morya ih sistematika i ekologiya. Moskva, Nauka. 391 p. (In Russian).

286. Netschaeff A. 1935. The Gebedje Lake as a basin for fishery. – Travaux de la Station Ichthiologique Sozopol, **3**: 6-21. (In Bulgarian).

287. Netschaeff A., Neu W. 1940. *Aurelia aurita* L. und *Pilema* (*Rhizostoma*) *pulmo* Haeck. im Schwarzen Meer und im Bosphorus. – Zoologischer Anzeiger, **129**: 61-63.

288. Nguen Suan Li. 1984. Qualitative composition and quantitative distribution of zoobenthos in the Bourgas Bay. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 177 p. (In Bulgarian).

289. Nikolov G., Atanasov A., Georgiev D., Raichev E. 2010. Analysis of the plankton in the area around the cape Maslen Nos, Bulgaria: Possibilities for cultivation of mediterranean mussels (*Mytilus galloprovincialis*). – Ecologia Balkanika, **2**: 15-18.

290. Nordsieck F. 1968. Die europäischen Meeres-Gehäuseschnecken (Prosobranchia). Stuttgart, G. Fischer. 273 p.

291. Nordsieck F. 1969. Die europäischen Meeresmuscheln (Bivalvia). Stuttgart, G. Fischer. 253 p.

292. Öztürk B., Michneva V., Shigalova T. 1911. First records of *Bolinopsis vitrea* (L. Agassiz, 1860) (Ctenophora: Lobata) in the Black Sea. – Aquatic Invasions, **6** (3): 355-360.

293. Pandourski I. 2001. Recherches hydrobiologiques des zones humides de la côte bulgare de la Mer Noire. I. Le lac de Vaja. – Rivista di Idrobiologia, **40** (2/3): 321-334.

294. Pandourski I., Stoichev S. 1999. Sur la faune de l'eau interstitielle littorale de la bande sableuse entre le système lacustre de Chabla-Ezeretz et la Mer Noire. – Historia naturalis bulgarica, **10** : 125-131.

295. Paspalev G. 1933a. Hydrobiologische Untersuchungen über den Golf von Varna. – Arbeiten aus der Biologischen Meeresstation in Varna, **2**: 1-18.

296. Paspalev G. 1933b. Das Vorkommen von *Hommarus vulgaris* M. Edw. im Schwarzen Meer. – Arbeiten aus der Biologischen Meeresstation in Varna, **2**: 29-32.

297. Paspalev G. 1934. Über das vorkomen von *Thaumantias maeotica* Ostr. in Golf von Varna. – Intern. Revue Hydrobiol. Hydrogr., **31**: 373-280.

298. Paspalev G. 1935. Hydrobiologische Untersuchungen über den Golf von Varna. II. Schiffsbodenbewachsung. – Arbeiten aus der Biologischen Meeresstation in Varna, **4**: 1-10.

299. Paspaleff G. 1936. *Thaumantias maeotica* Ostr. = *Pontia ostroumowi* gen. et sp. nov. (Ammen- und Medusengeneration, Züchtung). – Zoologischer Anzeiger, **115**: 311-316.

300. Paspaleff G. 1937. *Odessia maeotica* n. sp. (Namenberichtigung). – Zoologischer Anzeiger, **118**: 112.

301. Paspalev G. 1938. Über die Entwicklung von *Rhizostoma pulmo* Agass. – Arbeiten aus der Biologischen Meeresstation in Varna, **7**: 1-25.

302. Paspalev G. 1942. Beitrag zur Erforschung des Varna-Golfs und des Varna-Sees. – Arbeiten aus der Biologischen Meeresstation in Varna, **10**: 11-14.

303. Pechlivanov L. 2010. Biological diversity of the Pomorie Lake: Zooplankton. – In: Collection with reports Pomorie Lake region (Protected Site "Pomorie Lake", Ramsar Site, NATURA 2000 sites "Pomorie" BG 0000620 and "Pomorie Lake" BG 0000152), 88-94. (In Bulgarian).

304. Pesta O. 1926. Carcinologische Mitteilungen. – Achiv für Hydrobiologie, **16**: 3.

305. Petrbok J. 1947. The freshwater molluscs of the lakes of Varna and of Gebedže. – Arbeiten aus der Biologischen Meeresstation in Varna, **13**: 71-75 (In Bulgarian).

306. Petrova A. 1972a. Sur la présence d'*Halacarellus suterraneus* Schulz, 1933 et *Halacarellus phreaticus* n. sp. (Halacaridae, Acari) en Bulgarie. – Acarologia, **13** (2): 367-373.

307. Petrova A. 1972b. Sur quelques Halacariens trouvés dans le littoral de la Mer Noire. – Acarologia, **14** (4): 581-590.

308. Petrova A. 1976. Une nouvelle espèce d'*Agauopsis* (Prostigmata, Halacaridae) du littoral de la mer Noire. – Hydrobiology (Sofia), **4**: 67-70.

309. Petrova A. 1978. *Pontarachna walkanovi* sp. n. (Acari, Pontarachnidae) du littoral de la mer Noire. – Acta zoologica bulgarica, **10**: 60-63.

310. Petrova E, Stoykov S. 2002. The zoobenthos from the coastal lakes on the northern Bulgarian Black Sea coast during 2000-2001 years. In: Limnological Reports, 34th Conference of the International Association for Danube Research, Tulcea, Romania, August 2002, **34**: 337-343.

311. Revkov N. 2003. Taxonomical composition of the bottom fauna at the Black Sea Crimean coast. Zoobenthos regional peculiarities. Zoobenthos vertical distribution. – In: Eremeev V., Gaevskaya A. (eds.): Modern condition of biological diversity in near-shore zone of Crimea (the Black Sea sector). Institute of Biology of the southern Seas, NAS Ukraine, Sevastopol, Ekosi-Gidrophizika, 209-222. (In Russian with English summary).

312. Revkov N., Abaza V., Dumitrache C., Todorova V., Konsulova T., Mickashavidze E., Vershanidze M., Sezgin M., Ozturk B., Chikina M., Kucheruk N. 2008. The state of zoobenthos. – In: Oguz T. (ed.): BSC, 2008. State of the Environment of the Black Sea (2001-2006/7). Istanbul, Publications of the Commission on the Protection of the Black Sea Against Pollution (BSC) 2008-3, 273-320.

313. Riedl R. 1983. Fauna und Flora des Mittelmeeres. Hamburg, P. Parey. 836 p.

314. Rudescu L. 1960. Rotatoria. – In: Fauna Republicii Populare Romîne. 2 (2). Bucharest, Editura Academiei Republicii Populare Romîne. 1192 p. (In Romanian).

315. Rudescu L. 1968. Gastrotricha – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 1. Kiev, Naukova dumka, 220-236. (In Russian).

316. Rudescu L. 1972. Tardigrada. – In: Mordukhay-BoltovskoyF. (ed.): The Key for the Fauna of the Black and Azov Seas. 3. Kiev, Naukova dumka, 51-59. (In Russian).

317. Russev B. 1957. Qualitative und quantitative Untersuchungen des Zooplanktons im Varna-See. – Arbeiten des Zentralen Forschungsinstitutes für Fischzucht und Fischerei (Varna), **1**: 127-156. (In Bulgarian with German summary).

318. Russev B. 1965. Midata *Dreissena polymorpha* – golyam vreditel po vodoprovodite i hidrotehnicheskite saorazheniya. – Priroda, **3**: 85-87. (In Bulgarian).

319. Russev B., Dimoff I. 1957. Qualitative und quantitative Untersuchungen des Zooplanktons im Varna-Bucht. – Travaux de l'Institut de recherches scientifiques sur la pêche et les industries s'y rattachant Varna, **1**: 78-109. (In Bulgarian with German summary).

320. Russev B., Marinov T. 1964. Über die Polychäten- und Hirudinenfauna im bulgarischen Sektor der Donau. – Bulletin de l'Institut et musée de zoologie, **15**: 191-197. (In Bulgarian with German summary).

321. Schuchert P. 2008. The European athecate hydroids and their medusae (Hydrozoa, Cnidaria): Filifera Part 4. – Revue suisse de Zoologie, **115** (4): 677-757.

322. Sergeeva N., Zaika V. 2013. The Black Sea meiobenthos in permanently hypoxis habitat. – Acta zoologica bulgarica, **65** (2): 139-150.

323. Shadrin N. 2000. The distant invaders into the Black Sea and Sea of Azov: ecological explosion, their cause, prognosis. – IBSS, Ecology of the Sea (Ecologiya Morya), **51**:72-77.

324. Shigalova T., Musaeva E., Arashkevich E., Kamburska L., Stefanova K., Mihneva V., Polishchuk L., Timofte F., Ustun F., Oguz T., Khalvashi M., Turkan A. 2008. The state of zooplankton. – In: Oguz T. (ed.): BSC, 2008. State of the Environment of the Black Sea (2001-2006/7). Istanbul, Publications of the Commission on the Protection of the Black Sea Against Pollution (BSC) 2008-3, 201-246.

325. Shopov V. 1993. Stratigraphy of the Quaternary of Bulgarian Black Sea shelf sediments. – Review of the Bulgarian Geological Society, **54** (1): 83-97. (In Bulgarian with English summary).

326. Shopov V. 1996. Quaternary chroostratigraphy of Bulgaria. – Review of the Bulgarian Geological Society, **57** (3): 37-42. (In Bulgarian with English summary).

327. Shornikov E. 1969. Ostracoda Latreille of the Black Sea. – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 2. Kiev, Naukova dumka, 163-260. (In Russian).

328. Sinegub I. 1994. New findings of the nudibranch mollusc *Doridella obscura* Verrill in the Black Sea. – Hydrobiological Journal, **30** (3): 107-109. (In Russian with English summary).

329. Skarlato O., Starobogatov Y. 1972. Class of Bivalve Mollusks – Bivalvia. – In: Mordukhay-Boltovskoy F. (ed.): The Key for the Fauna of the Black and Azov Seas. 3. Kiev, Naukova dumka, 178-249. (In Russian).

330. Skolka M. 1970. Contributii la studiul bryozoarelor din Romania. – Comunicări de hidrobiologie, **2/3**: 19-26.

331. Stantschew B. 1940. Das Vorkommen *Podocoryne carnea* Sars im Golf von Varna und sein Verhalten ausserhalb des Wassers. – Arbeiten aus der Biologischen Meeresstation in Varna, **9**: 11-18.

332. Starobogatov Y. 1970. Fauna of Mollusks and Zoogeographic Regionalization of the Continental Water Bodies of the World. Leningrad, Science. 372 p. (In Russian).

333. Stechow E. 1934. Vorkommen eines nordlischen Hydroiden, *Corymorpha sarsi* Steenstrup, im Schwarzen Meer. – Zoologischer Anzeiger, **107**: 197-198.

334. Stefanova K. 2001. An analysis of the zooplankton state in the lake of Varna. – Proceedings of the Institute of Oceanology (Varna), **3**: 155-162. (In Bulgarian with English summary).

335. Stefanova K. 2003. Daily dynamics of zooplankton in the Varna Bay (May 2001). – Proceedings of the Institute of Oceanology (Varna), **4**: 133-139.

336. Stock J. 1968. *Vectoriella marinovi*, un Copepod nouveau parasite d'une annèlide polychète pontique. – Crustaceana, supp. 1, 187-192.

337. Stoichev S. 1998. The zoobenthos from the lakes Schabla-Ezerets (northern Black Sea coast of Bulgaria). – In: Golemansky V., Naidenov W. (eds.): Biodiversity of Schabla Lake System, Sofia, "Prof. Marin Drinov" Academic Publishing House, 91-99.

338. Stoykov S. 1974 (1977). Free living Nematodes from the Bulgarian Black Sea Coast. II. – Annuaire de l'Université de Sofia, Faculté de biologie (Livre 1, Zoologie), **68**: 57-62. (In Bulgarian with English summary).

339. Stoykov S. 1975. Of the biology of *Orchestia bottae* (M.-Edw.) (Amphipoda, Gammaridae). – Hyrobiology, **2**: 80-88. (In Bulgarian with English summary).

340. Stoykov S. 1976. *Bathylaimus filipjevi* n. sp. (Nematoda, Tripyloidae). A new species of free-living Nematoda from Bulgarian Black Sea coast waters. – Acta zoologica bulgarica, **4**: 91-93.

341. Stoykov S. 1977. Free-living Nematodes new for our Black Sea fauna. – Proceedings of the Institute of Fisheries (Varna), **15**: 107-113. (In Bulgarian with English summary).

342. Stoykov S. 1978. Qualitative Zusammensetzung und quantitative Verbreitung der freilebenden Meeres-Nematoden der Bulgarischen Schwarzmeerküste. – Proceedings of the Institute of Fisheries (Varna), **16**: 103-115. (In Bulgarian with English summary).

343. Stoykov S. 1979. On the zoobenthos dynamics in Bourgas Lake and Mandra dam in the period 1975-1977. – Proceedings of the Institute of Fisheries (Varna), **17**: 47-53. (In Bulgarian with English summary).

344. Stoykov S. 1980. Free-living Nematoda of the Bulgarian Black Sea coast. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 201 p. (In Bulgarian).

345. Stoykov S. 1983. Preliminary data on age and growth of the Soft Clam, *Mya arenaria* L., of the Bulgarian coast. – Proceedings of the Institute of Fisheries (Varna), **20**: 161-167. (In Bulgarian with English summary).

346. Stoykov S. 1986. Research on the macrobenthos of the Lake Pomorie. – Oceanology, **16**: 35-42. (In Bulgarian with English summary).

347. Stoykov S. 1988. Free-living Nematoda from the Bulgarian Black Sea shelf area. – Oceanology, **17**: 38-43.

348. Stoykov S. 1996. Investigation on macrozoobenthos in the shelf along the Bulgarian Black Sea coast during the period 1995-1996. – Proceedings of the Institute of Fisheries (Varna), **24**: 117-123. (In Bulgarian with English summary).

349. Stoykov S., Uzunova S. 1999. Dynamics of macrozoobenthos from the Bourgas Bay (Bulgarian Black Sea coast)

during the period 1993-1995. – Proceedings of the Institute of Fisheries (Varna), **25**: 153-154.

350. Studencka B., Jasionowski M. 2011. Bivalves from the Middle Miocene reefs of Poland and Ukraine: A new approach to Badenian/Sarmatian boundary in the Paratethys. – Acta geologica polonica, **61** (1): 79-114.
351. Tichiy M. 1911. Zametka o Caprellidae Chernogo morya. – Izvestiya Imperatorskoy akademii nauk, Sankt-Peterburg, 1125-1134. (In Russian).
352. Thiel M. 1935. Zur kenntnis der Hydromedusenfauna des Schwarzen Meeres. – Zoologischer Anzeiger, **111**: 161-174.
353. Thinemann A. 1936. Haffmücken und andere Salzwasserchironomiden. – Kieler Meeresforschungen, **1**: 167-178.
354. Todorova V. 2005. Environmental status of zoobenthos communities of sublittoral sediments of the continental shelf in the northwestern part of the Black Sea and in front of the Bulgarian coast. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 206 p. (In Bulgarian).
355. Todorova V., Micu D., Panayotova M., Konsulova T. 2008a. Marine Protected Areas in Bulgaria – Present and Prospects. Varna, HelixPres. 20 p. (In Bulgarian).
356. Todorova V., Trayanova A., Konsulova T. 2008b. Biological monitoring of coastal marine waters and lakes – benthic invertebrate fauna. Report. Varna, Institute of Oceanology, Bulgarian Academy of Sciences, 46 p. [Online: http://www.bsbd.org/UserFiles/Report_zoobenthos_final%20]
357. Trayanova A. 2003. Ecological status of mscrozoobenthic communities in Beloslav and Varna Lakes during the autumn of 1999. – Proceedings of the Institute of Oceanology (Varna), **4**: 140-148.
358. Trayanova A. 2008. Ecological status of zoobenthos from sediments of Beloslav Lake, Varna Lake and Varna Bay. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences, 200 p. (In Bulgarian).
359. Triantaphyllidis G., Abatzopoulos T., Sorgeloos P. 1998. Review of the biogeography of the genus *Artemia* (Crustacea, Anostraca). – Journal of Biogeography, **25**: 213-226.
360. Trichkova T., Kozuharov D., Hubenov Z., Cheshmedjiev S., Botev I., Zivkov M., Popa L., Popa O. 2009. Current distribution of *Dreissena* species in the inland waters of Bulgaria. International Scientific Publications: Ecology & Safety, **3** (1): 507-516. (ISSN: 1313-2539) http://www.science-journals.eu/ecology/ISP-ES-3-2009.swf
361. Uzunov Y. 1974. Two new species of free-living nematodae from Bulgarian Black Sea littoral. – Comptes rendus de l'Académie bulgare des Sciences, **27** (6): 843-845.
362. Uzunov Y. 1977a. Distribution of interstitial nematodes in the capillary horizon of some Bulgarian Black Sea beach. – Hydrobiology, **15**: 183-191.
363. Uzunov Y. 1977b. New data on interstitial nematodes from Bulgarian Black Sea coast with description of *Camacolaimus pontolittoralis* sp. n. – Acta zoologica bulgarica, **8**: 32-37.
364. Uzunov Y. 1980. Water Oligochets (Oligochaeta Limicola) from some Bulgarian Rivers. Fequency and Domination. – Hydrobiology, **12**: 79-89. (in Bulgarian).
365. Uzunov Y. 2010. Aquatic Oligochets (Oligochaeta Limicola). Annelida: Aphanoneura, Oligochaeta, Branchiobdellea. – In: Catalogus faunae bulgaricae. 7. Sofia, Professor Marin Drinov Academic Publishing House. 120 p.
366. Uzunov Y., Kovachev S., Kumanski K., Ludskanova-Nikolova J. 1998. Aquatic ecosystems of the Aegean and Black Sea basins. – In: Meine C. (ed.): Bulgaria's Biological Diversity: Conservation Status and Needs Assessment. Volumes I and II. Sofia & Moscow, Pensoft, 292-346.
367. Uzunova S. 1995. An overview of Crustacea fauna in the bay of Varna. – Proceedings of the Institute of Fisheries (Varna), **23**: 158-168. (In Bulgarian with English summary).
368. Uzunova S. 1996. Amphipoda in the biocenosis of *Mytilus galloprovincialis* overgrowths in the Bay of Varna. – Proceedings of the Institute of Fisheries (Varna), **24**: 124-131. (In Bulgarian with English summary).
369. Uzunova S. 1999. On the biodiversity of the Ponto-Caspian Amphipoda (Crustacea) from the Bulgarian Black Sea coast. – Proceedings of the Institute of Fisheries (Varna), **25**: 175-186.
370. Uzunova S. 2006. Species composition, distribution and dynamics of the quantitative parameters of Malacostraca (Crustacea) along the Bulgarian coast of the Black Sea. Ph.D. thesis, Sofia, Bulgarian Academy of Sciences. 205 p. (In Bulgarian).
371. Uzunova S. 2009 Revew of the Decapod fauna from the Bulgarian Black Sea. – Proceedings of the Institute of Fishing Resources (Varna), **27**: 27-32.
372. Valkanov A. 1934. Beitrag zur Kenntnis der Hydrofauna Bulgariens. Sofia, Private publication. 32 p. (In Bulgarian).
373. Valkanov A. 1935. Notizen über die Brackwässer Bulgariens. I. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **31** (3): 249-303. (In Bulgarian with German summary).
374. Valkanov A. 1936. Notizen über die Brackwässer Bulgariens. II. Versuch einer hydrographischen und biologischen Erforschung derselben. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **32** (3): 209-341. (In Bulgarian with German summary).
375. Valkanov A. 1937. Die Varnaseen. Beitrag zur Hydrographie und Biologie derselben. – Mitteilungen der Bulgarisches geographischen Gesellschaft, **4**: 118-139. (In Bulgarian with German summary).
376. Valkanov A. 1938a. Übersicht der Hydrozoenfamilie Moerisiidae. – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **34**: 53-78. (In Bulgarian with German summary).
377. Valkanov A. 1938b. Übersicht der europaischen Vertretern der Gattung *Jaera* Leach 1813 (Isopoda gennisima). – Annuaire de l'Université de Sofia. Faculté physico-mathématique, **34**: 1-26. (In Bulgarian with German summary).
378. Valkanov A. 1947. *Protohydra leuckarti* Greeff vom Schwarzen Meer. – Arbeiten aus der Biologischen Meeresstation in Varna, **13**: 31-35. (In Bulgarian with German summary).
379. Valkanov A. 1948a. Die Seeschildkröten des Schwarzen Meeres. – Arbeiten aus der Biologischen Meeresstation in Varna, **14**: 99-102. (In Bulgarian with German summary).
380. Valkanov A. 1948b. *Thalasomyia frauenfeldi* Schiner vom Schwarzen Meer. – Arbeiten aus der Biologischen Meeresstation in Varna, **14**: 103-112. (In Bulgarian with German summary).
381. Valkanov A. 1949a. *Echiniscoides sigismundi* (M. Schulze) vom Schwarzen Meer. – Arbeiten aus der Biologischen Meeresstation in Varna, **15**: 181-186. (In Bulgarian with German summary).
382. Valkanov A. 1949b. Gibt es "koloniebildende" Moerisiiden ? – Arbeiten aus der Biologischen Meeresstation in Varna, **15**: 187-192. (In Bulgarian with German summary).
383. Valkanov A. 1949c. Notizen über *Ostroumovia maeotica*

(Ostr.). – Arbeiten aus der Biologischen Meeresstation in Varna, **15**: 193-200. (In Bulgarian with German summary).

384. Valkanov A. 1951a. Autotropismus bei Tieren. – Arbeiten aus der Biologischen Meeresstation in Varna, **16**: 1-45. (In Bulgarian with German summary).
385. Valkanov A. 1951b. Untersuchungen über *Centropagis pengoi* (Cladocera, Polyphemidae). – Arbeiten aus der Biologischen Meeresstation in Varna, **16**: 65-83. (In Bulgarian with German summary).
386. Valkanov A. 1954a. Betrag zur Kenntnis unserer Schwarzmeerfauna. – Arbeiten aus der Biologischen Meeresstation in Varna, **18**: 49-53. (In Bulgarian with German summary).
387. Valkanov A. 1954b. Zwei neue Polychaeten für das Schwarze Meer. – Arbeiten aus der Biologischen Meeresstation in Varna, **18**: 55-58. (In Bulgarian with German summary).
388. Valkanov A. 1954c. Die Tardigraden des Schwarzenmeeres. – Arbeiten aus der Biologischen Meeresstation in Varna, **18**: 59-61. (In Bulgarian with German summary).
389. Valkanov A. 1957a. Katalog unserer Schwarzmeerfauna. – Arbeiten aus der Biologischen Meeresstation in Varna, **19**: 1-62. (In Bulgarian with German summary).
390. Valkanov A. 1957b. Erster Versuch zur Erforschung der Gastrotrichen des Schwarzen Meeres. – Annuaire de l'Université de Sofia, Faculté de Biologie, Géologie et Géographie, **50** (1 – Biologie): 383-399. (In Bulgarian with German summary).
391. Valkanov A. 1965. *Microhydrula pontica* n. g. sp., Ein neuer solitärer Vertreter des Hydrozoen. – Zoologischer Anzeiger, **174**: 134.
392. Valkanov A., Marinov T. 1964. Nachtrag zum Katalog der Bulgarischen Schwarzmeerfauna. – Bulletin de l'Institut de zoologie et musée, **17**: 51-59. (In Bulgarian with German summary).
393. Valkanov A., Marinov T. 1978. Zoobenthos. – In: Valkanov A., Marinov T., Danov Ch., Vladev P. (eds.): The Black Sea. Varna, G. Bakalov, 181-190. (In Bulgarian with English summary).
394. Valkanov A., Dimov I., Naidenov V. 1978. Zooplankton. – In: Valkanov A., Marinov T., Danov Ch., Vladev P. (eds.): The Black Sea. Varna, G. Bakalov, 159-162. (In Bulgarian with English summary).
395. Valkanov A., Petrova V., Roshdestvenski A., Marinov T., Naidenov V. 1978. Black Sea lakes. – In: Valkanov A., Marinov T., Danov Ch., Vladev P. (eds.): The Black Sea. Varna, G. Bakalov, 262-283. (In Bulgarian with English summary).
396. Varadinova E., Vassilev V., Stoichev S., Uzunov Y. 2010. The macrozoobenthos of the Pomorie Lake. – In: Collection with reports Pomorie Lake region (Protected Site "Pomorie Lake", Ramsar Site, NATURA 2000 sites "Pomorie" BG 0000620 and "Pomorie Lake" BG 0000152), 95-100. (In Bulgarian).
397. Varbanov M. 2002. Lakes and swamps. – In: Geography of Bulgaria. Sofia, ForKom: 237-242. (In Bulgarian)
398. Vassilev V. 1994. Ecological characteristics of the Pomoriisko Lake. Ph.D. Thesis, Sofia, Bulgarian Academy of Sciences. 218 p. (In Bulgarian).
399. Vassilev V., Konsulov A. 1998. Zooplankton in the lake Pomoriysko – composition, dynamics, trophic interactions and secondary assimilation. – Proceedings of the Institute of Oceanology (Varna), **2**, 146-153. (In Bulgarian with English summary).
400. Viets K. 1935. Wassermilben aus Bulgarien. – Zoologischer Anzeiger, **109** (1-2): 33-39.
401. Viets K. 1936. Über eine neue Halacaridae (Acari) aus Bulgarien. – Zoologischer Anzeiger, **115** (11): 199-202.
402. Viets K. 1940. Hidrachnellae, Porohalacaridae und Halacaridae s. str. (Acari) aus Bulgarien. – Zoologischer Anzeiger, **130** (1-2): 36-41.
403. Wilke T. 1995. *Hemilepton nitidum* (Turton, 1822) and *Mysella bidentata* (Montagu, 1803), two bivalve species new for the Bulgarian Black Sea coast. – Proceedings of the Institute of Fisheries – Varna, **23**: 138-147.
404. Wilke T. 1996. Annotated check-list of the marine gastropods of the Bulgarian Black Sea coast. – Proceedings of the Institute of Fisheries (Varna), **24**: 144-166.
405. Wilke T. 1997. Gastropods of the Black Sea. Identification of species new for the Bulgarian Coast. – Mitteilungen aus dem Zoologischen Museum in Berlin, **73** (1): 3-15.
406. Zaitsev Yu., Mamaev V. 1997. Marine biological diversity in the Black Sea. A study of change and decline. GEF, Black Sea environmental programme. Series. 3. Istanbul, UN Publications. 208 p.
407. Zaitzev Yu., Öztürk B. 2001. Exotic species in the Aegean, Marmara, Black, Azov and Caspian Seas, Turkish Marine Foundation, Istanbul. 267 p.
408. Zaitzev Yu., Aleksandrov B., Berlinskii N., Bogatova Yu., Bolshakov V.., Bushuev S., Volya E., Garkavaya G., Gelmboldt M., Zolotarev V., Kopitina N., Kulakova I., Kurilov A., Losovskaya G., Minicheva G., Nesterova D., Polishtuk L., Sinegub I., Terenko L., Shurova N. 2004. Bazovye biologicheskie issledovaniya Odesskogo morskogo porta (VIII-XII.2001): itogovaiy otchet. – Seriya monografiy Odesskogo demonstratsionnogo tsentra programmy GloBallast, Odessa, № 7. 171 p. (In Russian).
409. Zaschev G., Angelov A. 1959. Untersuchungen über den Burgas-See (Waja) in Beziehung zur Verbesserung seiner fischwirtschaftlichen Ausbeutung. – Annuaire de l'Université de Sofia, Faculté de Biologie, Géologie et Géographie, **51** (1 – Biologie): 161-210. (In Bulgarian with German summary).
410. Zernov S. 1913. On the question of life in the Balack sea. – Zapiski Imperatorskoy Akademii Nauk, Sankt-Peterburg, **32** (1): 299 p. (In Russian).
411. Zhadin V. 1952. Mollusks of the Fresh and Brakish Waters of the USSR. Moscow & Leningrad, Academy of Sciences of the USSR. 376 p. (In Russian).
412. Zlateff I. 1936. Über einige Krankheiten unserer Fische. – Arbeiten aus der Biologischen Meeresstation in Varna, **5**: 67-80. (In Bulgarian with German summary).

Received: 19.03.2014

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Видов състав на свободно живеещите многоклетъчни безгръбначни животни (Metazoa: Invertebrata) от българския сектор на Черно море и крайбрежните бракични водоеми

Здравко Хубенов

(Резюме)

От българското Черноморие са известни 19 типа, 39 класа, 123 разреда, 470 семейства и 1537 вида. Те включват 1054 вида (68.6%) морски и морско-бракични форми и 508 вида (33.0%) сладководно-бракични, сладководни и сухоземни форми, свързани с водата. Високо видово богатство (над 100 вида) имат 5 типа (Nematoda, Rotifera, Annelida, Arthropoda и Mollusca). Най-много видове включват Arthropoda (802 вида – 52.2%), Annelida (173 вида – 11.2%) и Mollusca (152 вида – 9.9%). Останалите 14 типа съдържат от 1 до 38 вида. Има няколко добре проучени райони (известни над 200 вида). На първо място са околностите на Варна (601 вида), където изследванията продължават над 100 години. Акваторията на градовете Несебър, Поморие, Бургас и Созопол (от 220 до 274 вида) и районът на нос Калиакра (230 вида) са добре проучени. От крайморските водоеми най-изследвани (известни към 100 вида) са езерата Дуранкулашко, Езерецко-Шабленско, Белославско, Варненско, Поморийско, Атанасовско, Бургаско, Мандренско и лиманът на р. Ропотамо. Вертикалното разпространение е анализирано при 800 вида (75.9%) – морски и морско-бракични форми. Най-много видове са намерени от 0 до 25 m на пясъчно (396 вида) и скално (257 вида) дъно. Представени са групите на стенохипо- (52 вида – 6.5%), стеноепи- (465 вида – 58.1%), мезо- (115 вида – 14.4%) и еврибатите (168 вида – 21.0%). Морските и морско-бракичните форми са разпределени в 162 зоогеографски категории, обединени в 4 основни групи и 16 подгрупи. Основната част от черноморската фауна има атланто-медитерански произход и представлява обеднена атланто-медитеранска фауна (740 вида – 70.2%). Представени са космополитни, атлантоиндийски, атлантопацифични, ендемични и каспийски реликтни форми. От черноморските ендемити (118 вида – 11.2%) преобладават бентосни (115 вида – 97.5%) и морски (114 вида – 96.6%) форми. Бракичните ендемити (11 вида – 9.3%) най-често са каспийски реликти. Основната част от каспийските реликти (41 вида – 3.9%) са бентосни бракични форми (38 вида – 92.7%). Сладководно-бракичните, сладководните и сухоземните форми, свързани с водата, са разпределени в 80 зоогеографски категории, обединени в 3 групи и 5 подгрупи. Типично за крайбрежието е преобладаването на видове, разпространени в Палеарктика и извън нея (296 вида – 58.3%). Представени са видове, разпространени само в Палеарктика, но в повече от една подобласт (79 вида – 15.5%) и видове, разпространени в една палеарктична подобласт (126 вида – 24.8%) – евросибирски (55 вида – 10.8%) и медитерански (71 вида – 13.9%). Направена е кратка характеристика на планктонните и бентосните ценози и са разгледани някои крайморски водоеми. Отделено е внимание на инвазивните имигранти, които са променили черноморските съобщества през последните 60 години. Разгледани са видовете с икономическо и консервационно значение.