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Preliminary data on suprabenthic invertebrates collected during the *RV Polarstern* cruise in the Laptev Sea

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Abstract For the first time the invertebrate fauna of the near-bottom layers of the Laptev Sea (Siberian Arctic) was studied by means of a specially designed device – the benthopelagic sampler that was attached to an Agassiz trawl. Cnidarians, annelids, mollusks and arthropods were identified to species level and comprised 139 species in total. Fifty-one species are registered in the Laptev Sea for the first time and seventeen species are the first records for the Arctic Basin. Species are characterized as pelagic, benthic and suprabenthic (benthopelagic, nektobenthic, epibenthic) species.

Introduction

The marine animals living in the near-bottom layers are associated with benthic and pelagic communities (Wishner 1980). According to their mode of life, these taxa are considered as benthopelagic, nektobenthic or epibenthic (Wishner 1980; Petryashov 1990). Problems in efficiency of sampling the near-bottom fauna have led to the development of special gears (Holme 1964; Wishner 1980; Grice and Hulsemann 1970; Grice 1972; Roe and Darlington 1985; Rudyakov and Zaikin 1990). The ecology and taxonomy of benthopelagic animals have been intensively studied recently (Gowing and Wishner 1992; Heinrich et al. 1993) but data on the Arctic near-bottom fauna are still very rare. During the German-Russian expedition to the Laptev Sea (Fütterer 1994) benthopelagic sampling was carried out on board RV *Polarstern*. Taxonomic examination of samples (except Foraminifera, Actiniaria, Hirudinea, Ostracoda, and partly Copepoda and Pisces) allows to provide an account of the near-bottom fauna of a high-latitude Arctic sea for the first time.

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Materials and methods

The qualitative material was collected by Dr. Boris Sirenko on board RV *Polarstern* in 1993 in the Laptev Sea. Sampling was performed by a sampling system developed and used for the first time during the cruise: this system was named a benthopelagic sampler (BS). The BS was attached to the frame of an Agassiz trawl (Fig. 1). It consists of a rectangular metal frame (25×95 cm) with mounting device and attached sac (1.5 m in length). Its external and internal parts are a net of 3–4 mm and of 0.4-mm mesh size respectively. The metallic frame is attached with bolts and wire to the upper part of the Agassiz trawl. The distal part of the net is attached to the upper net of the Agassiz trawl to prevent the turning inside out of the bag when the trawl is being lowered. The lower part of the BS frame is kept 70 cm above the sea bed to prohibit catching sea bottom material. The small size of the BS frame in comparison with the frame of the Agassiz trawl (1.0×3.0 m) makes it very likely that the BS does not affect the catching ability of the Agassiz trawl. Such construction is convenient because it does not take any additional time at the station to perform suprabenthic tows.

Ten samples were collected by BS in the depth range 51–3042 m (Table 1). The collected animals were carefully washed into cans on the deck of the ship and then preserved in 4% formaldehyde and removed to 70% alcohol in the laboratory. Unfortunately the last sample (stn. 072) was contaminated by benthic animals during washing after the end of sampling. Taxa from this sample were therefore not taken into consideration: Mysidacea, *Pseudomma roseum* Sars 1870; Tanaidacea, *Leptognathia sarsi* Hansen 1913; Cumacea, *Diastylis goodsiri* (Bell 1855); Amphipoda, Gammaridea, *Photis* aff. *reinhardi* Krøyer 1842; Pleustidae gen. sp. juv.; *Stegocephalus inflatus* Krøyer 1842. A complete list of higher taxa collected during the cruise is given in Table 2.

Results

Cnidarians, polychaetes, copepods, mysids and gammarids were the most abundant taxa in the samples.

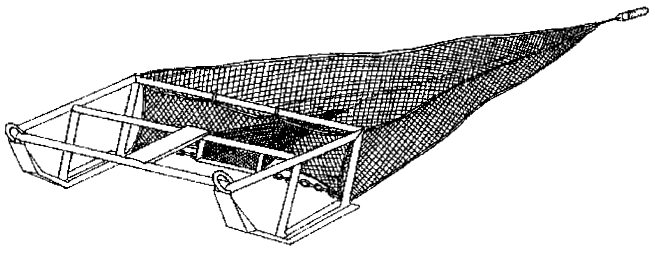

Fig. 1 Benthopelagic sampler attached to the Agassiz trawl

In total, 139 invertebrate species were collected by BS (with species mentioned in the previous section). In Table 3 the data on their occurrence and characterization of their attachment to the sea bottom are presented.

Remarks on some abundant invertebrates

Cnidarians

Until now 13 species of Hydroidea had been known in the Laptev Sea, 2 species of Siphonophora (Stepanjants 1989), and a scyphozoan species had never been sampled (Naumov 1961). Among species registered there earlier are: common shallow-water medusa; *Halitholus yoldia-arcticae* (30–9 m), *Catablema vesicaria* (12–0 m), *Calycopsis birulai* (?), *Euphysa flammea* (51–30 m), *E. tentaculata* (0 m), *Sarsia tubulosa* (72–10 m), *Mitrocomella polydiademata* (10–0 m), and *Obelia longissima* (20–10 m), which are known along with the eurybathic medusa *Plotocnide borealis* (200–0 m), *Aglantha digitale* (1360–0 m), *Aeginopsis laurentii* (280–0 m), and the siphonophorans, *Muggiaea bargmannae* (993–0 m) and *Dimophyes arctica* (1360–0 m). The bathypelagical and mainly bathypelagical species *Ptychogena lactea* (1455–280 m) and *Ptychogastria polaris* (2500–35 m) were also found in the Laptev Sea.

Amongst nine species collected by RV *Polarstern* with the BS (Table 3), medusa of four species were found in the Laptev Sea for the first time. These are: *Staurophora mertensi* (54 m), *Homoeonema platygonon* (191–181 m), *Botrynema brucei* (3042–1992 m), and *B. ellinorae* (3042–3039 m). Moreover, the genus *Botrynema* was found for the first time in Eurasian Arctic seas and *B. ellinorae* for the first time in the fauna of Russia.

The benthopelagic medusa *Ptychogastria polaris* of the evidently cold–water family Ptychogastridae (Beyer 1959) is the single representative of the benthopelagic medusae in the Laptev Sea.

Polychaetes

Sixteen polychaetes from eleven families were found in BS samples from the Laptev Sea. Nine species are considered to have an epibenthic life-style, swimming occasionally. They live either close to the bottom or directly on the surface of the sea bed. Epibenthic *Aglaophamus malmgreni* is known as an active swimmer; *Nereimyra* sp. and *Pseudoscalibregma longisetosa* may also swim. Amongst other polychaetes four species are pelagic (transported passively in the water currents) and three species are infaunal, and probably swim infrequently.

Eight polychaete species were recorded in the Laptev Sea for the first time, three of them probably new to science. They are either pelagic, or able to swim (except, probably, juvenile *Lysippe labiata*). Only two pelagic (*Pelagobia longicirrata* and *Thyphloscolex mulleri*) and one near-bottom species (*Macellicephala violacea*) were recorded in the Laptev Sea earlier (Gorbunov 1946; Uschakov 1972, 1982). Representatives of the pelagic families Iospilidae (*Phalacrophorus*) and Yndolacidae (gen. nov. and sp. nov.) and species of *Bathypolaria* and *Pseudoscalibregma* were found for the first time in the Laptev Sea. However, the finding of a new genus and species of the family Yndolacidae is most interesting. This family was considered as a monotypic taxon earlier. It has been described by Støp-Bowitz (1987) with a single species, *Yndolacia lopadorrhynchoides*, from the Gulf of Guinea.

Copepods

The first list, including 18 calanoid species from the deep waters adjacent to the Laptev Sea (78–80°N, 134–136°E), was published by Sars (1900). Six species from this list were not recorded in our samples: *Heterorhabdus compactus*, *Undinella oblonga*, *Augaptilus glacialis*, *Temorites brevis*, *Acartia longiremis* and *Drepanopus bungei*. Only data on the copepods from the coastal and shallow waters of the Laptev Sea (Linko 1913; Virketis 1932; Pavshtiks 1977, 1990; Markhaseva 1980; Borutsky et al. 1991) have been available since Sars's publication.

Until now 25 copepod species had been found in the Laptev Sea (Sars 1900; Pavshtiks 1987, 1990), significantly differing in species composition from the copepod table given above (Table 3). Calanoids, usually found in the coastal and shallow waters (*Acartia longiremis*, *Eudiaptomus graciloides*, *Eurytemora gracilis*, *Drepanopus bungei*, *Limnocalanus macrurus grimaldii* and *Senecella calanoides*), were absent in the BS samples even at depths of 50–100 m (stns. 043, 067, 068). Among calanoids collected by the BS on board RV *Polarstern*, nine species are common to the Arctic Basin (Pavshtiks 1987). These are *Calanus hyperboreus*, *C. glacialis*, *Microcalanus pygmaeus*, *Aetideopsis rostrata*, *Paraeuchaeta glacialis*, *P. norvegica*, *Scaphocalanus acrocephalus*, *Scolecithricella minor* var. *occidentalis* and *Metridia longa*. Eighteen copepod species were

Table 1 Station list for analysed benthopelagic collections made during RV *Polarstern* cruise in the Laptev Sea in September 1993

Station	Latitude (N)	Longitude (E)	Depth (m)	Date (1993)
Laptev Sea				
043	77°24,5′	133°33,0′	54	06.09
047	77°11,7′	126°19,2′	1006–1016	09.09
048	77°07,8′	126°25,0′	556–530	09.09
049	77°04,7′	126°10,7′	180–360	09.09
050	77°41,4′	125°55,1′	1992–1993	10.09
054	79°11,3′	119°56,4′	3039–3042	13.09
064	77°14,7′	118°30,9′	191–181	18.09
067	78°15,3′	109°14,6′	51	20.09
068	78°28,4′	110°46,9′	101	20.09
Vilkitzky Strait				
072	77°54,5′	105°04,0′	229	22.09

Table 2 Invertebrate taxa present in benthopelagic samples collected on board RV *Polarstern* in September 1993 in the Laptev Sea

Taxa	Stations									
	043	047	048	049	050	054	064	067	068	072
Foraminifera	+			+						
Cnidaria	+	+	+	+	+	+	+	+	+	
Actiniaria										+
Polychaeta		+	+	+	+	+	+	+		+
Hirudinea							+		+	
Pteropoda								+	+	
Bivalvia				+				+		+
Copepoda	+	+	+	+	+	+	+	+	+	+
Ostracoda		+	+	+	+	+	+			+
Mysidacea	+	+	+	+	+				+	+
Cumacea		+	+	+					+	+
Gammaridea	+	+	+	+	+	+	+	+	+	+
Hyperiidea	+	+	+	+	+		+	+		+
Isopoda		+			+		+	+		+
Tanaidacea										+
Euphausiacea		+	+	+	+			+		
Decapoda	+	+		+	+	+		+		
Pantopoda		+								
Chaetognatha	+	+		+	+	+	+	+	+	+
Ophiuroidea				+						+
Holothuroidea					+					+
Pisces					+					+

found in the Laptev Sea for the first time (Table 3) due to the unique sampling technique carried out down to abyssal depths in this difficult research area. The diversity of the collected calanoids arose not only as a result of sampling from the deep waters, but also because of the use of a new sampling system (BS) that is successful in catching benthopelagic calanoids. Among the benthopelagic species, only *Jaschnovia tolli* had been recorded in the Laptev Sea earlier (Linko 1913; Markhaseva 1980; Pavshtiks 1990). The following benthopelagic calanoid taxa were found in the Laptev Sea for the first time: *Bradyidius similis*, *Neoscolecithrix farrani*, *Xanthocalanus alvinae*, *X. profundus*, *X. polaris*, three new *Xanthocalanus* species and Phaennidae gen. nov. and sp. nov (see Table 3).

Mysids

Data on the mysid distribution in the Laptev Sea are sparse. Up to 1993, 12 mysid species of 1 suborder (Mysida) and 2 families (Boreomysidae and Mysidae) had been recorded from the Laptev Sea and adjacent waters (Petryashov 1990). In the samples collected by BS in the Laptev Sea, 12 mysid species were found. Five species are registered here for the first time: *Boreomysis arctica*, *B. nobilis*, *Erythrops glacialis*, *Michthyops arctica* and *Parerythrops spectabilis* (Table 3). Except for *Michthyops arctica*, previously only known by the type locality (the Canadian Arctic Slope) (Petryashov 1993), all these species had been recorded earlier in the Kara Sea and north of Franz Josef Land. Amongst the mysids collected with the BS, only *Mysis oculata* was

Table 3 List of the invertebrate species found in benthopelagic samples collected on board RV *Polarstern* in September 1993 in the Laptev Sea (*bp* benthopelagic; *e* epibenthic; *i* infaunal; *n* nektobenthic; *p* pelagic; * first finding in the Laptev Sea; # first finding in the Arctic Basin. *Numbers* in cells show the number of specimens obtained at each station) Different taxonomic groups were determined as follows: cnidarians, S.D. Stepanjants; annelids, G.N. Buzhinskaya; mollusks, B.I. Sirenko; copepods, E.L. Markhaseva; mysids, isopods, euphausiids, V.V. Petryashov; cumaceans, S.V. Vassilenko; hyperiids, T.N. Semenova; gammarids, A.A. Golikov; decapods, T.V. Menshutkina

Taxon	Stations									First finding	Relations with the sea bed
	043	047	048	049	050	054	064	067	068		
Type Cnidaria											
Class Hydrozoa											
Subclass Hydroidea	3	4	1	2	7	5	1			–	–
1. *Aeginopsis laurentii* Brandt 1835	1										p
2. *Aglantha digitale* (O.F. Muller 1766)		4	1	2	4	2					p
3. *Botrynema brucei* Browne 1908					3	2				*#	p
4. *B. ellinorae* (Hartlaub 1909)						1				*	p
5. *Homoeonema platygonon* Maas 1893							1			*	p
6. ?*Staurophora mertensi* Brandt 1838	1									*	p
7. *Ptychogastria polaris* Allman 1878	1										bp
Subclass Siphonophora	5	8		1			9	1	1	–	–
8. *Dimophyes arctica* (Chun 1897)	5	8		1			9	1	1		p
Class Scyphozoa	1									–	–
9. *Atolla* sp. juv.	1										p
Type Annelida											
Class Polychaeta		14	3	6	2	6	2	1		–	–
10. *Aglaophamus malmgreni* (Theel 1879)		5	1	1			1				e
11. *Ampharete* sp.			1								i
12. *Bathypolaria carinata* Levenstein 1981						3				*	e
13. *Eumida minuta* (Ditlevsen 1917)								1			e
14. Harmothoinae gen. nov and sp. nov.					1					*#	e
15. *Lysippe labiata* Malmgren 1865 juv.				1						*	i
16. *Macellicephala longipalpa* Uschakov 1957		1								*	e
17. Macellicephalinae gen. sp. juv.						1				*	e
18. *Micronephtys minuta* (Theel 1879)				1							e
19. *Nereimyra* sp.		1									e
20. *Pelagobia longicirrata* Greeff 1879			1			1					p
21. *Phalacrophorus pictus borealis* Reibish 1895				1						*	p
22. *Pseudoscalibregma longisetosa* (Theel 1879)		7					1			*	e
23. *Tharyx* sp. juv.				2							i
24. *Typhloscolex* sp.					1						p
25. Yndolacidae gen. nov. and sp. nov.						1				*#	p
Type Mollusca											
Class Pteropoda								1		–	–
26. *Limacina helicina* Phipps 1774								1		*	p
Class Bivalvia				1				4		–	–
27. *Arctinula groenlandica* (Sowerby 1842)				1				4			
Type Arthropoda											
Class Maxillopoda											
Order Calanoida	36	70	85	154	162	46	29	40	13	–	–
28. *Aetideopsis rostrata* Sars 1903					24	5				*	p
29. *Bradyidius similis* Sars 1903	1	4	27	31					1	*	bp
30. *Calanus finmarchicus* (Gunnerus 1765)				15	1						p
31. *C. glacialis* Jaschnov 1955	5	6	11	30	8	7	8	6	2		p
32. *C. hyperboreus* Kroyer 1838	1	11	4	25	12	4	2				p
33. *Chiridius obtusifrons* Sars 1903		7	1	10	32	1	2				p
34. *Euaugaptilus* sp. juv.					1						p
35. *Gaetanus tenuispinus* Sars 1900		5		6	33		5				p
36. *Heterorhabdus norvegicus* (Boeck 1872)			1	10	5	1					p
37. *Jaschnovia tolli* (Linko 1913)	6										bp

38. *Metridia longa* (Lubbock 1854)	1	13	10		14	8	6	12	6		p
39. *Microcalanus pygmaeus* (Sars 1900)						4					p
40. *Neoscolecithrix farrani* Smirnov 1935		2	3						2	*	bp
41. *Paraeuchaeta barbata* (Brady 1883)					1	1				*	p
42. *P. glacialis* (Hansen 1886)	1	3	3	12	6		1			*	p
43. *P. norvegica* (Boeck 1872)		2	2	3	4	1					p
44. *P. polaris* Brodsky 1950		1								*	p
45. *Phaennidae* gen. sp.						1				*#	p
46. *Pseudocalanus ?acuspes* (Giesbrecht 1881)	1			5	2			22	2		p
47. *Pseudocalanus major* Sars 1900	20			2			1				p
48. *P. minutus* (Kroyer 1848)		5			2	1	2				p
49. *Scaphocalanus acrocephalus* Sars 1900		2			2	1					p
50. *S. brevicornis* Sars 1900		1								*	p
51. *Scolecithricella minor var. occidentalis* Brodsky 1950		2		3	3	1					p
52. *Spinocalanus antarcticus* Wolfenden 1906		1								*	p
53. *S. elongatus* Brodsky 1950					1					*	p
54. *S. longicornis* Sars 1900		1			8	1	2				p
55. *S. longispinus* Brodsky 1950					1					*	p
56. *S. polaris* Brodsky 1950						8				*	p
57. *Xanthocalanus alvinae* Grice et Hulsemann 1970		1	1							*#	bp
58. *X. polaris* Brodsky 1950						1				*	bp
59. *X. profundus* Sars 1925		1								*#	p
60. *Xanthocalanus* sp. nov. 1		2	22	2						*#	bp
61. *Xanthocalanus* sp. nov. 2					1					*#	bp
62. *Xanthocalanus* sp. nov. 3					2					*#	bp
Order Siphonostomatoida						2				–	–
63. *Hyalopontius typicus* Sars 1909						2				*#	p
Order Cyclopoida					3	2				–	–
64. *Oithona similis* Claus 1866					3	2					p
Order Harpacticoida	2	1	1			1	1			–	–
65. Harpacticoida gen. sp.	2	1	1			1	1				n
Class Malacostraca											
Order Mysidacea	2	128	53	2	4				2	–	–
66. *Birsteiniamysis inermis* (W.-Suhm 1874)					4						n
67. *Boreomysis arctica* (Kroyer 1861)			28	1						*	p
68. *B. nobilis* Sars 1885		6								*	p
69. *Erythrops abyssorum* Sars 1869				1							n
70. *E. erythrophthalma* (Goes 1864)									2		n
71. *E. glacialis* Sars 1885		45								*	n
72. *Meterythrops robusta* Smith 1879			1								n
73. *Michthyops arctica* Petryashov 1993		7								*	n
74. *M. theeli* (Ohlin 1901)		49									n
75. *Mysis oculata* (Fabricius 1780)	2										n
76. *Parerythrops spectabilis* Sars 1885		21	25							*	n
Order Cumacea[a]		9	1	2					1	–	–
77. *Diastylis oxyrhyncha* Zimmer 1926		9	1								i
78. *Diastylis spinulosa* Heller 1875				1					1		i
79. *Petalosarsia declivis* (Sars 1863)				1						*	i
Order Amphipoda											
Suborder Gammaridea	4	55	12	13	15	8	3	5	4	–	–
80. *Acanthostepheia malmgreni* (Goes 1866)									1		n
81. *Anonyx debruyinii* Hoek 1882									1		n
82. *A. laticoxae* Gurjanova 1962								3		*	n
83. *A. nugax* (Phipps 1774)		12					1	1	2		n
84. *Apherusa fragilis* (Goes 1866)	2										n
85. *Apherusa glacialis* (Hansen 1887)				3	1						n
86. *Arrhis phyllonyx arcticus* Bryazgin 1974		8									e
87. *Boeckosimus affinis* Hansen 1886	1										n
88. *Centromedon* sp.		6								*#	n

Table 3 (continued)

Taxon	Stations									First finding	Relations with the sea bed
	043	047	048	049	050	054	064	067	068		
89. *Cyclocaris* sp.						3				*#	n
90. *Cyphocaris* sp.					1					*#	n
91. *Eusirus aff. holmi* (Hansen 1887)		3	5	2						*	n
92. *Halice abyssi* Boeck 1871					1					*	n
93. *Halice* sp.			2	1						*#	n
94. *Halirages aff. quadridentatus* Sars 1876		1									n
95. *Halirages* sp.					3					*#	n
96. *Haliragoides inermis* (Sars 1882)			1								n
97. *Haploops setosa* Boeck 1871		1									e
98. *Hippomedon holbolli* (Kroyer 1846)							2	1			n
99. *Hippomedon* sp.				5	4					*#	n
100. *Lepidepecreum umbo* (Goes 1866)		4	2								n
101. Lysianassidae gen. sp. juv			1		2						n
102. *Melphidippa* sp. juv.			1								n
103. *Monoculodes aff. coecus* Gurjanova 1946				1							e
104. *Monoculodes* sp. juv.						1					e
105. *Monoculopsis longicornis* (Boeck 1871)				1							e
106. *Oedicerina ingolfi ?* Stephensen 1931					1					*	n
107. *Onisimus* sp. juv.	1										n
108. *Orchomene pectinata* Sars 1882		1									n
109. *Parandania ?* sp.					1	3				*#	n
110. *Paroediceros aff. macrocheir* (G.O. Sars 1879)					1						n
111. *Paroediceros propinquus* (Goes 1866)		2									n
112. *Rhachotropis lomonosovi* Gurjanova 1934		11									n
113. *Scopelocheirus ?* sp.						1				*#	n
114. Stegocephalidae gen. sp.		2								*#	n
115. *Tmetonyx cicada* (O. Fabricius 1780)		4									n
Suborder Hyperiidea	1	2	1	7	3		2	2		–	–
116. Hyperiidae larva	1										p
117. *Lanceola clausi* Bovallius 1885					1						p
118. *Scina borealis* (Sars 1882)					1						p
119. *Themisto abyssorum* Boeck 1870		1		4	1		1 juv.				p
120. *Th. libellula* (Lichtenstein 1882)		1	1	3			1	2			p
Order Isopoda		12			72		2	2		–	–
121. *Eurycope cornuta* Sars 1864		10			2						e
122. *Munnopsis typica* M. Sars 1861							2	2			e
123. *Munnopsurus giganteus* (Sars 1877)		2									e
124. *Saduria megalura* (Sars 1880)					50						e
125. *Saduria sabini* (Kroyer 1849) *f. megaluroides* Gurjanova 1946					20						e
Order Euphausiacea		2	1	33	2			1		–	–
126. *Thysanoessa inermis* (Kroyer 1846)		1	1	20				1			p
127. *Th. longicaudata* (Kroyer 1846)		1		13	2					*	p
Order Decapoda	5	3		2	4	1		1		–	–
128. *Bythocaris payeri* (Heller 1875)		1									n
129. *Eualus gaimardi belcheri* (Bell 1855)	5										n
130. *Hymenodora glacialis* (Buchholz 1874)		1			4	1					p
131. *Lebbeus polaris* (Sabine 1821)				2							n
132. *Pasiphaea tarda* Kroyer 1855		1								*	p
133. *Sabinea septemcarinata* (Sabine 1821)								1			n

[a] According to Lomakina (1958) cumaceans spend most of their life burrowed into the substrate and swim only in the dark mainly during the reproductive and moulting periods

captured at a depth less than 60 m, while four species were found at depths of 1000–3000 m (*Boreomysis nobilis*, *Birsteiniamysis inermis*, *Erythrops glacialis* and *Michthyops arctica*). All other species were collected mostly in the depth range from 100 up to 1000 m. *Boreomysis arctica* and *B. nobilis* are pelagic species while others may be considered nektobenthic taxa. Only *Pseudomma truncatum*, of the deep-water species recorded in the Laptev Sea earlier, was not found in the BS samples. We found 17 mysid species in the Laptev Sea.

Gammarids

Prior to this survey, 181 species of Amphipoda, Gammaridea from 79 genera, 29 families and 16 superfamilies (Gurjanova 1951, 1964; Golikov 1990; Tzvetkova and Golikov 1990) had been known in the Laptev Sea. In the present study of the deep-sea region, 39 species from 31 genera, 9 families and 9 superfamilies were found. Thirteen species and five genera are new for the area of the Laptev Sea and nine species are considered as new to science. To date, 194 species of Amphipoda, Gammaridea are known to occur in the Laptev Sea (84 genera, 29 families and 16 superfamilies). Only three species from the present collection (*Apherusa glacialis*, *Cyclocaris* sp., *Cyphocaris* sp.) were found in plankton (Gurjanova 1951, 1964; Barnard 1959; Dunbar 1942). These active swimmers are considered as nektonic species. The others are also all good swimmers and spend much time in the near-bottom layers or on the bottom surface. We use the terms nektobenthic and epibenthic (= epifaunal) to distinguish between these two groups of suprabenthic (Brunel et al. 1978) species. However, this division is still conditional as few investigations concerning the feeding and behavioural ecology of the deep-water amphipods (Enequist 1950; Sainte-Marie and Brunel 1985) have been performed so far.

In total 139 invertebrate species were found in the BS samples. Amongst them 51 species were recorded in the Laptev Sea for the first time. They include:

HYDROZOA: ? *Staurophora mertensi*, *Botrynema brucei*, *B. ellinorae*, *Homoeonema platygonon*;
POLYCHAETA: *Phalacrophorus pictus borealis*, *Yndolacidae* gen. nov. and sp. nov., *Macellicephala longipalpa*, *Bathypolaria carinata*, *Macellicephalinae* gen. sp. juv., *Harmothoinae* gen. sp., *Pseudoscalibregma longisetosa*, *Lysippe labiata*;
PTEROPODA: *Limacina helicina*;
MAXILLOPODA: (*Calanoida*): *Spinocalanus antarcticus*, *S. elongatus*, *S. longispinus*, *S. polaris*, *Aetideopsis rostrata*, *Bradyidius similis*, *Paraeuchaeta barbata*, *P. glacialis*, *P. polaris*, *Scaphocalanus brevicornis*, *Neoscolecithrix farrani*, *Xanthocalanus profundus*, *X. polaris*, *X. alvinae*, *Xanthocalanus* sp. nov. (three species), *Phaennidae* gen. sp.; (*Siphonostomatoida*): *Hyalopontius typicus*;
MALACOSTRACA: (*Mysidacea*): *Boreomysis arctica*, *B. nobilis*, *Erythrops glacialis*, *Parerythrops spectabilis*, *Michthyops arctica*;
(*Cumacea*): *Petalosarsia declivis*;
(*Gammaridea*): *Anonyx laticoxae*, *Centromedon* sp., *Cyclocaris* sp., *Cyphocaris* sp., *Eusirus* aff. *holmi*, *Halice abyssi*, *Halice* sp., *Halirages* sp., *Hyppomedon* sp., *Oedicerina* aff. *ingolfi*, *? Scopelocheirus* sp., *Stegocephalidae* gen. sp.;
(*Euphausiacea*): *Thysanoessa longicaudata*;
(*Decapoda*): *Pasiphaea tarda*.

One cnidarian, one polychaete, six copepods and nine gammarids are recorded for the first time in the Arctic Ocean (Table 3).

Discussion

The species composition of the invertebrates collected in the Laptev Sea by means of the BS significantly differs from the data on the same groups published earlier. The differences concern a higher number and diversity of species. One reason for this might be that sampling in deep waters (to 3000 m) is logistically difficult and also expensive. Therefore, the near-bottom layers were only poorly studied formerly. The BS does not have a closing device and the catches obtained may include animals caught in the water column. However, this gear appeared adequate for collecting suprabenthic animals. This group includes all bottom-dependent organisms "… which perform with varying regularity, daily or seasonal vertical migrations above the bottom" (Brunel et al. 1978; Sainte-Marie and Brunel 1985). The results of the study of the collected material demonstrate that benthopelagic copepods, epibenthic polychaetes and gammarids, nektobenthic mysids, gammarids and decapods, i.e., the invertebrates rarely or nearly never caught by pelagic as well as benthic equipment, were obtained by means of the BS and hence are considered here as suprabenthic.

The material from the present study is a contribution to the knowledge of the fauna of the Arctic Basin. Further development of the sampling systems for the near-bottom layers and the extension of sampling ranges to abyssal depths will increase the knowledge of the diversity, geographical distribution and ecology of high-latitude inhabitants.

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