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Preliminary survey of benthic invertebrates collected by Polish Antarctic Expeditions in Admiralty Bay (King George Island, South Shetland Islands, Antarctica)*

ABSTRACT:226 taxa (180 identified to species) of benthic invertebrates are recorded from Admiralty Bay on the basis of the material collected by Polish Antarctic Expeditions. Main groups concerned are *Polychaeta, Mollusca, Amphipoda* and *Echinodermata*. For each species the bathymetric range, the frequency, the abundance and the geographical distribution are given.

Key words: Antarctica, South Shetlands, benthos, *Polychaeta, Mollusca, Amphipoda, Echinodermata*.

1. Introduction

The Polish Antarctic Station „Henryk Arctowski" was founded in 1977 on the shore of Admiralty Bay, which is the largest bay of the South Shetlands archipelago. The Station is administered by the Institute of Ecology of the Polish Academy of Sciences and it is evident that biological work predominates in scientific activity at the Station. When starting biological investigations in such a new area it is necessary to gain basic knowledge on the organisms living there, at least in the immediate vicinity of the Station. The recognition of birds and mammals is easy, but the identification of marine invertebrates, because of the high diversity of the Antarctic marine fauna (Koltun 1969, Hedgpeth 1970, 1971, Knox 1970,

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Dell 1972, Arnaud 1974) is a much more difficult task. The benthic fauna of Admiralty Bay has been sampled by successive „Polish Antarctic Expeditions from the very beginnings of the „Arctowski" Station, i.e. from 1977. The major part of this material was gathered by members of the Laboratory of Polar Biology, Dept. of General Zoology, University of Łódź (three junior authors); preserved samples, mostly sorted into major animal groups, are kept in this laboratory. In total this collection contains over 400 benthic samples with hundreds of thousands specimens. The present paper is an introductory survey of the hitherto determined invertebrates giving some basic information on the invertebrate fauna inhabiting Admiralty Bay.

The preliminary quantitative study of the benthic fauna of this area (Jażdżewski et al. 1986), where animal groups without specific determination were treated, revealed that main groups with regard to the abundance are bivalves, polychaetes and amphipods, whereas the main part of the biomass is constituted by ascidians, ophiuroids, sea urchins, polychaetes and bivalves. The maximum density of the benthic fauna observed was as high as over 36000 ind./m^2 and the highest biomass surpassed 2400 g/m^2, the average being about 700 g/m^2 (Jażdżewski et al. 1986). In the present survey, according to the specialization of the authors, main attention is paid to such groups as *Mollusca* (P.M.A.), *Polychaeta* (J.S.), *Amphipoda* (K.J.) and *Echinodermata* (P.P.). Other records are given from the as yet scarce relevant Polish literature (Jażdżewski 1981, Lipiński and Wojciechowski 1981, Urbanek and Zieliński 1982). We have also used information from the unpublished M.Sc. theses of Mrs. T. Orman-Krynicka, A. Ryś-Rodriguez and A. Szymczak. These manuscripts are kept in the Laboratory of Polar Biology, University of Łódź. The authors are greatly indebted to those colleagues who have kindly verified some of our determinations or provided other valuable information: Mrs. F. Arnaud (*Pycnogonida*) and Dr. D. Bellan-Santini (*Amphipoda*), Marseille; Dr. L. B. Holthuis (*Crustacea Decapoda*), Leiden; Prof. G. Cherbonnier (*Echinodermata*), Paris. Thanks are due to our colleagues of the Dept. of General Zoology, University of Łódź: to Dr. W. Kittel for his help in sampling and to Mr. W. Jurasz, M.Sc., Mrs. T. Orman-Krynicka, M.Sc., Mrs. E. Presler, M.Sc. and Mrs. M. Stawiszyńska-Janas, M.Sc., for their hard work in sorting the samples. We are also indebted to Mr. A. Cieślak, Mr. A. Kuncewicz and Mr. E. Dibowski, the skippers of the motor-boat, whose experience was invaluable.

2. Investigated area

Admiralty Bay is a T-shaped, fjord-like embayment of the King George Island, the largest island of the South Shetlands archipelago. The bay has a surface of about 120 km^2 (Rakusa-Suszczewski 1980, Jażdżewski

et al. 1986) and is deep — a great part of its bottom (about one third) is deeper than 200 m, and its maximal depth surpasses 600 m. The deep, median trench of the bay forms a branch of deep waters of the Bransfield Strait. The shores of Admiralty Bay are rocky, with stones, gravel or coarse sands along the beaches. A fair part of the eastern and northern shores of the bay is formed by glaciers.

Hydrological conditions prevailing in Admiralty Bay have been described by Presler (1980), Rakusa-Suszczewski (1980), Pruszak (1980), Samp (1980) and Szafrański and Lipski (1982). Salinity and temperature are rather stable in the whole bay within a narrow range of 32.9 — 34.3‰ (S) and −1.9 — +3.4°C (T). Only in some shallow off-shore sites the salinity may be locally lowered to less than 20‰ and the temperature may raise to above 5°C. Ice phenomena last usually from June to October.

Coarse sediments, prevailing at the shore, can occur down to a depth at about 50 m; as depth increases the coarse sediments became increasingly mixed with mud that covers all deeper parts of the bottom. Brown algae occur locally down to about 90 m, forming sometimes dense meadows on hard bottoms. In the uppermost littoral belt *Monostroma hariotii* and *Adenocystis utricularis* are dominant species; in the lower belt down to some 15 m the most important forms are *Desmarestia menziesi*, *Ascoseira mirabilis and Hildebrandia lecanellieri*, while *Himantothallus grandifolius* and *Cystosphaera jacquinoti* may attain a depth of even 90 m (Zieliński 1981, Furmańczyk and Zieliński 1982).

3. Material and results

The survey (Table I) is based on the study of various portions of the whole collected material. This material consists of 205 samples collected using baited traps, about 150 qualitative benthic samples taken with a hand-net, dredge, bottom trawls, etc. and 55 Van Veen grab subsamples (in general 3 replicate grabs at 18 stations).

Mollusca (except *Cephalopoda*) and *Isopoda Flabellifera* were identified from all our material; *Polychaeta*, only from the quantitative Van Veen samples; *Echinodermata*, from the baited trap samples plus several qualitative ones. Necrophagous lysianassid *Amphipoda* and the large isopod *Glyptonotus antarcticus*, as well as *Bovallia gigantea*, *Eurymera monticulosa* and *Pontogeneiella brevicornis* (*Amphipoda*) were identified and evaluated (bathymetric range, frequency and abundance) on the basis of baited trap samples, whereas the remaining *Amphipoda* were determined from some haphazardly chosen qualitative samples. Therefore information on bathymetric range,

frequency and abundance of listed taxa are relative, since the main surveyed animal groups were elaborated to various degrees. Anyway, we have used the following scale of frequency:

1) for smaller invertebrates:
   o : rare (occurring in less than 10% of samples including the zoological group)
  oo : rather common (in 10—20% of samples)
ooo : common (in more than 20% of samples)
2) for large invertebrates (mainly *Echinodermata, Parborlasia corrugatus,* large necrophagous *Gastropoda* and *Glyptonotus antarcticus*):
   o : rare (less than 5%)
  oo : rather common (5—10%)
ooo : common (in more than 10%).

The abundance was more arbitrarily estimated by each author; however the general trend was to fit the estimation to the following approximate scale:

   x : scarce (less than 2% of the material of the zoological group)
  xx : moderately abundant (2—4% of collected material)
 xxx : abundant (4—8%)
xxxx : mass occurrence (over 8% of the material).

The evaluation of frequency and abundance is based on the whole material (AM), on the traps (BT), on the quantitative samples (QM) or on field experience (FM). When estimations by the accepted scale differ from those derived from field experience, this is indicated either by < (lower than) or >, (higher than). Such a presentation is, of course, imperfect however we think that it is necessary to record the preliminary results of the work, and the present paper may be considered as a progress report.

4. Discussion

From a biogeographic point of view, this fauna can be split in five groups of species:

— 36 are endemic of West Antarctica (Antarctic Peninsula, South Shetlands and South Orkneys);
— 35 are shared only with subantarctic regions;
— 42 are shared only with East Antarctica: they are the pure circumantarctic species;
— 59 are simultaneously circumantarctic and subantarctic;
— 8 show a large distribution in the world ocean.

In other words, subantarctic and high Antarctic affinities are almost

Table I

Benthic invertebrates recorded from the material collected in the Admiralty Bay by Polish Antarctic Expeditions.
Frequency and abundance: the scale used are explained in the text; estimations are based on the whole material (AM), on the traps (BT), on the quantitative samples (QM) or on field experience (FM). The known distribution is summarized as West-Antarctic (W), circumantarctic (C), subantarctic (S), large (L = species known outside of Antarctic and subantarctic regions); species new for South Shetland Islands (N)

Taxa	Depth distribution (m)	Frequency	Abundance	Remarks
1	2	3	4	5
ACTINIARIA				
Isosicyonis alba (Studer, 1879), on *Harpovoluta charcoti*	60—90	000	× × ×	BT; WS
NEMERTINI				
Parborlasia corrugatus (McIntosh, 1887)	15—90	000	× × ×	BT; C
POLYCHAETA				
Antinoella setobarba (Monro, 1930)	44—240	0	×	QM; W
Barrukia cristata (Willey, 1902)	10—265	000	×	QM; CS
Harmothoe kerguelensis (McIntosh, 1885)	265	0	×	QM; WS, N
Harmothoe spinosa Kinberg, 1855	83—106	0	×	QM; CS
Harmothoe sp.	44—170	0	×	QM
Polynoidae gen. sp.	86	0	×	QM
Anaitides patagonica (Kinberg, 1866)	144—170	0	×	QM; WS
Austrophyllum charcoti (Gravier, 1911)	170	0	×	QM; CS
Exogone heterosetosa McIntosh, 1885	10—255	00	×	QM; CS
Neanthes kerguelensis (McIntosh, 1885)	14—170	00	×	QM; WS, N
Nereis eugeniae (Kinberg, 1866)	122	0	×	QM; CS, N
Aglaophamus sp.	10—255	000	×	QM
Sphaerodoridium antarcticum (McIntosh, 1885)	72—255	0	×	QM; C
Sphaerodorum sp.	10—255	00	×	QM
Glycera sp.	240	0	×	QM
Lumbrineris sp.	33—242	000	×	QM
Dorvilleidae gen. sp.	15	0	×	QM

Table I (continued)

1	2	3	4	5
Haploscoloplos kerguelensis (McIntosh, 1885)	10—255	000	× × × ×	QM; CS
Scoloplos marginatus (Ehlers, 1897)	6—27	0	×	QM; CS
Aedicira belgicae (Fauvel, 1936)	34—40	0	×	QM; CS, N
Tharyx cincinnatus (Ehlers, 1908)	10—255	000	× ×	QM; CS, N
Tharyx epitoca Monro, 1930	33—86	0	×	QM; WS, N
Paraonis gracilis (Tauber, 1879)	32—255	000	× × × ×	QM; L, N
Sphiophanes sp.	35	0	×	QM
Brada sp.	15—86	00	×	QM
Flabelligera sp.	255	0	×	QM
Apistobranchus sp.	10—40	00	×	QM
Scalibregma inflatum Rathke, 1843	34—262	0	×	QM; L, N
Ammotrypane sp.	10—126	000	× × ×	QM
Travisia kerguelensis McIntosh, 1885	15—27	0	×	QM; CS
Sternaspis scutata (Renier, 1807)	265	0	×	QM; L
Capitella sp.	27	0	×	QM
Notomastus sp.	15—265	0	×	QM
Lumbriclymenella robusta Ardwidsson, 1911	15—187	000	×	QM; CS
Maldane sarsi antarctica Ardwisson, 1911	68—265	000	× × × ×	QM; W
Nicomache sp. (sensu Monro, 1930)	175	0	×	QM
Praxillella kerguelensis (McIntosh, 1885)	15—144	00	×	QM; CS, N
Rhodine loveni Malmgren, 1865	10—126	000	> × × ×	QM; L, N
Maldanidae gen. sp. 1	35—265	000	×	QM
Maldanidae gen. sp. 2	17—33	0	×	QM
Maldanidae gen. sp. 3	18—33	0	×	QM
Oweniidae gen. sp.	126—265	0	×	QM
Amphicteis gunneri antarctica Hessle, 1917	18—265	00	×	QM; CS
Anobothrus patagonicus (Kinberg, 1867)	17	0	×	QM; C, N
Neosabellides elongatus (Ehlers, 1912)	86—126	0	×	QM; CS
Phyllocomus crocea Grube, 1877	140—265	0	×	QM; CS
Amphitrite kerguelensis McIntosh, 1876	25—265	000	×	QM; CS
Lanicides bilobata (Grube, 1877)	240	0	×	QM; CS

Table I (continued)

1	2	3	4	5
Leaena sp.	106—240	0	×	QM
Pista spinifera (Ehlers, 1908)	265	0	×	QM; C
Amphitritinae gen. sp.	69—170	0	×	QM
Artacama proboscidea Malmgren, 1866	87	0	×	QM; L
Hauchiella tribullata (McIntosh, 1869)	122	0	×	QM; L
Thelepus cincinnatus (Fabricius, 1780)	43—265	00	×	QM; L
Thelepinae gen. sp.	240—255	0	×	QM
Terebellides stroemi kerguelensis McIntosh, 1885	43—265	0	×	QM; CS
Euchone pallida Ehlers, 1908	83—265	00	×	QM; CS
Potamilla antarctica (Kinberg, 1867)	86—265	000	×	QM; CS
Sabellinae gen. sp. 1	165	0	×	QM
Sabellinae gen. sp. 2	265	0	×	QM
Serpulidae indet.	10—30	00	× × × ×	QM
MOLLUSCA				
Polyplacophora				
Hemiarthrum setulosum Dall, 1876	0—50	0	×	AM; WS, N
Nutallochiton mirandus (Thiele, 1906)	180	0	×	AM; CS
Gastropada Prosobranchia				
Schizotrochus englyptus (Pelseneer, 1903)	60—90	0	×	AM; CS, N
Nacella concinna (Strebel, 1908)	0—50	00	> × ×	AM; W
Margarita antarctica Lamy, 1905	0—90	>00	×	AM; W
Antimargarita dulcis (Smith, 1907)	30	0	×	AM; C
Laevilitorina antarctica (Smith, 1902)	0—90	000	× ×	AM; C, N
Lavilitorina caliginosa (Gould, 1849)	0—30	0	×	AM; WS
Laevilitorina umbilicata Pfeffer, 1886	0—40	0	×	AM; W, N
Laevilacunaria bransfieldensis (Preston, 1916)	0—90	000	×	AM; W
Pellilitorina pellita (Martens, 1885)	5—30	0	×	AM; W
Eatoniella kerguelensis (Smith, 1875)	5—90	00	×	AM; WS, N
Onoba gelida (Smith, 1907)	5—290	00	×	AM; C, N
Onoba kergueleni (Smith, 1875)	30—240	0	×	AM; C, N
Onoba turqueti (Lamy, 1905)	5—90	000	> × ×	AM; C, N

Table I (continued)

1	2	3	4	5
Onoba sp. 1	5—90	0	×	AM
Onoba sp. 2	25—33	0	×	AM
Onoba sp. 3	90	0	×	AM
Skenella paludinoides (Smith, 1902)	50—90	000	× ×	AM; CS, N
Omalogyra cf. *atomus* (Philippi, 1841)	25—30	0	×	AM; N
Trichoconcha planispira (Smith, 1915)	160—265	0	×	AM; C, N
Cerithiella astrolabiensis (Strebel, 1908)	180	0	×	AM; W
Amauropsis grisea (Martens, 1878)	0—290	00	× × × ×	AM; CS
Amauropsis xantha (Warson, 1881)	0—175	0	×	AM; CS
Sinuber sculpta (Martens, 1878)	60—90	0	×	AM; WS, N
Antilacuna wandelensis (Lamy, 1905)	30—60	0	×	AM; W
Marseniopsis mollis (Smith, 1902)	0—180	0	×	AM; C
Chlanidota elongata (Lamy, 1910)	10—175	00	> × ×	AM; W
Chlanidota gaini (Lamy, 1910)	224	0	×	AM; W
Neobuccinum eatoni (Smith, 1875)	10—90	>00	> × ×	AM; CS
Prosipho sp. 1	30—180	0	×	AM
Prosipho sp. 2	100—180	0	×	AM
Prosipho sp. 3	50	0	×	AM
Prosipho sp. 4	15—40	0	×	AM
Aforia sp.	30—240	0	×	AM
Harpovoluta charcoti (Lamy, 1910)	30—90	>00	> × ×	AM; C
Conorbela antarctica (Strebel, 1908)	60—90	0	×	AM; W
Gastropoda Opisthobranchia				
Retusa sp.	90	0	×	AM
Toledonia sp.	30—90	0	×	AM
Odostomia sp.	0—30	0	×	AM
Philine sp.	30—90	0	×	AM
Opistobranchia sp. 1	50	0	×	AM
Opistobranchia sp. 2	15—40	0	×	AM
Opistobranchia sp. 3	180	0	×	AM
Scaphopoda				

Table I (continued)

1	2	3	4	5
Polyschides dalli (Pilsbry et Sharp, 1879)	290	0	×	AM; C
Bivalvia				
Yoldiella valettei (Lamy, 1906)	100—290	0	×	AM; W, N
Yoldia eightsi (Couthouy, 1839)	0—240	00	× × ×	AM; WS
Propeleda longicaudata (Thiele, 1912)	60	0	×	AM; CS
Silicula rouchi Lamy, 1910	240	0	×	AM; C
Nuculana inaequisculpta (Lamy, 1906)	30—265	0	×	AM; WS
Limopsis lilliei Smoth, 1915	20—90	0	×	AM; CS, N
Philobrya sublaevis Pelseneer, 1903	15—180	0	×	AM; CS
Philobrya wandelensis Lamy, 1906	60—260	0	×	AM; CS, N
Adacnarca nitens Pelseneer, 1903	10—220	0	×	AM; CS
Lissarca notorcadensis Melvill et Standen, 1907	10—90	0	×	AM; CS
Lissarca rubrofusca Smith, 1907	0—30	0	×	AM; WS
Cyclocardia astartoides (Martens, 1878)	72	0	×	AM; CS
Limatula cf. *pygmaea* (Philippi, 1845)	60	0	×	AM; WS
Thyasira falklandica (Smith, 1875)	0—260	0	×	AM; WS, N
Genaxinus debilis (Thiele, 1912)	25—290	>00	×	AM; C
Mysella charcoti (Lamy, 1906)	0—260	000	× × × ×	AM; WS
Mysella miniuscula Martens et Pfeffer, 1886	0—90	0	×	AM; WS, N
Montacuta nimrodiana (Hedley, 1911)	182	0	×	AM; C, N
Cyamiomactra laminifera (Lamy, 1906)	10—90	0	×	AM; CS, N
Kidderia subquadratum (Pelseneer, 1903)	0—60	0	×	AM; W
Cyamiocardium denticulatum (Smith, 1907)	0—180	0	×	AM; CS
Pseudokellya cardiformis (Smith, 1885)	45—175	0	×	AM; CS
Neolepton parasiticum (Dall, 1876)	10—70	0	×	AM; CS, N
Laternula elliptica (King et Broderip, 1831)	10—90	>00	> × ×	AM; CS
Thracia meridionalis Smith, 1885	15—290	0	×	AM; CS
Cuspidaria infelix Thiele, 1912	60—90	0	×	AM; CS, N
Cuspidaria tenella Smith, 1907	70—240	0	×	AM; C, N
*Cephalopoda**				
Megaeledone senoi Taki, 1961	470—550	?	?	C, N

Table I (continued)

1	2	3	4	5
Thaumeledone brevis (Hoyle, 1885)	470—550	?	?	L, N
Pareledone charcoti (Joubin, 1905)	470—550	?	?	C
Pareledone turqueti (Joubin, 1905)	470—550	?	?	C
PYCNOGONIDA				
Pentanymphon antarcticum Hodgson, 1902	60—90	0	×	BT; C
Colossendeis scotti Calman, 1915	60—90	0	×	BT; CS
Ammothea carolinensis Leach, 1814	15—90	0	×	BT; CS
Ammothea clausi Pfeffer, 1889	30—90	0	×	BT; CS
Ammothea spinosa (Hodgson, 1907)	60	?	?	FM; CS
CRUSTACEA				
Amphipoda				
Echiniphimedia hodgsoni (Walker, 1906)	140	?	?	FM; CS
Pariphimedia integricauda Chevreux, 1906	20	?	?	FM; W
Kuphocheira setimanus K. H. Barnard, 1931	60—90	?	?	FM; W, N
Paradexamine fissicauda Chevreux, 1906	20—40	?	?	FM; WS, W
Bovallia gigantea Pfeffer, 1888	0,5—30	00	× ×	BT; WS
Eurymera monticulosa Pfeffer, 1888	0,5—60	00	×	BT; WS
Gondogeneia georgiana (Pfeffer, 1888)	0,5—5	?	?	FM; WS, N
Gondogeneia subantarctica (Stephensen, 1938)	0,5—5	?	?	FM; WS, N
Gondogeneia antarctica (Chevreux, 1906)	5—90	000	× × ×	BT; WS
Liouvillea oculata Chevreux, 1912	10—15	?	?	FM; W, N
Oradarea bidentata K. H. Barnard, 1932	10—15	?	?	FM; WS
Paramoera cf. *hurleyi* Thurston, 1974	10—15	?	?	FM; W, N
Pontogeneiella brevicornis (Chevreux, 1906)	5—90	000	× × ×	BT; CS
Prostebbingia gracilis (Chevreux, 1912)	10—30	000	× × ×	FM; CS
Djerboa furcipes Chevreux, 1906	?	?	?	Penguin stomachs; WS
Eusirus perdentatus Chevreux, 1912	400—600	?	?	FM; C
Paraceradocus gibber Andres, 1984	60	?	?	BT; WS, N
Phoxocephalopsis deceptionis Stephensen, 1947	5—15	?	?	FM; W
Cheirimedon femoratus (Pfeffer, 1888)	5—90	000	× × × ×	BT; CS
Hippomedon kergueleni (Miers, 1875)	5—90	000	× × × ×	BT; C

Table I (continued)

1	2	3	4	5
Orchomene cf. *franklini* (Walker, 1903)	10—30	?	?	BT; C, N?
Orchomene plebs (Hurley, 1965)	5—90	000	× × × ×	BT; C
Orchomene rotundifrons (K. H. Barnard, 1932)	5—90	000	× × ×	BT; W
Waldeckia obesa (Chevreux, 1905)	15—90	000	× × × ×	BT; C
Monoculodes scabriculosus K. H. Barnard, 1932	15	?	?	FM; WS
Heterophoxus trichosus K. H. Barnard, 1932	5	?	?	FM; W
Paraphoxus rotundifrons (H. K. Barnard, 1932)	10—15	?	?	FM; WS
Probolisca ovata (Stebbing, 1888)	30	?	?	FM; WS
Proboloides cf. *antarcticus* Walker, 1906 ( )	60—90	?	?	FM; n.sp.? N?
Prothaumatelson nasutum Chevreux, 1921	30	?	?	FM; WS, N
Synopiidae, n. gen. n. sp.	15	?	?	FM; W, N
Isopoda				
Cirolana albinota Vanhöffen, 1914 (?)	30—500	00	×	AM; CS ?
Cirolana oculata Vanhöffen, 1914 (?)	5—100	00	×	AM; C, N ?
Aega koltuni Kusakin, 1967	5—400	0	< × ×	AM; W
Cymodocella tubicauda Pfeffer, 1887	5—100	00	< × ×	AM; CS, N
Plakarthrium punctatissimum Pfeffer, 1887	5—400	000	< × ×	AM; WS
Spinoserolis beddardi (Calman, 1920)	1—100	00	< × ×	AM; W
Ceratoserolis cornuta (Studer, 1879)	200—500	0	× ×	AM; WS
Ceratoserolis trilobitoides (Eights, 1833)	200—500	0	×	AM; CS
Serolis bouvieri Richardson, 1906	15—500	0	×	AM; W
Serolis carinata Lockington, 1877	15	0	×	AM; W
Serolis polita Pfeffer, 1887	5—30	00	< × × ×	AM; WS
Glyptonotus antarcticus Eights, 1833	30—90	000	< × ×	BT; CS
Decapoda				
Notocrangon antarcticus (Pfeffer, 1887)	210—600	?	?	FM; C
Chorismus antarcticus (Pfeffer, 1887)	90—300	?	?	FM; CS

Table I (continued)

1	2	3	4	5
ECHINODERMATA				
Crinoidea				
Promachocrinus kerquelensis Carp., 1879	15—90	?	?	FM; CS
Asteroidea				
Psilaster charcoti (Koehler, 1906)	60—90	0	×	BT; CS
Bathybiaster loripes obesus Sladen, 1889	50	?	?	FM; CS
Odontaster validus Koehler, 1906	15—90	000	× × ×	BT; C
Perknaster antarcticus (Koehler, 1906)	15—90	00	×	BT; C
Perknaster charcoti (Koehler, 1912)	90	?	?	FM; WS
Cuenotaster involutus (Koehler, 1912)	60—90	0	×	BT; C
Porania antarctica glabra Sladen, 1889	30—90	00	×	BT; CS
Remaster gourdoni Koehler, 1912	60—90	?	?	FM; WS, N
Labidiaster annulatus Sladen, 1889	30—90	0	×	BT; WS
Lysasterias digitata Clark, 1962	30—60	0	×	BT; C, N
Lysasterias sp.	15—90	000	× ×	BT
Cryptasterias turqueti (Koehler, 1906)	30—60	0	×	BT; W
Diplasterias brucei (Koehler, 1908)	60—90	0	×	BT; C
Granaster nutrix (Studer, 1885)	15—30	0	×	BT; W
Neosmilaster georgianus (Studer, 1885)	10—30	000	< × ×	BT; W
Ophiuroidea				
Amphioplus acutus Mortensen, 1936	74—90	0	×	BT; W
Amphioplus affinis (Studer, 1885)	30	0	×	BT; WS
Amphioplus peregrinator (Koehler, 1912)	60—90	0	×	BT; W
Amphiophiura gibbosa Mortensen, 1936	5—90	0	> × ×	BT; W
Monamphiura proposita (Koehler, 1922)	74	0	×	BT; C, N
Ophiomages cristatus Koehler, 1923	10—30	0	×	BT; W
Ophiomastus serratus (Mortensen, 1936)	60—90	0	> × ×	BT; W
Ophionotus victoriae Bell, 1902	15—90	000	× × × ×	BT; C
Ophiura rouchi (Koehler, 1912)	30—90	00	> × ×	BT; C
Ophiurolepis brevirima Mortensen, 1936	90	0	×	BT; C
Ophiurolepis gelida (Koehler, 1900)	40—300	?	?	FM; C

Table I (continued)

1	2	3	4	5
Ophiurolepis martensi (Studer, 1885)	90	0	×	BT; CS
Ophioperla koehleri (Bell, 1908)	160—600	?	?	FM; CS
Ophioceres incipiens Koehler, 1922	30—240	?	?	FM; C
Ophiacantha antarctica Koehler, 1900	120—290	?	?	FM; C
Echinoidea				
Sterechinus neumayeri (Meissner, 1900)	10—600	000	?	FM; C
Ctenocidaris speciosa Mortensen, 1910	10—600	0	×	FM; C
Abatus shackletoni Koehler, 1911	10—210	000	× × ×	FM; C
Amphipneustes similis Mortensen, 1936	20—600	0	×	FM; W
Holothurioidea				
Cucumaria attenuata Vaney, 1906	74	?	?	FM; W
Psolus sp.	74	?	?	FM
Ypsilocucumis turricata (Vaney, 1906)	30	?	?	FM; W, N
PTEROBRANCHIA**				
Cephalodiscus hodgsoni Ridewood, 1907	65—140	?	?	CS
Cephalodiscus solidus Andersson, 1907	65—140	?	?	C

* according to Lipiński and Wojciechowski (1981)

** according to Urbanek and Zieliński (1982)

equal in this fauna: these results fit well with the intermediate position of the South Shetland Islands.

Since our list is a preliminary one, the discussion on the qualitative composition of Admiralty Bay bottom fauna can be only preliminary as well. Some general remarks can be made, however. The fauna of the largest bay of the South Shetlands archipelago is rather typical of West Antarctica. The most common and abundant polychaetes are *Maldane sarsi antarctica* (dominant in deeper parts of the bay), *Haploscoloplos kerguelensis, Paraonis gracilis, Ammotrypane* sp., *Rhodine loveni* and *Tharyx cincinnatus*: this is more or less similar to the results obtained by Gallardo and Castillo (1969) and Gallardo et al. (1977) for other South Shetland bay (Chile Bay of Greenwich I., *"Maldane"* assemblage) and those of Lowry (1975) and Richardson and Hedgpeth (1977) for Arthur Harbor, Palmer Archipelago. Among *Mollusca* of Admiralty Bay, the dominant gastropods are *Laevilitorina antarctica, Onoba turqueti, Skenella paludinoides* and *Amauropsis grisea*, whereas among *Bivalvia* the first place is occupied by *Mysella charcoti*, the most frequent and mass occurring molluscan species. According to White and Robins (1972), the density of this species can be as high as 75000 ind./m^2 in the South Orkneys archipelago. The frequency and abundance of the largest bivalve, *Laternula elliptica*, is most probably underestimated, due to ist deep burrowing habits (Everson and White 1969, Hardy 1972). In fact, in Admiralty Bay, this species is one of the most common inhabitants of the soft bottom. *Yoldia eightsi*, which is among the most frequent and abundant molluscs in the investigated area, is also very common both at Palmer Archipelago (Lowry 1975, Richardson and Hedgpeth 1977) and in South Orkney Islands (Hardy 1972, White and Robins 1972). Worthy of note is also that most of the list of *Mollusca* given for Arthur Harbor by Richardson and Hedgpeth (1977) fits well our list of this group.

In Chile Bay of the Greenwich Island (South Shetland Islands) Gallardo et al. (1977) found two bivalve species to be characteristic of shallower (*Yoldia eightsi*) and deeper (*Genaxinus debilis*) parts of the investigated area. These two species are present also in Admiralty Bay, as common and abundant (*Yoldia eightsi*) or common (*Genaxinus debilis*).

Among *Amphipoda*, as in the majority of Antarctic collections, the dominance of several necrophagous *Lysianassidae* (*Hippomedon kergueleni, Orchomene plebs, Orchomene rotundifrons, Cheirimedon femoratus* and *Waldeckia obesa*) is conspicuous. The amount of these animals caught in baited traps can be incredible (a.o. Bregazzi 1972, Arnaud 1974); this kind of sample is dominant in our material. Among the most common and abundant species of non-necrophagous *Amphipoda* are *Gondogeneia antarctica, Pontogeneiella brevicornis* and *Prostebbingia gracilis*, a very abundant inhabitant of the brown algae meadows.

Echinoderms especially common and abundant in Admiralty Bay are *Sterechinus neumayeri, Odontaster validus* and *Ophionotus victoriae*, all species of circumantarctic distribution and all well known as very common Antarctic species (Arnaud 1964, 1974). On muddy bottoms a very common and abundant sea-urchin was also *Abatus shackletoni. O. validus* and *O. victoriae* belong to the commonest large necrophagous animals. In that ecological group are also common and conspicuous species such as the nemertean *Parborlasia corrugatus*, the prosobranch gastropods *Neobuccinum eatoni* and *Harpovoluta charcoti*, and a large isopod, *Glyptonotus antarcticus*.

Among our species, 48 are recorded for the first time from the South Shetlands area: 11 *Polychaeta*, 24 *Mollusca* (1 *Polyplacophora*, 11 *Prosobranchia*, 10 *Bivalvia*, 2 *Cephalopoda*), 9 *Crustacea* (8 *Amphipoda*, 1 *Isopoda*) and 4 *Echinodermata* (2 *Asteroidea*, 1 *Ophiuroidea*, 1 *Holothurioidea*). So, 27% of the 180 fully identified species are recorded as new for South Shetland Islands. From this result it is obvious that there are still many new records to be expected from the study of such other groups as *Porifera, Hydroida, Bryozoa* and from the working out additional samples of the groups considered in this paper.

In our quantitative collection of *Polychaeta* the representatives of the family *Serpulidae*, constituting nearly half of this material, remain unidentified. Relative abundance and frequency estimations for Polychaetes were calculated, however, including *Serpulidae*. Apart from the above listed species of *Mollusca* in our material there were some damaged specimens of the following genera and families: *Margarita, Skenella, Chlanidota, Prosipho, Limopsis, Thyasira, Cuspidaria* and *Trochidae, Cyclostrematidae, Rissoidae, Trichotropidae, Turridae*. One unidentified specimen of *Solenogastres* was also recorded. All estimations of *Mollusca* were done similarly as in the case of *Polychaeta*. Our isopod material, apart from *Flabellifera* and *Glyptonotus antarcticus*, includes representatives of the following families: *Gnathiidae, Anthuridae, Idotheidae, Arcturidae, Janiridae, Munnidae, Ilyarachnidae* and *Munnopsidae*. We believe therefore that a complete list of the *Isopoda* of Admiralty Bay will encompass some 30—40 species. The list of *Amphipoda*, after full elaboration of our material, will be enlarged in the future probably twice or so. Out of the other important animal groups we should expect a variety of species of *Porifera, Cnidaria* and *Ascidiacea*. A list of 40 species of *Bryozoa* found in Admiralty Bay was already presented by Moyano (1978).

A comparable survey of benthic invertebrates based on 68 quantitative Van Veen grab samples taken from the soft bottom at Arthur Harbor, Palmer Archipelago, includes some 280 taxa (Richardson and Hedgpeth 1977). Our list of benthic invertebrates shows many similarities to their results. These similarities would probably be even greater if only the soft bottom of Admiralty Bay was considered.

In conclusion we can say that the present list of benthic invertebrates of Admiralty Bay includes probably at most half the taxa of the macrobenthic invertebrates living there.

5. Резюме

Представлен предварительный список 226 таксонов бентосных беспозвоночных бухты Адмиральти (о. Кинг Джордж, Южные Шетландские о-ва), в том числе 180 точно определенных видов. Материал был собран Польскими Антарктическими экспедициями до станции „Арцтовски". Разработано только некоторые группы бентоса, в том числе более подробно *Polychaeta, Mollusca, Crustacea* и *Echinodermata*. В этих группах насчитано соответственно 61, 76, 45 и 38 таксонов (Табл. I). 48 видов найдено в фауне Южных Шетландских островов первый раз.

Зоогеографический анализ 180 видов зообентоса показал, что 36 из них (20%) — это эндемики Западной Антарктики, 42 вида (23%) — циркумантарктические, 59 видов (32%) распространены в Антарктике и Субантарктике, 35 видов (20%) выступает в Западной Антарктике и в Субантарктике, а только 8 (5%) видов имеет широкое распространение в мировом океане. Подобная доля циркумантарктических и субантарктических видов в донной фауне бухты Адмиральти подтверждает и подчеркивает переходной фаунистический характер Южных Шетландских островов.

Наиболее распространенными и многочисленными видами бентоса бухты Адмиральти являются среди полихет — *Haploscoloplos kerguelensis, Paraonis gracilis, Ammotrypane* sp., *Maldane sarsi antarctica, Rhodine loveni* и *Tharyx cincinnatus*, среди брюхоногих моллюсков — *Laevilitorina antarctica, Onoba turqueti, Skenella paludinoides* и *Amauropsis grisea*, среди двухстворчатых моллюсков *Mysella charcoti* и *Yoldia eightsi*, среди ракообразных — бокоплавы: *Prostebbingia gracilis, Pontogeneiella brevicornis* а даже некрофагические *Hippomedon kergueleni, Cheirimedon femoratus, Waldeckia obesa, Orchomene plebs* и *O. rotundifrons* и, наконец, среди иглокожих — морская звезда *Odontaster validus*, морские ежи — *Sterechinus neumayeri* и *Abatus shackletoni* и офиура — *Ophionotus victoriae*.

Своим составом и структурой доминирования бентос бухты Адмиральти напоминает бентос Артур Харбор (о. Анверс, архипелаг Пальмер), изученный Ричардсоном и Хеджпетом (1977).

6. Streszczenie

Niniejsza praca prezentuje wstępną listę 226 taksonów bezkręgowców bentosowych zamieszkujących Zatokę Admiralicji (wyspa Króla Jerzego, Szetlandy Południowe), w tym 180 oznaczonych do gatunku. W materiałach zebranych przez Polskie Ekspedycje Antarktyczne do Stacji im. H. Arctowskiego opracowano tylko część podstawowych grup bentosu, w tym najdokładniej *Polychaeta, Mollusca, Crustacea* i *Echinodermata*; grupy te były reprezentowane odpowiednio przez 61, 76, 45 i 38 taksonów (Tab. I). Ogółem 48 gatunków zostało podanych po raz pierwszy dla fauny Szetlandów Południowych.

Analiza zoogeograficzna oznaczonych do gatunku zwierząt bentosowych wykazała, że 36 z nich (20%) to endemity Zachodniej Antarktyki, 42 gatunki (23%) ma rozmieszczenie

cyrkumantarktyczne, 59 gatunków (32%) to zwierzęta występujące cyrkumantarktycznie ale i w rejonach subantarktycznych, 35 gatunków (20%) jest wspólnych dla Antarktyki Zachodniej i Subantarktyki, wreszcie jedynie 8 gatunków (5%) — to zwierzęta o szerokim rozmieszczeniu w oceanach. Zbliżony udział gatunków cyrkumantarktycznych i subantarktycznych w faunie dennej Zatoki Admiralicji potwierdza i akcentuje przejściowy charakter faunistyczny Szetlandów Południowych.

Najpospolitszymi i najliczniejszymi gatunkami bentosu Zatoki Admiralicji okazały się wśród *Polychaeta*: *Haploscoloplos kerguelensis*, *Paraonis gracilis*, *Ammotrypane* sp., *Maldane sarsi antarctica*, *Rhodine loveni* i *Tharyx cincinnatus*, wśród *Gastropoda* — *Laevilitorina antarctica*, *Onoba turqueti*, *Skenella paludinoides* i *Amauropsis grisea*, wśród *Bivalvia* — *Mysella charcoti* i *Yoldia eightsi*, wśród skorupiaków — obunogi: *Prostebbingia gracilis*, *Pontogeneiella brevicornis* oraz nekrofagiczne *Hippomedon kergueleni*, *Cheirimedon femoratus*, *Waldeckia obesa*, *Orchomene plebs* i *O. rotundifrons*, wreszcie wśród *Echinodermata* — rozgwiazda *Odontaster validus*, jeżowce *Sterechinus neumayeri* i *Abatus shackletoni* oraz wężowidło *Ophionotus victoriae*.

Swoistym składem i strukturą dominacji bentos Zatoki Admiralicji jest podobny do bentosu Arthur Harbor (Wyspa Anvers, Archipelag Palmera), zbadanego przez Richardsona i Hedgpetha (1977).

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