POLISH POLAR RESEARCH	9	2–3	153—164	1988

Stanisław RAKUSA-SUSZCZEWSKI

Department of Polar Research,
Institute of Ecology,
Polish Academy of Sciences,
Dziekanów Leśny,
05-092 Łomianki, POLAND

Report on the Antarctic expedition of the r/v "Profesor Siedlecki", BIOMASS III 1986/1987

1. Introduction

Antarctic research works were carried out by Polish Academy of Sciences in the years 1975/76, 1981 (FIBEX) and 1983/84 (SIBEX) on board of the r/v "Profesor Siedlecki" during austral summer and autumn. The present expedition BIOMASS III for the first time in our experience began works in the early austral spring (1986) and continued in austral summer (1987).

In the first part of the cruise, between 26 October and 16 November 1986, investigations were carried out together with a Spanish team between Elephant Island and King George Island (Area 1) and in the Bransfield Strait, south of King George Island (Area 2). Special attention was payed to the hydrological structures and to the distribution of chlorophyll, bacteria, phytoplankton and zooplankton, krill and fishes. Water columns 0 to 2000 m were investigated in the chosen areas in the meeting zone of water masses of different origin. Area 1 was chosen in the confluence area above the shelf slope, while Area 2 was chosen in the Bransfield Strait in the meeting zone of waters of the Weddell Sea and the Bellingshausen Sea origins. These data collected in the early spring season before the breaking of ice, have a special scientific value.

The second part of the cruise between the 2nd and 20th January 1987 included works carried out together with an American scientific team in Areas 1 and 2, and also around the Elephant Island and north of it. During investigations special emphasis was laid on the recognition of hydrographical conditions down to 1000 m depth, on the distribution of chlorophyll in the water column and the "synoptic" picture of phyto- and zooplankton

distribution, and especially of krill distribution in the 0–200 m water layer. The informations gained on the biomass of krill can be compared with results from earlier years, and are useful also for CCAMLR. Just this year the Polish ship "Lyra" began exploitation of krill on an industry scale for export. It is worth to mention that five Japanese fish-factory ships carried out industrial krill fisheries in our area of investigation. Because of the time of the year, difficult ice conditions and the long period of the expedition, it was the most difficult cruise of all carried out so far, both for the vessel and people. At the same time, in spite of all the difficulties, the expedition brought about a wealth of results of high scientific value.

The expedition was supported by the finances for polar research (C.P.B.P. 03.03. A) donated by the Polish Government to the Polish Academy of Sciences and the Sea Fisheries Institute, any by money obtained from the cooperation between the Polish Academy of Sciences and C.S.I.C. in Spain and NOAA in the USA. It is for the first time that Poland commenced such a broad scientific cooperation with Spain and the USA in the fields of environmental research and the living resources of Antarctica.

The purposes of the expedition BIOMASS III were achieved thanks to the strict cooperation of the marine expedition on the r/v "Profesor Siedlecki" with the X-th and XI-th expeditions of the Polish Academy of Sciences working at the Polish "Arctowski" station. This cooperation was not only logistic but it also centered on various scientific problems. This cooperation corroborated the complementary character of the works carried out within the subject groups of the subproblem C.P.B.P. 03.03.A. Using the m/t "Koral" the Spanish team also obtained valuable measurements of temperature with the XBT, and we collected materials for the purposes of the subproblem C.P.B.P. 03.03.A on the Livingston, Deception, Greenwich and King George Islands. On the day of the 10-th anniversary of Polish independent activities in the Antarctic and of the expeditions of the r/v "Profesor Siedlecki" and m/t "Tazar" we have visited sites of Polish Memorial Tableaus; one of them is a historical monument ratified by the Antarctic Treaty Organization. Together with some members of the XI-th expedition of Polish Academy of Sciences, we have paid a visit to the Soviet "Bellingshausen" station, and the Chilean "Marsh" and Chinese "Great Wall" bases which are situated in the neighbourhood of "Arctowski" station on King George Island.

2. The Accomplishment of the Programme

The Institute of Ecology, Polish Academy of Sciences (PAN) together with the Sea Fisheries Institute (MIR) have organized the Antarctic Expedition BIOMASS III. Professor Dr. S. Rakusa-Suszczewski was scientific leader

of the expedition. Mr. Zbigniew Ossowski was the captain of the ship. The list of the scientific team is following:

Stanisław Rakusa-Suszczewski, Prof. Dr.	— biology, Institute of Ecology, PAN
Alfred Grelowski, M. Sc.	— hydrology, MIR
Kazimierz Groza, M. Sc. ing.	— electronics, Institute of Oceanology, PAN
Janusz Kalinowski, Dr.	— hydroacoustics, MIR
Wojciech Kittel, Dr.	— zoology, University of Łódź
Zygmunt Klusek, Dr.	— hydroacoustics, Institute of Oceanology, PAN
Andrzej Kunicki, M. Sc. ing.	— computer programming, MIR
Ryszard Ligowski, Dr.	— botany, University of Łódź
Maciej Lipski, Dr.	— hydrochemistry, Institute of Ecology, PAN
Aleksy Łukowski, Dr.	— toxicology, University of Warsaw
Andrzej Simm, Dr.	— botany, Institute of Ecology, PAN
Krzysztof Skóra, Dr.	— ichthyology, University of Gdańsk
Jan Szeliga, Assoc. Prof. Dr.	— cartography, University of Gdańsk
Marek Zdanowski, Dr.	— microbiology, Institute of Ecology, PAN
Krzysztof Zdzitowiecki, Assoc. Prof. Dr.	— parasitology, Institute of Parasitology, PAN
Krzysztof Zieliński, Dr.	— botany, Institute of Ecology, PAN

In the first part of BIOMASS III the following persons from Spain participated:

Ballester Nolla Antonio, Prof. Dr.	— hydrochemistry
Julia Brugues Augustin, Dr.	— electronics
Rovira Lledos Juan, Dr.	— hydrochemistry

In the second part of BIOMASS III the following persons from the USA participated:

Jack Green, Dr.	— zooplankton ecology
Michael Macaulay, Dr.	— hydroacoustics
Steve Bollens	— hydroacoustics
Robert Chapman, Dr.	— microbiology
Valeria Loeb, Dr.	— ichthyology
Patricia Morrison	— hydroacoustics
Gregory Stone	— theriology
Lawrence Weber, Dr.	— phytoplankton ecology
John Wormuth, Prof. Dr.	— zooplankton ecology

Table 1

Stations studied during BIOMASS III Antarctic Expedition by the r/v „Profesor Siedlecki", October — November 1986

Explanations: XBT — Expendable Bathythermograph (depth and temperature); STD — Bisset--Berman TSDDO (salinity, temperature and deph); MTH — Midwater trawl haul; BTH — Bottom trawl haul; P — Plankton; Ch — Chlorophyll *a*; B — Bacteria; Bn — Bongo-net; RMT — Rectangular midwater trawl.

Station number	Date (GMT)	Time (GMT)	Position		Depth (m)	Kind of activity
			Latitude S	Longitude W		
1	2	3	4	5	6	7
0/1	21.10.86	16.12	53°25,6′	49°45,8′		XBT
1	„	22.15	53°26,8′	50°01,2′	550	BTH
		22.55	53°26,6′	50°05,5′		
2	22.10.86	01.15	53°25,7′	50°06,6′	710	STD
2/1	„	04.56	53°29,0′	50°15,0′		XBT
2/2	„	07.29	53°10,0′	50°25,0′		XBT
2/3	„	10.25	53°26,0′	50°38,0′		XBT
2/4	„	11.43	53°18,7′	50°46,5′		XBT
2/5	„	13.15	53°30,5′	50°58,0′		XBT
3	„	15.20	53°27,0′	50°51,6′	500	BTH
		18.20	53°29,2′	51°02,1′		
4	„	19.30	53°29,0′	50°59,5′	524	STD
5	„	21.30	53°34,0′	50°53,5′	2300	STD, P, Ch, B
5/1	„	21.30	53°34,0′	50°53,5′		XBT
5/2	23.10.86	03.04	53°30,0′	51°29,0′		XBT
6	„	10.40	53°46,7′	51°53,6′	380	BTH
		11.40	53°46,0′	51°47,0′		
6/1	„	13.11	53°51,5′	51°58,0′		XBT
7	„	18.55	53°48,4′	51°49,1′	380	BTH
		19.10	53°48,3′	51°48,3′		
8	24.10.86	00.50	53°51,5′	52°21,0′	360	BTH
		01.10	53°50,6′	52°17,4′		
9	„	03.05	53°53,5′	52°32,8′	479	STD
9/1	„	12.00	54°55,0′	53°25,0′		XBT
9/2	24.10.86	21.21	56°36,3′	53°35,3′		XBT
9/3	25.10.86	15.20	58°36,0′	54°11,0′		XBT
9/4	26.10.86	11.40	60°30,0′	54°45,0′		XBT
9/5	„	17.16	60°52,0′	54°33,0′		XBT
10	„	20.25	61°00,3′	55°03,0′	247	BTH
		20.55	61°01,3′	55°00,0′	218	
11	„	22.10	61°00,2′	55°01,0′	450	BTH
		22.50	61°01,5′	54°56,5′	380	
12	27.10.86	01.15	61°00,4′	54°29,2′	584	STD
12/1	„	02.13	60°53,8′	54°33,0′		XBT
13	„	02.55	60°51,0′	54°35,0′	953	STD
14	„	04.20	60°56,7′	54°41,6′		Bn
14/1	„	04.24	60°55,5′	54°39,0′		XBT
15	„	06.00	61°01,0′	54°47,2′	518	STD
16	„	07.40	60°58,4′	54°54,8′	641	STD
17	„	11.00	61°00,5′	55°10,0′	110	BTH
		12.25	61°03,0′	54°59,0′		

Table 1 — continued

1	2	3	4	5	6	7
18	"	14.25 16.30	60°59,0′ 61°03,0′	55°11,0′ 54°54,0′	260	BTH
19	28.10.86	09.10 11.10	61°12,0′ 61°13,0′	56°00,0′ 56°16,0′	260– –485	BTH
20	"	13.25 15.25	61°07,0′ 61°15,7′	56°10,0′ 56°01,7′	250 180	BTH
21	"	16.15	61°16,0′	56°04,0′	222	STD
22	"	20.20 23.20	61°15,0′ 61°04,0′	56°07,6′ 56°03,5′	250 300	BTH
23	29.10.86	00.05	61°03,0′	56°01,0′	285	STD
24	"	01.45 06.05	60°57,0′ 61°07,2′	55°47,0′ 56°09,3′	230 220	BTH
25	"	07.50 09.50	61°03,5′ 60°56,6′	55°58,5′ 55°50,0	200	BTH
26	"	12.30 13.00	60°57,0′ 61°01,0′	55°48,0′ 55°53,0′	180	BTH
27	"	15.05 18.05	60°57,7′ 61°09,7′	55°50,0′ 56°12,0′	210 268	BTH
28	"	20.20 22.30	61°03,0′ 60°59,0′	55°58,5′ 55°49,6′	250	BTH
29	30.10.86	03.05	60°49,0′	56°08,0′	2400	STD, P, Ch, B
29/1	"	04.49	60°49,0′	56°08,0′		XBT
29/2	"	07.36	61°00,0′	56°00,0′		XBT
30	"	09.15	61°10,6′	56°00,6′	129	STD
30/1	"	10.08	61°08,5′	56°13,0′		XBT
30/2	"	10.28	61°08,0′	56°16,5′		XBT
30/3	"	11.07	61°06,4′	56°29,0′		XBT
31	"	11.35	61°07,0′	56°30,0′	1500	STD
32	"	13.45	61°14,7′	56°44,0′	688	STD
32/1	"	14.29	61°21,0′	56°37,0′		XBT
33	"	15.30	61°27,0′	56°32,0′	401	STD
33/1	"	16.50	61°24,0′	56°44,5′		XBT
33/2	"	17.33	61°21,8′	56°55,5′		XBT
34	"	18.40	61°17,8′	57°13,5′	1950	STD
34/1	"	20.01	61°17,8′	57°13,5′		XBT
35	"	21.15	61°24,0′	57°25,1′	1450	STD
35/1	"	23.00	61°31,0′	57°14,5′		XBT
35/2	"	23.45	61°35,0′	57°07,0′		XBT
36	31.10.86	00.40	61°40,3′	57°00,0′	457	STD
37	"	02.56	61°29,9′	56°53,5′	480	STD, P, Ch, B
37/1	"	06.42	61°27,0′	56°57,0′		XBT
37/2	"	07.34	61°25,0′	57°02,5′		XBT
38	"	08.36	61°24,2′	57°05,0′	693	STD, P, Ch, B
39	"	13.25	61°20,5′	57°14,0′	1500	STD, P, Ch, B
40	"	19.45 21.45	61°19,2′ 61°21,0	56°58,0′ 56°36,1′		MTH
41	01.11.86	00.30 01.30	61°24,5′ 61°25,0′	56°44,0′ 56°43,0′		MTH
42	"	09.30	61°23,7′	56°41,0′	429	STD, P, Ch, B

Table 1 — continued

1	2	3	4	5	6	7
42/1	"	11.17	61°22,5′	56°42,0′		XBT
43	02.11.86	08.57	61°17,2′	56°50,9′	1300	STD, P, Ch, B
43/1	02.11.86	12.33	61°16,1′	56°49,0′		XBT
43/2	"	14.12	61°15,5′	56°54,0′		XBT
44	"	15.10	61°14,0′	56°56,0′	1600	STD, P, Ch, B
44/1	"	21.16	61°09,6′	56°51,0′		XBT
44/2	03.11.86	00.51	61°06,0′	57°08,0′		XBT
45	"	03.25	61°05,0′	57°05,0′	2500	STD, P, Ch, B
46	"	06.30	61°07,0′	56°43,3′	1850	STD, P, Ch, B
		12.35	61°05,0′	56°35,0′		
46/1	"	10.07	61°07,0′	56°36,5′		XBT
47	"	14.14	61°11,0′	56°38,0′	927	STD, P, Ch, B
47/1	"	14.25	61°11,0′	56°38,0′		XBT
47/2	"	17.46	61°14,0′	56°32,5′		XBT
48	"	18.30	61°16,2′	56°26,5′	422	STD, P, Ch, B
49	"	21.45	61°14,9′	56°25,6′	400	MTH
	04.11.86	01.00	61°11,0′	56°12,0′	310	
50	"	01.45	61°13,0′	56°13,0′	500	MTH
		05.25	61°24,5′	56°37,5′	412	
51	"	06.40	61°28,0′	56°36,2′	500	MTH
		10.40	61°16,5′	56°12,2′	315	
52	"	12.10	61°14,0′	56°28,0′	430	MTH
		14.35	61°18,0′	56°31,0′	450	
53	"	18.20	61°26,5′	57°03,5′	483	MTH
		22.20	61°18,4′	56°34,0′	540	
54	"	23.45	61°22,0′	56°37,0′	410	MTH
	05.11.86	02.30	61°23,0′	56°30,0′	260	
54/1	"	06.13	61°34,0′	56°18,0′		XBT
54/2	"	08.22	61°44,0′	55°55,0′		XBT
55	"	10.05	61°52,9′	55°40,5′	2520	STD, P, Ch, B
55/1	"	10.09	61°52,9′	55°40,5′		XBT
55/2	"	16.28	62°05,0′	56°03,0′		XBT
56	"	18.15	62°08,5′	56°26,0′	1300	STD, P, Ch, B
56/1	05.11.86	18.40	62°08,5′	56°26,0′		XBT
56/2	06.11.86	03.59	62°09,0′	57°00,0′		XBT
57	"	08.55	62°18,5′	57°17,5′	1600	STD, P, Ch, B
57/1	06.11.86	08.58	62°18,6′	57°17,5′	1655	XBT
57/2	"	14.34	62°23,0′	57°16,0′	1400	XBT
57/3	"	15.20	62°27,0′	57°15,0′	1100	XBT
58	"	15.57	62°32,2′	57°12,5′	1056	STD, P
58/1	"	16.53	62°36,0′	57°11,0′	750	XBT
58/2	"	18.06	62°46,0′	57°06,0′	460	XBT
59	"	19.30	62°54,8′	57°09,3′	93	STD, P, Ch, B
59/1	"	20.04	62°54,8′	57°09,3′	93	XBT
59/2	"	21.42	62°47,8′	57°20,0′	168	XBT
59/3	"	22.52	62°39,5′	57°32,0′	662	XBT
59/4	"	23.24	62°37,0′	57°37,0′	1145	XBT
60	07.11.86	00.40	62°27,0′	57°53,0′	1850	STD
60/1	"	00.49	62°27,0′	57°53,0′	1850	XBT

Table 1 — continued

1	2	3	4	5	6	7
60/2	"	02.10	62°30,2′	57°51,0′	1700	XBT
60/3	"	02.54	62°34,0′	57°47,0′	1600	XBT
60/4	"	03.51	62°38,5′	57°44,0′	800	XBT
60/5	"	04.27	62°42,2′	57°41,0′	690	XBT
60/6	"	06.36	62°52,0′	57°32,5′	470	XBT
61	"	08.40	62°58,9′	57°26,8′	459	STD, P, Ch, B
61/1	"	08.45	62°59,0′	57°27,0′	450	XBT
61/2	"	12.06	62°53,5′	57°39,0′	228	XBT
61/3	"	12.44	62°49,5′	57°48,0′	217	XBT
61/4	"	13.34	62°45,5′	57°57,0′	770	XBT
62	"	14.15	62°42,5′	58°03,0′	782	STD
62/1	"	14.15	62°42,5′	58°03,0′	782	XBT
62/2	"	15.19	62°39,0′	58°11,0′	1500	XBT
62/3	"	15.52	62°36,0′	58°17,0′	1650	XBT
63	"	16.20	62°34,0′	58°21,0′	1700	STD, P, Ch, B
64	"	21.54	62°39,8′	57°50,0′	820	STD, P, Ch, B
64/1	07.11.86	21.56	62°40,0′	57°50,0′	820	XBT
65	08.11.86	01.35	62°41,0′	57°50,0′	794	MTH
		03.40	62°39,0′	57°37,5′	723	
66	"	04.50	62°43,0′	57°39,0′	626	MTH
		06.50	62°49,0′	57°44,5′	496	
67	"	07.45	62°48,8′	57°50,0′	640	MTH
		10.30	62°47,8′	57°31,9′	420	
68	"	12.00	62°47,0′	57°42,0′	647	STD, P, Ch, B
69	"	15.37	62°43,0′	57°21,0′	419	STD, P, Ch, B
70	"	20.15	62°35,0′	57°29,0′	1520	STD, P, Ch, B
71	09.11.86	02.10	62°21,8′	57°32,0′	1600	STD
71/1	"	03.26	62°15,0′	57°33,5′	2000	XBT
72	"	04.30	62°08,2′	57°33,0′	627	STD
72/1	"	04.51	62°08,2′	57°33,0′	660	XBT
72/2	"	06.16	62°08,0′	57°41,0′	546	XBT
73	"	08.15	62°19,2′	57°49,0′	1955	STD
73/1	"	08.19	62°19,2′	57°49,0′	1955	XBT
74	"	10.50	62°13,5′	57°56,0′	1220	STD
74/1	"	12.23	62°20,0′	58°05,0′	1850	XBT
75	"	13.20	62°23,7′	58°08,5′	1840	STD
75/1	"	14.31	62°20,0′	58°13,0′	1850	XBT
76	"	15.20	62°16,6′	58°16,7′	710	STD, P, Ch, B
76/1	"	17.32	62°16,6′	58°16,7′	707	XBT
76/2	"	20.40	62°13,0′	58°20,0′	600	XBT
77	"	21.55	62°08,4′	58°26,2′	430	STD, P, Ch, B
77/1	"	22.07	62°08,4′	58°26,2′	433	XBT
78	10.11.86	00.45	62°13,7′	58°20,0′	508	STD, P
79	"	11.47	62°48,0′	59°14,0′	1450	STD, P
79/1	"	11.47	62°48,0′	59°14,0′	1450	XBT
79/2	"	13.55	62°54,5′	59°37,6′	940	XBT
80	"	15.45	63°01,0′	60°01,0′	917	STD, P, Ch, B
80/1	10.11.86	16.32	63°01,0′	60°01,0′	916	XBT
80/2	"	19.38	63°10,7′	60°22,0′	690	XBT

Table 1 continued

1	2	3	4	5	6	7
81	"	20.45	63°16,0′	60°32,0′	459	STD
81/1	"	21.50	63°20,5′	60°41,5′	480	XBT
82	"	23.59	63°33,0′	61°06,0′	526	STD
82/1	"	23.59	63°33,0′	61°06,0′	520	XBT
82/2	11.11.86	01.30	63°23,6′	61°08,0′	570	XBT
82/3	"	02.34	63°15,0′	61°10,0′	940	XBT
83	"	04.20	63°13,0′	60°59,0′	598	MTH
		05.40	63°10,7′	60°45,7′	614	
84	"	06.20	63°09,8′	60°50,0′	673	MTH
		08.20	63°10,5′	61°06,1′	1000	
85	"	09.30	63°15,0′	61°08,0′	844	STD, P, Ch, B
85/1	"	12.37	63°15,0′	61°01,0′	871	XBT
86	"	14.25	63°06,5′	61°09,0′	750	STD
86/1	"	14.26	63°06,5′	61°09,0′	745	XBT
87	"	17.30	62°57,3′	61°07,8′	283	STD
87/1	"	17.37	62°57,3′	61°07,8′	285	XBT
87/2	"	19.56	62°54,7′	60°55,2′	185	XBT
87/3	"	21.10	63°02,5′	60°46,0′	260	XBT
87/4	"	21.57	63°03,0′	60°33,0′	400	XBT
88	12.11.86	00.05	62°52,0′	60°16,0′	868	STD, P, Ch, B
88/1	"	00.05	62°52,0′	60°16,0′	868	XBT
89	"	03.25	62°47,0′	60°02,5′	870	STD
89/1	"	03.36	62°47,0′	60°03,5′	856	XBT
90	"	09.44	62°34,3′	59°17,4′	1315	STD
90/1	"	09.44	62°34,3′	59°17,4′	1315	XBT
91	"	12.55	62°23,0′	58°45,0′	854	STD, P, Ch, B
91/1	"	13.15	62°23,0′	58°45,0′	860	XBT
91/2	"	19.22	62°25,5′	58°18,5′	1351	XBT
92	12.11.86	20.00	62°24,4′	58°20,5′	1425	MTH
		21.00	62°21,0′	58°23,1′	1500	
93	"	23.20	62°30,0′	58°03,5′	1800	STD, P, Ch, B
93/1	"	23.39	62°30,0′	58°03,5′	1800	XBT
94	13.11.86	11.15	62°50,8′	57°08,1′	367	MTH
		13.15	62°47,7′	56°48,0′	190	
94/1	"	16.00	62°35,5′	56°10,2′	542	XBT
94/2	"	16.49	62°23,0′	56°05,0′	434	XBT
95	"	19.15	62°24,1′	55°39,5′	100	BTH
		21.15	62°30,7′	55°54,0′	202	BTH
96	"	21.45	62°30,7′	55°54,0′	202	STD
97	14.11.86	01.45	62°31,0′	55°06,0′	273	BTH
		03.40	62°36,0′	54°44,0′	250	
97/1	"	06.21	62°30,3′	54°46,2′	250	XBT
98	"	09.30	62°25,0′	54°54,4′	280	BTH
99	"	12.10	62°31,4′	54°37,2′	261	STD
99/1	"	16.55	62°23,0′	54°51,3′	500	XBT
100	"	18.45	62°23,2′	54°42,0′	364	BTH
		19.45	62°21,5′	54°54,1′	343	
101	"	20.32	62°21,5′	54°54,1′	343	STD
102	"	22.35	62°22,9′	55°10,0′	292	BTH
	15.11.86	00.15	62°23,0′	54°57,0′	264	

Table 1 — continued

1	2	3	4	5	6	7
103	"	03.20	62°32,8′	55°07,0′	230	BTH
		04.40	62°33,4′	54°56,4′	329	
104	"	05.25	62°33,3′	54°54,0′	240	STD
105	"	16.35	61°11,6′	56°06,2′	236	BTH
		17.50	61°07,0′	56°08,2′	282	
106	"	18.32	61°06,0′	56°05,0′	228	STD
107	"	20.20	61°00,2′	56°02,5′	600	BTH
		22.00	61°02,0′	55°53,7′	200	
108	"	22.40	61°03,1′	55°52,0′	140	STD
109	16.11.86	00.55	60°53,0′	55°41,0′	170	BTH
		02.30	60°56,0′	55°46,0′	190	
110	"	02.27	60°58,0′	55°48,0′	185	STD
111	16.11.86	06.55	60°52,0′	55°35,5′	220	BTH
		10.15	60°59,8′	55°09,5′	277	
112	"	12.30	60°55,8′	55°25,0′	115	BTH
		13.05	60°57,0′	55°36,0′	85	
113	"	13.33	60°57,0′	55°36,0′	105	STD
114	"	14.25	60°56,0′	55°44,0′	220	BTH
		14.35	60°59,5′	55°46,0′	120	
114/1	"	18.09	61°10,0′	56°11,0′	358	XBT
114/2	"	19.23	61°21,5′	56°26,0′	482	XBT
114/3	"	20.35	61°30,0′	56°36,0′	506	XBT
114/4	"	22.49	61°43,0′	56°48,0′	410	XBT
114/5	17.11.86	01.54	61°47,0′	57°08,0′	380	XBT
114/6	"	02.48	61°55,0′	57°11,0′	200	XBT
114/7	"	03.46	61°58,0′	57°13,0′	144	XBT
114/8	"	09.38	62°15,5′	58°00,0′	1650	XBT
114/9	"	11.36	62°18,5′	58°03,0′	1000	XBT
115	"	22.50	62°11,4′	58°21,2′	458	BTH
		23.40	62°08,0′	58°25,8′	500	
116	18.11.86	02.15	62°14,2′	58°18,0′	470	BTH
		03.20	62°08,5′	58°25,0′	418	
117	"	05.20	62°12,3′	58°18,6′	255	BTH
		06.40	62°07,6′	58°24,4′	253	

Table 2

Stations studied during BIOMASS III Antarctic Expedition by the r/v „Profesor Siedlecki", January 1987

Explanations as in Tab. 1.

Station number	Date (GMT)	Time (GMT)	Position		Depth (m)	Kind of activity
			Latitude S	Longitude W		
1	2	3	4	5	6	7
1	02.01.87	16.50	62°00,0′	56°59,6′	577	STD, P
2	"	23.20	62°30,0′	57°00,0′	826	STD, P
3	03.01.87	05.20	62°59,8′	56°59,9′	68	STD, P
4	"	09.50	62°35,0′	57°20,0′	1105	STD, P
5	"	14.30	62°11,0′	57°42,0′	1040	STD, P, Ch
6	"	21.20	62°36,0′	57°42,0′	1300	STD, P

Table 2 — continued

1	2	3	4	5	6	7
7	04.01.87	01.43	63°00,0′	57°42,0′	154	STD, P
8	"	06.20	62°39,8′	58°11,2′	1468	STD, P
9	"	09.50	62°24,0′	58°37,0′	1275	STD, P
10	"	14.25	62°44,0′	58°42,0′	1500	STD, P, Ch
11	"	19.20	62°59,3′	58°48,0′	333	STD, P
12	05.01.87	01.04	62°30,0′	59°11,0′	673	STD, P
13	"	11.25	62°01,8′	57°04,1′	914	RMT
14	"	12.30	62°01,3′	57°02,1′	712	RMT
15	"	16.06	61°45,2′	57°00,3′	408	STD, P, Ch
16	"	21.20	61°33,3′	57°04,9′	460	RMT
17	06.01.87	00.10	61°15,0′	57°00,0′	1700	STD, P
18	"	04.41	60°49,6′	56°59,1′	3360	STD, P
19	"	08.48	60°59,9′	56°39,8′	2150	STD, P
20	"	12.30	61°19,0′	56°40,0′	980	STD, P
21	"	17.30	61°45,0′	56°40,0′	462	STD, P, Ch
22	"	20.50	61°47,0′	56°40,0′	462	RMT
23	07.01.87	02.20	61°30,0′	56°20,0′	495	STD, P
24	07.01.87	06.25	61°19,0′	56°00,0′	312	STD, P
25	"	12.26	61°34,0′	55°18,0′	896	STD, P, Ch
26	"	19.30	61°45,0′	55°54,0′	830	STD, P
27	"	23.55	61°45,0′	55°00,0′	2020	STD, P
28	08.01.87	04.25	61°20,0′	55°00,0′	820	STD, P
29	"	07.57	61°10,0′	54°40,0′	177	STD, P
30	"	11.45	61°30,0′	54°40,0′	1400	STD, P
31	"	15.30	61°52,0′	54°18,0′	312	STD, P, Ch
32	09.01.87	00.53	61°18,2′	54°31,2′	382	STD, P
33	"	05.50	60°49,8′	54°32,1′	1600	STD, P
34	"	09.40	61°00,0′	54°43,0′	565	STD, P
35	"	14.06	60°50,0′	54°55,0′	1300	STD, P, Ch
36	"	19.35	61°00,0′	55°07,0′	215	STD, P
37	"	22.35	60°50,0′	55′19,0′	1410	STD, P
38	10.01.87	02.20	61°00,0′	55°32,5′	37	STD, P
39	"	05.19	60°50,1′	55°49,8′	1110	STD, P
40	"	08.42	61°00,0′	56°05,0′	1008	STD, P
41	"	12.57	60°50,0′	56°23,0′	1950	STD, P, Ch
42	"	16.30	60°44,2′	56°22,8′	3500	RMT
43	"	18.05	60°40,0′	56°23,0′	3000	STD, P
44	"	23.00	60°40,0′	55°19,0′	3400	STD, P
45	11.01.87	05.05	60°40,1′	54°18,0′	2850	STD, P
46	"	09.40	60°30,0′	54°46,0′	3300	STD, P
47	"	16.07	60°30,0′	55°49,9′	3600	STD, P, Ch
48	"	23.25	60°20,0′	56°23,0′	3000	STD, P
49	12.01.87	05.22	60°20,0′	55°17,9′	3430	STD, P
50	"	09.49	60°20,0′	54°20,0′	3000	STD, P
51	"	14.50	60°24,0′	54°50,0′	3300	STD, P
56	13.01.87	14.55	60°50,4′	55°48,0′	537	RMT
57	13.01.87	16.40	60°51,2′	55°44,0′	288	STD, P, Ch
72	14.01.87	15.40	60°46,0′	55°30,4′	3200	STD, P, Ch
73	"	18.45	60°46,5′	55°41,0′	3100	RMT

Table 2 — continued

1	2	3	4	5	6	7
82	15.01.87	14.40	60°45,7′	55°38,3′	3200	STD, P, Ch
97	16.01.87	15.30	60°48,3′	55°48,6′	1050	STD, P, Ch
1	17.01.87	10.45	60°37,0′	55°30,0′		MTH
		12.15	60°35,4′	55°17,8′		
2	"	14.50	60°36,2′	55°19,1′		MTH
		16.15	60°35,0′	55°10,0′		
3	"	18.15	60°40,6′	55°25,5′		MTH
		20.30	60°35,0′	55°16,0′		
4	18.01.87	08.40	60°35,0′	55°29,0′		MTH
		10.40	60°39,0′	55°20,0′		
5	"	13.50	60°35,6′	55°30,6′		MTH
		16.15	60°34,0′	55°24,8′		
6	"	17.45	60°41,4′	55°17,0′		MTH
		19.00	60°40,0′	55°19,5′		
7	"	19.45	60°38,5′	55°19,5′		MTH
		22.45	60°35,0′	55°25,0′		
8	"	23.45	60°36,7′	55°22,0′		MTH
	19.01.87	01.50	60°39,0′	55°14,0′		
9	"	06.45	60°35,2′	55°25,1′		MTH
		10.25	60°31,0′	55°09,0′		
10	20.01.87	01.20	60°27,2′	55°12,3′		MTH
		04.00	60°34,4′	55°18,3′		
11	21.01.87	04.20	58°05,3′	59°07,9′		MTH
		06.20	58°09,8′	59°02,2′		

Received October 17, 1987
Revised and accepted March 15, 1988

Explanations as in Tab. 1

3. Diary of the expedition

16.09.1986 : The r/v "Profesor Siedlecki" left Gdynia at 23^{00}.

29.09. : Arrival at the Spanish port Vigo to take aboard three participants of the BIOMASS expedition.

14—16.10. : Arrival and stay in Montevideo to take fuel, food and water. Direct contacts were made with the Instituto Antartico Uruguayo and with its Director Colonel Ricardo J. Galarza. Polish Ambassador to Uruguay participated in the talks.

21.10. : Beginning of fisheries in the area of Scotia Sea.

26.10. : Beginning of works of the scientific programme in the vicinity of Elephant Island (Area 1).

06.11. : Beginning of investigations in the Bransfield Strait (Area 2).

08.11. : Ten-persons team of PAN and 3-persons team from Spain disembarked at "Arctowski" base. On the ship stayed: K. Zdzi-

towiecki, K. Skóra and J. Szeliga who sailed to South Georgia to take part in ichthyological and parasitological investigations within the PAN programme and fishing within the MIR and NOAA Consent.

26—30.12. : The m/t "Koral" travelled into the area of Livingston Island for the second run of XBT measurements along the chosen transects in the western part of the Bransfield Strait. Short visits were paid to Deception and Greenwich Islands, the Soviet "Bellingshausen" station, the Chilean "Marsh" and Chinese "Great Wall" stations.

1.01.1987 : Embarkment of ten people team from "Arctowski" base on board of the r/v "Profesor Siedlecki".

02,01. : Commencement of works in Area 2.

05—18.01. : Investigations in Area 1 and in the vicinity of Elephant Island.

23.01. : Arrival to Punta Arenas.

28.01.1987 : Return flight to Warsaw at 20^{00}h.

The area of the investigation (Figs. 1, 2) and the list of stations (Tabs. 1 and 2) where the samples were taken are included.

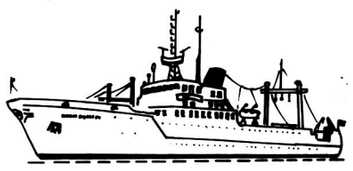
SAMPLING STATIONS

STUDIED DURING PROGRAM BIOMASS III-1

BY R/V „PROFESOR SIEDLECKI"

FROM 26 OCTOBER 1986 TO 18 NOVEMBER 1986

- ● Full oceanographic station
- ⊙ STD
- × XBT
- ▿ Bongo net haul
- ═ Midwater traul haul
- ▬ Bottom traul haul
- 20,55-1. Number of stations



King George I.
Nelson I.
Robert I.
Greenwich I.
Livingston I.
Snow I.
Deception I.
Elephant I.
Clarence I.
Gibbs I.
Tower I.
Hoseason I.
Trinity I.
ANTARCTIC PENINSULA
d'URVILLE I.
JOINVILLE ISLAND
Dundee I.
Vega Island
1000

Projection – Mercator

Made by J. Szeliga

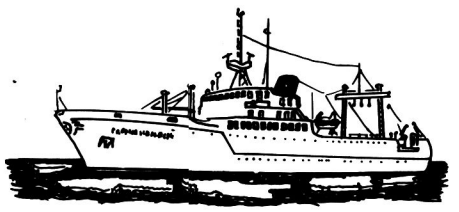
SAMPLING STATIONS

STUDIED DURING PROGRAM BIOMASS III-2

BY R/V „PROFESOR SIEDLECKI"

FROM 2 JANUARY TO 19 JANUARY 1987

- ● Full oceanographic station
- ● STD, Plankton
- ○ RMT
- ⬚ MTH 1-8



KING GEORGE I.

Nelson I.

Robert I.

Greenwich I.

Seal Is

Elephant I.

Clarence I.

Aspland I.

Gibbs I.

Bridgeman I.

d'URVILLE I.

1000

Projection - Mercator

Natural scale 1: 500 000 [Lat. 67°]

Made by J. Szeliga