POLISH POLAR RESEARCH	9	2–3	367—383	1988

Krzysztof E. SKÓRA

Hel Marine Laboratory,
University of Gdańsk,
ul. Morska 9, P. O. Box 37,
84-150 Hel, POLAND

Fishes in pelagic catches in the South Shetlands area (BIOMASS III, October—November 1986 and January 1987)

ABSTRACT: In pelagic catches of the Polish BIOMASS III Expedition 24 fish species belonging to 6 families were encountered. *Pleuragramma antarcticum*, *Electrona antarctica* and *Protomyctophum bolini* dominated in the Bransfield Strait. *Pagothenia brachysoma* was abundant in the region of Elephant Island. The presence of juvenile Channichthyidae was recorded in this area only in January. In comparison with observations in other seasons an increased frequency of *Chaenodraco wilsoni* and decreased frequency of *Chaenocephalus aceratus* was noted.

Key words: Antarctica, pelagic juvenile fishes, BIOMASS III.

1. Introduction

Investigations were made from 31 October 1986 till 20 January 1987 during a research cruise of r/v "Profesor Siedlecki". The aim of the present study was to determine species composition and abundance of fishes in catches aimed at krill capturing. Similar observations were carried out earlier by Chłapowski and Krzeptowski (1978), Rembiszewski, Krzeptowski and Linkowski (1978), Ślósarczyk and Rembiszewski (1982), Ślósarczyk (1983a,b) and Ślósarczyk and Cielniaszek (1985). The importance of this kind of data for protecting juvenile stages of fish associated with krill was previously stressed by some authors (Ślósarczyk and Rembiszewski 1982; Ślósarczyk 1983a,b; Kellerman and Kock 1984; Williams 1985). Rich information on the distribution and abundance of juvenile stages of Antarctic fishes

(particularly of Channichthyidae and Nototheniidae) was supplied by recent studies carried out during the FIBEX and SIBEX projects (Kellerman and Slósarczyk 1984; Slósarczyk 1986; Kellerman 1986; White and North 1987).

2. Material and methods

Fishing was carried out using a pelagic trawl of 11 mm mesh size. Seven hauls were made west of Elephant Island between 31 October and 4 November 1986, 7 hauls were made in the Bransfield Strait between 7 November and 13 November 1986, and 10 hauls north of Elephant Island between 17 January and 20 January 1987 (Figs. 1, 2 and 3).

Irrespectively of haul efficiency (the amount of krill), each haul was analysed in respect to fish presence. In the case of abundant krill catches quantitative analysis was conducted on a subsample of 100—120 kg of krill selected at random. The rest of the catch was inspected to determine the complete fish species composition.

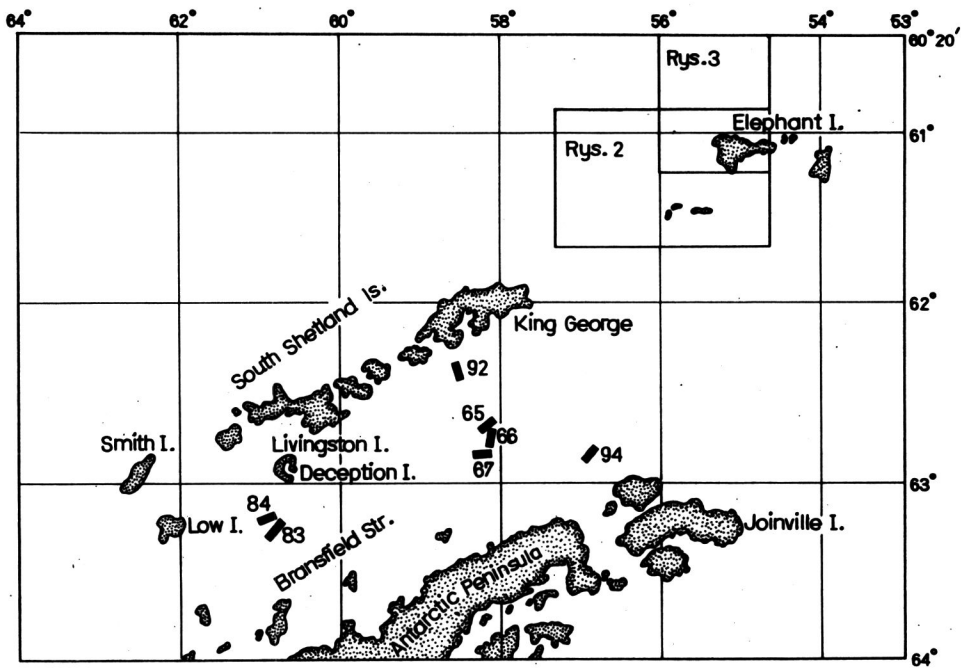

Fig. 1. Distribution of pelagic trawlings

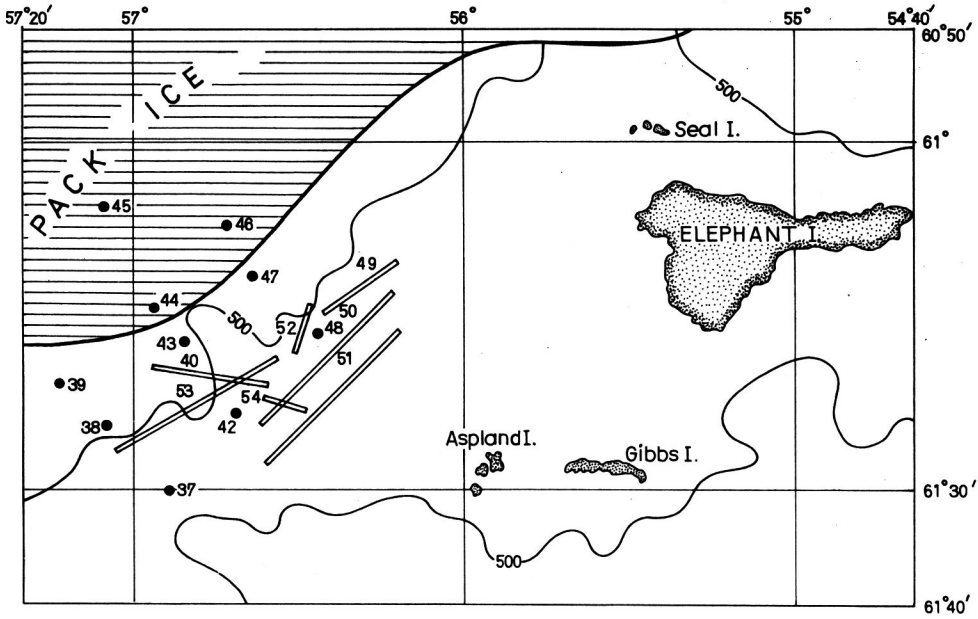

Fig. 2. Position of hydrographic stations and of pelagic trawlings in the area of Elephant Island in the period from 31 October to 4 November 1986

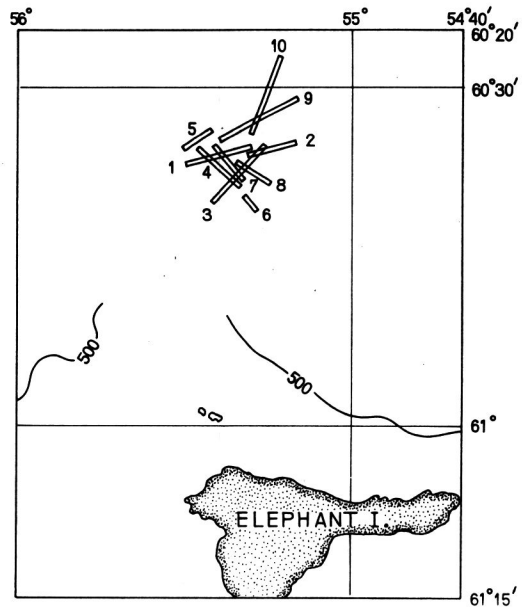

Fig. 3. Distribution of pelagic trawlings in the area of Elephant Island in the period from 17 to 20 January 1987

Results were analysed in respect to the geographic species distribution, to the amount of fish captured in one hour of fishing, and to the amount of fish per each 100 kg of krill.

Standard body length (Ls) was determined exact to 1 mm rounding it to nearest milimetre below. Fish stages nomenclature was taken from Hureau (1982). Fishes were identified mainly according to the Key by Fischer and Hureau (1985).

3. Results

The results of 7 catches carried out west of Elephant Island are presented in Tab. 1. Seven fish species were recorded in the catches. *Pagothenia brachysoma* dominated in 6 hauls made in the upper water layer. Its abundance was very low, not exceeding 2.9 ind. per hour. Mesopelagic species — *Electrona antarctica* — dominated in one haul made near the bottom and this haul was also the richest in respect to species composition. Only *Pagothenia brachysoma* occurred in common with krill and the index of its cooccurrence in 100 kg of krill ranged from 2.3 to 200.0 ind. (Tabl. 1). Almost complete absence of Channichthyidae (1 specimen of *Neopagetopsis ionah*) is noticeable.

In the Bransfield Strait catches 13 fish species were recorded (Tab. 2). Channichthyidae (6 species) dominated among juvenile and postlarval forms, and Nototheniidae (3 species) were subdominants. Mesopelagic fishes (Myctophidae and Gempylidae) were represented only by adult specimens and these fishes together with *Pleuragramma antarcticum* were the most abundant. In three hauls a considerable abundance of *Pleuragramma antarcticum* exceeding 500 ind. per hour was observed (Nos. 66, 67 and 94), with a maximum of 1440 ind. per hour. *Electrona antarctica* and *Protomyctophum bolini* were next in abundance in single hauls. The least abundance were Channichthyidae: from 0.5 to 5.1 ind. per hour.

The highest index of fish abundance per 100 kg of krill was obtained for *Pleuragramma antarcticum* (59964 ind.; Tab. 2). However, this occurred at a very low krill fishing efficiency, which amounted to 1.9 kg per hour. The body length of *P. antarcticum* ranged between 34 and 64 mm. (Fig. 4).

Cryodraco antarcticus and *Chionodraco rastrospinosus* were represented by specimens probably hatched in previous year. Their standard body length ranges were 128—150 and 79—104 mm, respectively. 8 specimens of *Chaenodraco wilsoni* were early juvenile forms from 37 to 48 mm in length. Specimens of *Pagetopsis macropterus* ranged from 42 to 61 mm and the similar body length range (36—61 mm) was observed in *Pagetopsis maculatus*.

Myctophidae were represented by adult specimens although not all of them were sexually mature. Body length of *Electrona antarctica* ranged from 46 to 93 mm and of *Protomyctophum bolini* — from 42 to 65 mm.

North of Elephant Island rich krill hauls were obtained. 13 fish species were encountered as a by-catch of these hauls (Tab. 3). Juvenile stages

Table 1

Amount of fishes caught in pelagic hauls calculated per 1 hour (A) and per 100 kg of krill (B) in the region west of Elephant Island; (31 October — 4 November 1986)

Haul number		40	49	50	51	52	53	54
Hour (local time)	from	16.45	18.45	22.45	03.40	09.10	15.20	20.45
	to	18.45	22.00	02.25	07.40	11.35	19.20	23.30
Sounding	from	1200	400	500	500	430	483	410
	to	700	310	412	315	450	540	260
Haul depth	(from-to)	500—250	60	24	43	70—125	35—100	400—230
Amount of krill	(kg/h)	0,0	0,3	108,0	165,0	0,0	0,0	0,0
(A)								
CHANNICHTHYIDAE								
Neopagetopsis ionah Nybelin		–	–	–	–	–	0,3	–
NOTOTHENIIDAE								
Aetothaxis mitopteryx De Witt		–	–	–	–	–	–	0,4
Pagothenia brachysoma (Pappenheim)		0,5	0,6	2,5	0,3	0,4	2,9	–
MYCTOPHIDAE								
Electrona antarctica (Günther)		–	–	–	–	–	–	170,0
Gymnoscopelus nicholsi (Gilbert)		–	–	–	–	–	–	0,4
BATHYLAGIDAE								
Bathylagus sp.		–	–	–	–	–	–	0,4
GEMPYLIDAE								
Paradiplospinus antarcticus Andriashev		–	–	–	–	–	–	8,7
(B)								
CHANNICHTHYIDAE								
Neopagetopsis ionah		–	–	–	–	–	+	–
NOTOTHENIIDAE								
Aetothaxis mitopteryx		–	–	–	–	–	–	+
Pagothenia brachysoma		+	200,0	2,3	20,0	+	+	–
MYCTOPHIDAE								
Electrona antarctica		–	–	–	–	–	–	+
Gymnoscopelus nicholsi		–	–	–	–	–	–	+
BATHYLAGIDAE								
Bathylagus sp.		–	–	–	–	–	–	+
GEMPYLIDAE								
Paradiplospinus antarcticus		–	–	–	–	–	–	+

Explanations: + – calculation per krill amount impossible

Table 2

Amount of fishes caught in pelagic hauls calculated per 1 hour (A) and per 100 kg of krill (B) in the Bransfield Strait (7—13 November 1986).
Explanations — as in Tab. 1.

Haul number		65	66	67	83	84	92	94
Hour (local time)	from	22.35	01.50	04.45	01.20	03.20	17.00	08.15
	to	00.45	03.50	07.30	02.40	05.20	18.00	10.15
Sounding	from	794	626	640	598	673	1425	190
	to	723	496	420	614	1000	1500	367
Haul depth	(from-to)	24	30	25—60	27	40	230	40—50
Amount of krill	(kg/h)	11,4	1,9	400,0	0,0	0,0	0,1	175,0
(A)								
CHANNICHTHYIDAE								
Chaenodraco wilsoni Regan		0,5	–	–	–	0,5	–	2,0
Chionodraco hamatus (Lönnberg)		0,5	–	–	–	–	–	–
Chionadraco rastrospinosus De Witt et Hureau		1,4	1,0	5,1	0,8	0,5	5,0	1,5
Cryodraco antarcticus Dollo		3,2	1,0	–	0,8	–	–	–
Pagetopsis macropterus (Boulenger)		–	–	–	–	–	–	3,5
Pagetopsis maculatus Baruskov et Permitin		0,9	–	5,1	–	–	–	–
NOTOTHENIIDAE								
Nototheniops larseni		–	–	20,0	–	–	–	6,0
Pleuragramma antarcticum Boulenger		126,8	144,0	714,9	–	–	–	510,0
Trematomus loennbergii Regan		–	0,5	–	–	–	–	–
MYCTOPHIDAE								
Electrona antarctica (Günther)		–	–	–	613,5	18,5	35,0	–
Gymnoscopelus bolini Andriashev		–	–	–	–	–	5,0	–
Protomyctophum bolini (Fraser-Brunner)		–	–	–	–	–	434,0	–
Protomyctophum tenisoni (Norman)		–	–	–	–	–	2,0	
GEMPYLIDAE								
Paradiplospinus antarcticus Andriashev		0,9	–	–	–	–	–	–
(B)								
CHANNICHTHYIDAE								
Chaenodraco wilsoni		4,0	–	–	–	+	–	1,1
Chionodraco hamatus		4,0	–	–	–	–	–	–
Chionodraco rastrospinosus		12,0	52,6	1,3	+	+	+	0,9
Cryodraco antarcticus		28,0	52,6	–	+	–	–	–
Pagetopsis macropterus		–	–	–	–	–	–	2,0
Pagetopsis maculatus		8,0	–	1,3	–	–	–	–

Table 2 continued

NOTOTHENIIDAE							
Nototheniops larseni	–	–	5,0	–	–	–	3,4
Pleuragramma antarcticum	1116,0	59964,0	178,0	–	–	–	291,4
Trematomus loennbergi	–	26,3	–	–	–	–	–
MYCTOPHIDAE							
Electrona antarctica	–	–	–	+	+	+	–
Gymnoscopelus bolini	–	–	–	–	–	+	–
Protomyctophum bolini	–	–	–	–	–	+	–
Protomyctophum tenisoni	–	–	–	–	–	+	–
GEMPYLIDAE							
Paradiplospinus antarcticus	8,0	–	–	–	–	–	–

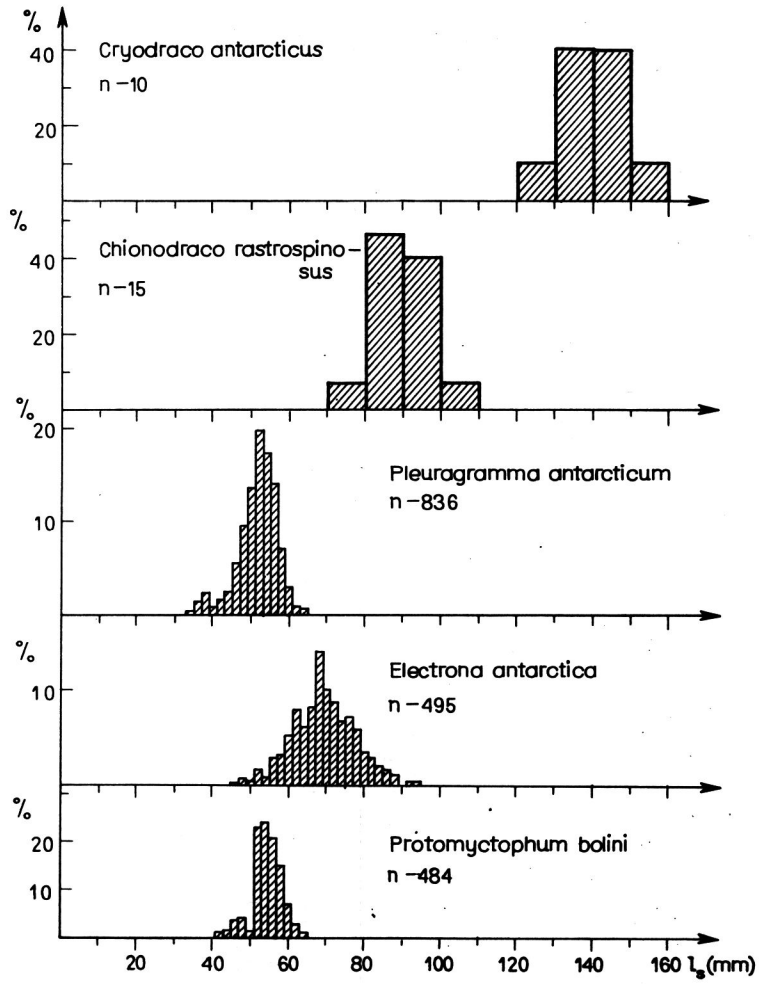

Fig. 4. Length-frequency distribution of mass-occurring fish species in krill catches in the region of Bransfield Strait (7—13 November 1986)

Table 3

Amount of fishes caught in pelagic hauls calculated per 1 hour (A) and per 100 kg of krill (B) in the region north of Elephant Island (17—20 January 1987)

Haul number		1	2	3	4	5	6	7	8	9*	10
Hour (local time)	from	07.45	11.50	15.15	05.40	10.50	14.45	16.45	20.45	03.45	22.20
	to	09.15	13.15	17.30	07.40	13.15	16.00	19.45	22.50	07.15	01.00
Sounding		3430	3450	3430	3430	3430	3500	3360	3300	3400	3400
Haul depth (from — to)		60—60	80	30—100	70—25	70—45	45	120—45	60—25	35—120	5—10
Amount of krill (kg/h)		3867	179	1778	2000	2083	240	1000	2381	1892	259
(A)											
CHANNICHTHYIDAE											
Chaenocpehalus aceratus Lönnberg		—	—	—	—	—	—	10,0	+	—	—
Chaenodraco wilsoni Lönnberg		161,3	2,8	—	234,0	138,0	0,8	10,0	47,6	—	+
Chionodraco rastrospinosus De Witt et Hureau		96,7	—	—	17,0	+	12,0	20,0	+	+	—
Cryodraco antarcticus Dollo		96,7	4,2	14,7	+	17,4	12,0	50,0	+	—	2,6
Neopagetopsis ionah Nybelin		—	+	+	+	—	—	+	—	—	—
NOTOTHENIIDAE											
Dissostichus mawsoni Norman		—	—	—	+	—	—	+	—	—	—
Nototheniops larseni (Lönnberg)		—	—	—	+	—	—	—	—	—	—
Notothenia sp.		—	—	—	+	+	—	—	—	—	—
Pagothenia brachysoma (Pappenheim)		290,0	23,9	177,8	34,8	224,0	4,8	70,0	142,9	+	10,4
MYCTOPHIDAE											
Electrona antarctica (Günther)		—	—	—	—	—	—	—	+	—	101,1
Gymnoscopelus nicholsi (Gilbert)		—	—	—	—	—	—	—	—	—	+
Krefftichthys andersoni (Lönnberg)		—	—	—	+	—	—	—	—	—	—
PARALEPIDIDAE											
Notolepis coatsi Dollo		—	—	—	—	—	—	—	—	—	+

(B)

CHANNICHTHYIDAE										
Chaenocephalus aceratus	–	–	–	–	+	–	1,0	+	–	–
Chaenodraco wilsoni	4,2	1,6	–	11,6	6,7	1,0	1,0	2,8	–	+
Chionodraco rastrospinosus	4,2	–	–	0,8	+	5,0	2,0	+	+	–
Cryodraco antarcticus	2,5	2,4	0,8	+	0,8	5,0	5,0	+	–	1,0
Neopagetopsis ionah	–	+	+	+	–	–	+	–	–	–
NOTOTHENIDAE										
Dissostichus mawsoni	–	–	–	+	–	–	+	–	–	–
Nototheiops larseni	–	–	–	+	–	–	+	–	–	–
Notothenia sp.	–	–	–	+	+	–	–	–	–	–
Pagothenia brachysoma	7,5	13,6	10,0	1,7	10,8	2,0	7,0	6,0	+	4,0
MYCTOPHIDAE										
Electrona natarctica	–	–	–	–	–	–	–	+	–	39,0
Gymnoscopelus nicholsi	–	–	–	–	–	–	–	–	–	+
Krefftichthys andersoni	–	–	–	+	–	–	–	–	–	–
PARALEPIDIDAE										
Notolepis coatsi	–	–	–	–	–	–	–	–	–	+

Explanations: * — subsample was not taken,
+ — the species recorded outside the subsample.

of Channichthyidae (5 species) and Nototheniidae (4 species) dominated, other fishes were adult Myctophidae (3 species) and Paralepididae (1 species).

Pagothenia brachysoma which was present in all catches occurred in considerable abundance, in amounts ranging up to 290 ind. per hour (Tab. 3). High frequency of *Chaenodraco wilsoni* was also recorded and its abundance was also rather high (up to 234 ind. per hour). *Cryodraco antarcticus* also constituted a relatively constant element of the hauls and its amounts ranged up to 96.7 ind. per hour. A rather common species was also *Chiono-*

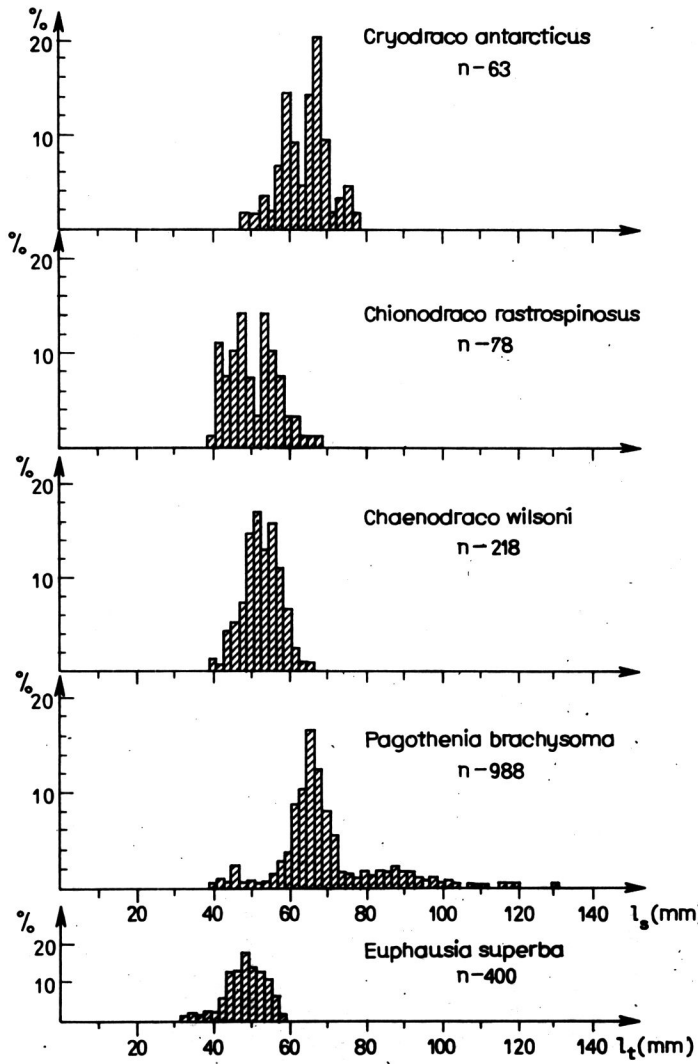

Fig. 5. Length-frequency distribution of mass-occurring fish species in krill catches north of Elephant Island (17—20 January 1987)

draco rastrospinosus. In one haul a relatively high abundance of *Electrona antarctica* was also observed (over 100 ind. per hour), which was also reflected in the number of this fish species per 100 kg of krill (39 ind.). Among other species the amounts of only *Pagothenia brachysoma* and *Chaenodraco wilsoni* exceeded 10 specimens per 100 kg of krill.

All caught Channichthyidae were early juvenile stages. The largest were *Cryodraco antarcticus* ranging to nearly 80 mm. *Chionodraco rastrospinosus* and *Chaenodraco wilsoni* were smaller (Fig. 5). *Pagothenia brachysoma*, a most common and abundant species, was represented mainly by juveniles of 39—75 mm in length.

4. Discussion and conclusions

Despite the lack of large krill concentrations in the Bransfield Strait in spring of the 1986/1987 season (Kalinowski 1988), the qualitative composition of ichthyofauna recorded in this area was typical (c.f. Rembiszewski, Krzeptowski and Linkowski 1978; Kellerman and Slósarczyk 1984; White and North 1987). Most frequent were early juvenile stages of *Pleuragramma antarcticum*. Their occurrence close to the shelf of Antarctic Peninsula (Fig. 6) can be related to the inflow of the Weddell Sea water carrying larvae of this species (Kellerman and Slósarczyk 1984; Kellerman 1986; White and North 1987). *P. antarcticum* caught during present research were on average 10 mm shorter than those juveniles which were collected at the end of December and beginning of January in the season 1983/84 (Slósarczyk 1986), but they were similar in length to those caught by Kellerman (1986) in 1977 using an RTM-8 net.

The number of specimens caught per 1 hour of trawling was similar to that recorded two years earlier (Slósarczyk 1986). However, in the present study no fish of body length ranging from 70 to 115 mm were recorded.

Body lengths of *Cryodraco antarcticus* and *Chionodraco rastrospinosus* were approximately twice higher than those observed in December and January of the 1983/1984 season (Slósarczyk 1986) and they were nearly five times less abundant. Consequently, they originated from spawning of the preceding year and were represented by the older age group (I). *Chaenodraco wilsoni* was also much less abundant than during the SIBEX investigations (Slósarczyk 1986) — 0.5 to 2.0 versus 2.5 to 47.4 ind. per hour. Specimens of this species were smaller on average by 19 mm from those noted in this area in March (Slósarczyk 1987). This difference may roughly reflect the growth rate of *C. wilsoni* in this period (Fig. 7).

The lengths of *Pagetopsis macropterus* were similar to those of specimens caught in February 1976 (Rembiszewski, Krzeptowski and Linkowski 1978).

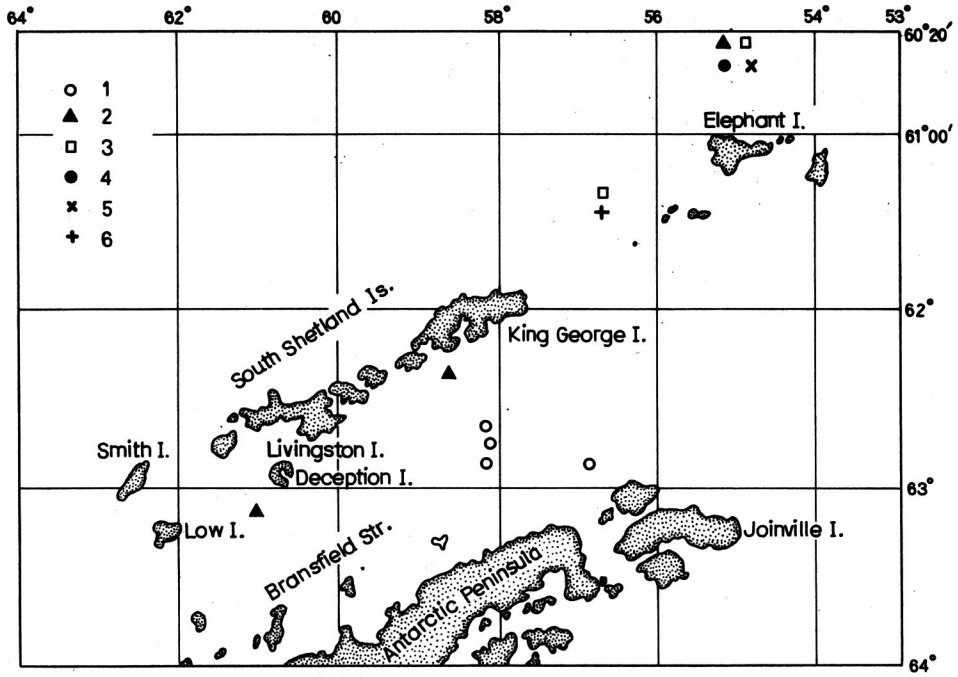

Fig. 6. Occurrence of Notoheniidae in pelagic hauls

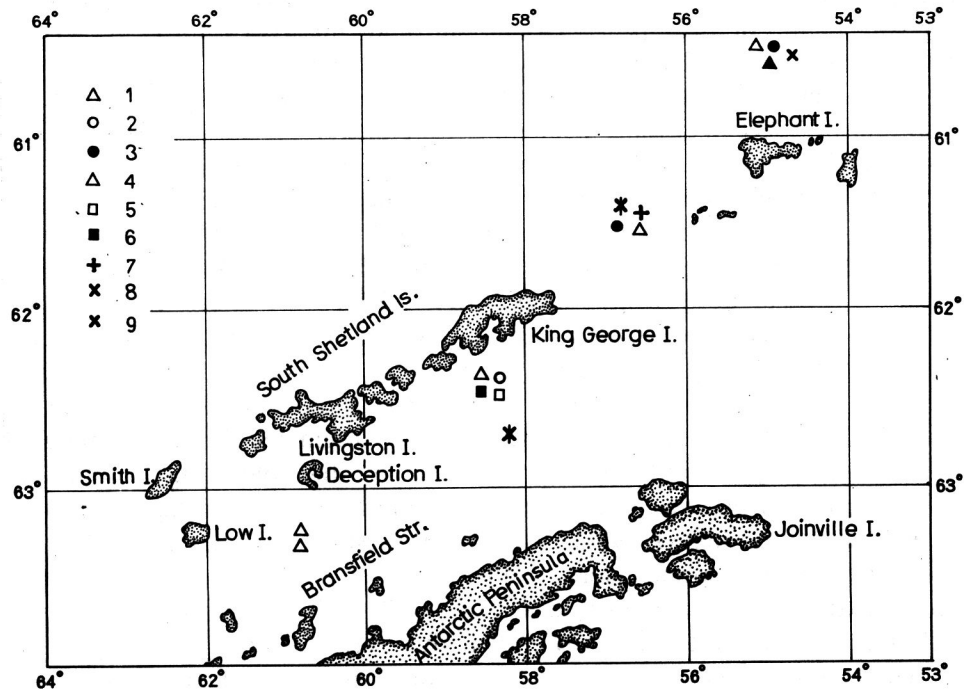

Fig. 7. Occurrence of Channichthyidae in pelagic hauls

The present ones were slightly smaller and ranged from 42 to 45 mm, however one should remember that the present sample of *P. macropterus* was rather small (6 specimens only) caught in one haul (3.5 ind. per hour). The SIBEX efficiences were higher ranging from 2.0 to 10.6 ind. per hour (Ślósarczyk 1986). The other species of this genus, *Pagetopsis maculatus* was recorded twice (0.9 and 5.1 ind. per hour). Comparative data on this species are lacking. It is worth noticing that the genus *Pagetopsis* occurred in the same area as *Pleuragramma antarcticum.*

The presence of Myctophiidae in this area was previously noted by Andriashev (1965), Rembiszewski, Krzeptowski and Linkowski (1978), Kock (1982) and Ślósarczyk and Cielniaszek (1985). Recent observations on the distribution in the South Shetlands area of two mass occurring circumpolar species of this family were published by White and North (1987). Their observations on *Electrona antarctica* and *Protomyctophum bolini* occurring along the shelf are concordant with present data (Fig. 8).

Hauls which were carried out north of Elephant Island were made within large krill concentrations. Similarly as it was during the SIBEX expedition (Ślósarczyk 1986) they were conducted in January. Species composition of present catches was less diversified; the same species of Channichthyidae

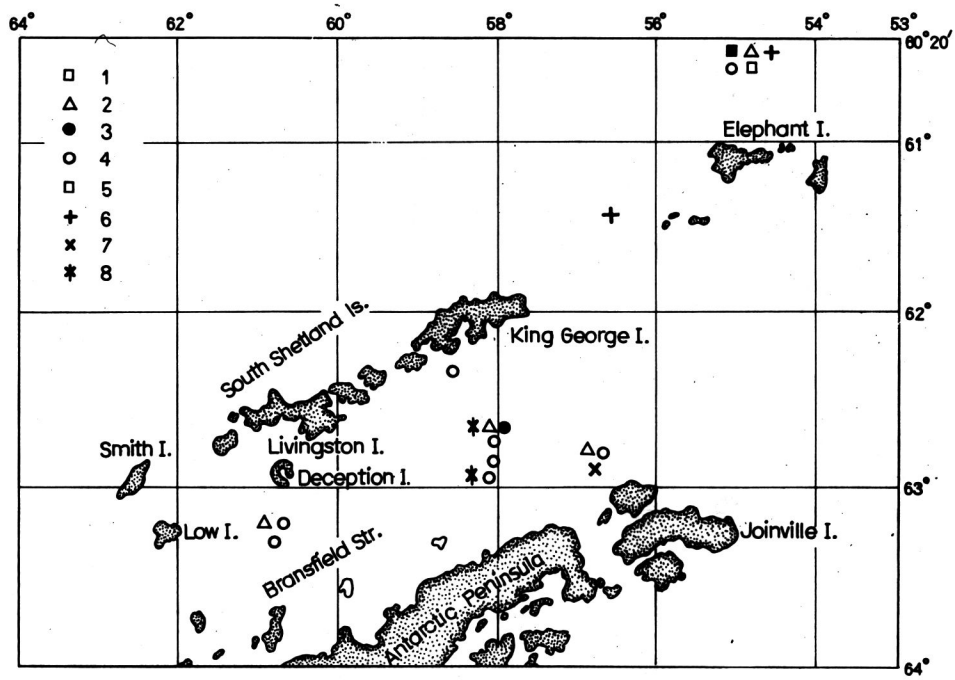

Fig. 8. Occurrence of Myctophidae, Bathylagidae, Gempylidae and Paralepididae in pelagic hauls

were noted while less Nototheniidae species were recorded, of which *Pagothenia brachysoma* was dominant. In the present trawlings a very low abundance of *Chaenocephalus aceratus* and an increase in the abundance of *Chaenodraco wilsoni* was noticeable. The remaining three species of Channichthyidae — *Cryodraco antarcticus*, *Chionodraco rastrospinosus* and *Neopagetopsis ionah* — were similarly abundant as in the study by Ślósarczyk (1986). In our study region catches were made over the depth of above 3000 m. Consequently, these fishes occurred beyond the shelf limit; but according to Ślósarczyk (1986) they prefer the epipelagial of the shelf.

The regular occurrence of *Pagothenia brachysoma* recorded in the course of the present research in the area of Elephant Island is remarkable. This species considered as kryopelagic and circumpolar one had been rarely encountered in Western Antarctica (Andrjašev and Permitin 1981; Ślósarczyk and Rembiszewski 1982; Kock 1982, Kellerman and Kock 1984). According to Andrjašev and Permitin (1981) surface waters of low temperature covered with drifting ice are typical habitat of *P. brachysoma*. This species occurred in almost all hauls made in the region west of Elephant Island (Tab. 1), except haul 54 carried out near the bottom (Fig. 9), which

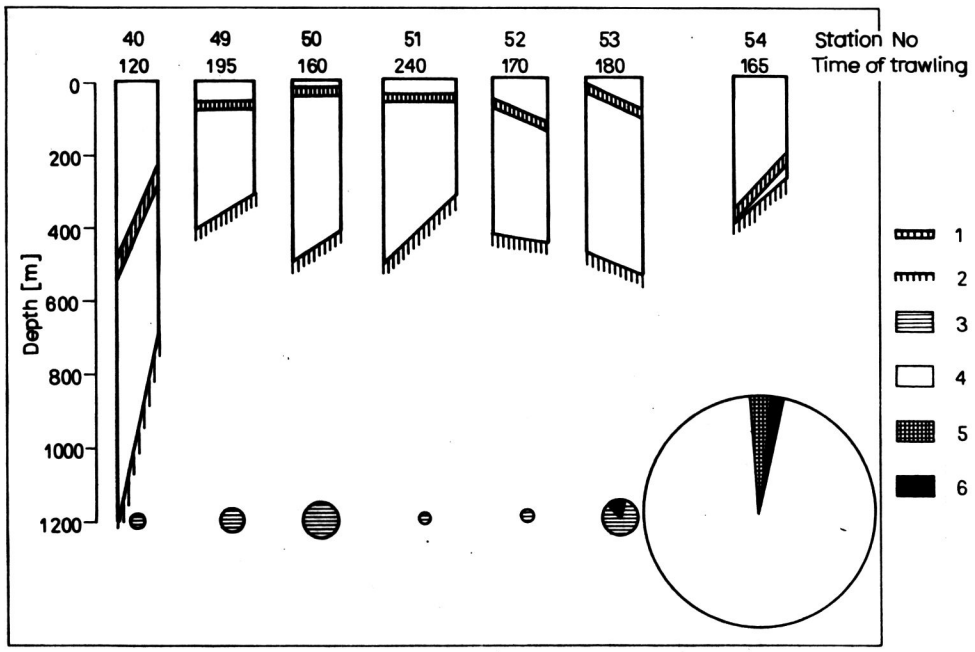

Fig. 9. Qualitative and quantitative composition of fish fauna in pelagic hauls (calculated per 1 h) made over the western shelf of Elephant Island in the period from 31 October to 4 November 1986

resulted in the rich catch of mesopelagic species (Tab. 1) preferring water temperature higher than 0°C (White and North 1987). This phenomenon was the consequence of the hydrological situation revealed in October—November 1986 at the nearby network of stations. The temperature of surface waters (about −1°C) indicated clearly to their southern origin. In contrast, warm waters of about +0.2°C occurred at the bottom (Grelowski and Wojewódzki 1988; Rakusa-Suszczewski 1988).

It is to be stressed however, that *P. brachysoma* was also frequent (frequency 100%) and usually dominant in rich krill hauls taken north of Elephant Island in late January (Tab. 3) when pack ice was totally absent in the area. This fact could be probably explained by the earlier, unusually far north ranging ice fields in the area during the investigated season 1986/87.

A noticeable fact was the lack of juvenile stages of Channichthyidae west of Elephant Island at the end of October and the beginning of November. On the other hand in January they were found in all hauls north of this island. However, due to the lack of comparative data for this period and region it is difficult to conclude that in this area young Channichthyidae appear not earlier than at the beginning of austral summer.

It is also worth noticing that both the present and previous studies (Ślósarczyk and Rembiszewski 1982; Kellerman and Kock 1984; Ślósarczyk 1986) prove that in the Bransfield Strait, the region of South Shetlands and of Antarctic Peninsula mass occurrence of juvenile fish stages in krill shoals is not as frequent as in the region of South Georgia (Kompowski 1980; Ślósarczyk 1983b) or around Balleny Islands (Ślósarczyk 1983a). Consequently, it seems that gaining sufficient data on the time and place of fry occurrence one can avoid its devastation.

The study was sponsored by the Project C.P.B.P.03.03. of Polish Academy of Sciences.

Thanks are due to Prof. dr. S. Rakusa-Suszczewski and Assoc. prof. dr. K. Jażdżewski for their comments and advices, as well as to dr. V. J. Loeb for her help in material collecting.

5. References

Andriashev A. P. 1965. A general review of the Antarctic fish fauna. In. J. Van Mieghem and J. P. Van Oye (eds), Biogeografy and ecology of Antarctica. — Junk Publ., The Hague: 491—550.

Andrjašev A. P. and J. J. Permitin 1981. O cirkumpoljarnom rasprostranenii malogo širokolobika w Antarktikie. — Biologija morja, 3: 76—78.

Chłapowski K. and M. Krzeptowski. 1978. On the presence of fishes in antarctic krill catches. — Acta Ichth. Piscat., 8: 3—8.

Fisher W. and J. C. Hureau (eds.) 1985. FAO species identification sheets for fishery purposes. Southern Ocean (Fishing areas 48, 58 and 88) (CCAMLR Convention Area). — Comm. Conserv. Ant. Mar. Living Res., Rome, FAO, 1 and 2: 1—470.

Grelowski A. and T. Wojewódzki. 1988. Hydrography of the region between the King George and Elephant Islands (BIOMASS III, October—November 1986). — Pol. Polar Res., 9: 165—180.

Hureau J. C. 1982. Methods for studying early life history stages of Antarctic fishes. — Cybium, 61(1): 3—11.

Kalinowski J. 1988. Biomass variability of krill in the South Shetland Islands region (BIOMASS III, October 1986 — January 1987). — Pol. Polar Res., 9: 327—338.

Kellerman A. and K. H. Kock. 1984. Postlarval and juvenile notothenioids (Pisces, Perciformes) in the Southern Scotia Sea and Northern Weddell Sea during FIBEX 1981. — Meeresforsch., 30: 82—93.

Kellerman A. and W. Ślósarczyk. 1984. Distribution of postlarval and juvenile Notothenioidei in the Atlantic Sector of the Southern Ocean during FIBEX 1981. — BIOMASS Rep. Ser., 36: 1—27.

Kellerman A. 1986. Zur Biologie der Jugendstadien der Notothenioidei (Pisces) an der Antarktischen Halbinsel. — Ber. Polarforsch., 31: 1—149.

Kock K. H. 1982. Fische aus RMT-8 und Krillschwimmschleppnetzfängen wahrend FIBEX 1981. — Arch. FischWiss., 33 (Beih. 1): 97—112.

Kompowski A. 1980. — Studies on juvenile *Chaenocephalus aceratus* (Lönnberg, 1906) (Pisces, Chaenichthyidae) from off South Georgia. — Acta Ichth. Piscat., 10: 45—53.

Rakusa-Suszczewski S. 1988. Coarse-scale structure of the water column between King George and Elephant Islands (BIOMASS III, October—November 1986). — Pol. Polar Res., 9: 181—194.

Rembiszewski J. M., M. Krzeptowski and T. B. Linkowski. 1978. Fishes (Pisces) as by-catch in fisheries of krill *Euphausia superba* Dana (Euphausiacea, Crustacea). — Pol. Arch. Hydrobiol., 25: 677—695.

Ślósarczyk W. 1983a. Juvenile *Trematomus bernacchii* and *Pagothenia brachysoma* (Pisces, Nototheniidae) within krill concentrations off Balleny Islands (Antarctic). — Pol. Polar Res., 4: 57—69.

Ślósarczyk W. 1983b. Preliminary estimation of abundance of juvenile Nototheniidae and Channichthyidae within krill swarms east of South Georgia. — Acta Ichth. Piscat., 8: 3—11.

Ślósarczyk W. 1986. Attempts at a quantitative estimate by trawl sampling of distribution of postlarval and juvenile Notothenioids (Pisces, Perciformes) in relation to environmental conditions in the Antarctic Peninsula region during SIBEX 1983—1984. — Mem. Natl. Inst. Polar Res., Spec. Issue, 40: 299—315.

Ślósarczyk W. 1987. Contribution to the early life history of Channichthyidae from the Bransfield Strait and South Georgia (Antarctica). — Proc. V Congr. Europ. Ichthyol., Stockholm 1985; 427—433.

Ślósarczyk W. and Z. Cielniaszek. 1985. Postlarval and juvenile fish (Pisces, Perciformes and Myctophiformes) in the Antarctic Peninsula region during BIOMASS-SIBEX 1983/1984. — Pol. Polar Res., 6: 159—165.

Ślósarczyk W. and J. M. Rembiszewski. 1982. The occurrence of juvenile Notothenioidei (Pisces) within krill concentrations in the region of the Bransfield Strait and the southern Drake Passage. — Pol. Polar Res., 3: 299—312.

White M. G. and A. W. North. 1987. Postlarval Notothenioidei and midwater fish collected during the SIBEX cruise by British Antarctic Survey, 1985. — Proc. V Congr. Europ. Ichthyol., Stockholm 1985; 405—411.

Williams R. 1985. The potential impact of a krill fishery upon pelagic fish in Prydz Bay area of Antarctica. — Polar Biol., 5: 1—4.

Received March 15, 1988
Revised and accepted May 14, 1988

6. Streszczenie

Obserwacji dokonano w okresie od 31.10.1986 do 20.01.1987 podczas rejsu badawczego r/v "Profesor Siedlecki". Materiał pochodził z 24 pelagicznych zaciągów (rys. 1, 2 i 3) wykonanych włokiem krylowym z tkaniny sieciowej o wielkości oczka 11 mm.

Badania obejmujące ustalenie miejsca, czasu, ilości oraz składu gatunków ryb w połowach kryla były w dużym stopniu kontynuacją podobnych tematów realizowanych w ramach programów FIBEX i SIBEX. Ustalone na ich podstawie fakty doprowadziły do sformułowania kilku istotnych wniosków.

Juwenilne stadia ryb w rejonie Cieśniny Bransfielda i Wyspy Elephant (tab. 1—3) występowały w koncentracjach *Euphausia superba* mniej licznie, niż w innych rejonach (np. Południowej Georgii, Wysp Balleny). Wydaje się zatem, że podczas połowów przemysłowych kryla przy dobrym rozpoznaniu czasu i miejsc występowania narybku można uniknąć jego nadmiernej dewastacji.

W okresie wiosny w Cieśninie Bransfielda dominującymi gatunkami zasiedlającymi strefę pelagialu były dorosłe Myctophidae (*Electrona antarctica*, *Protomyctophum bolini*) oraz juwenile stadia *Pleuragramma antarcticum*.

W rejonie Wyspy Elephant nie odnotowano wiosną (październik — listopad) juwenilnych stadiów Channichthyidae. Pojawiły się one natomiast w styczniu.

W stosunku do poprzednich obserwacji (FIBEX i SIBEX), w sezonie 1986/87 częściej spotykano juwenilne stadia *Chaenodraco wilsoni*, a rzadziej *Chaenocephalus aceratus*.

Z zoogeograficznego punktu widzenia interesującym było liczne występowanie *Pagothenia brachysoma*, gatunku kriofilnego i rzadkiego w tej części Antarktyki. Jego obecność należy tłumaczyć długotrwałym utrzymywaniem się w Cieśninie Bransfielda i w rejonie Wyspy Elephant paku lodowego i niskiej temperatury wód powierzchniowych.