AUSTRALIAN NATIONAL ANTARCTIC RESEARCH EXPEDITIONS

ANARE RESEARCH NOTES 32

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SIBEX II CRUISE KRILL/ZOOPLANKTON SAMPLING DATA

by

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ABSTRACT

During the SIBEX II Cruise (December 1983-February 1984) to the Prydz Bay region, Antarctica, fifty-one shallow hauls (0-200 m), nineteen deep hauls (0-1000 m) and four target trawls were made with a RMT 1+8 net. From the samples obtained abundance of larval and postlarval (juvenile and adult) krill *Euphausia superba* was investigated. For postlarval krill, size (length, weight), sex and maturity composition are reported.

1. INTRODUCTION

As part of the international BIOMASS (Biological Investigation of Marine Antarctic Systems and Stocks) program, the Australian Antarctic Division has been conducting a long term field survey to provide data on the distribution, abundance and population structure of the krill *Euphausia superba* in the Prydz Bay region, Antarctica. Four *Nella Dan* marine science cruises have been made;

First International BIOMASS Experiment (FIBEX), December 1980 to March 1981;

Antarctic Division BIOMASS Experiment, Phase I (ADBEX I), November to December 1982;

Antarctic Division BIOMASS Experiment, Phase II (ADBEX II), January to February 1983; and the

Second International BIOMASS Experiment, Phase II (SIBEX II), December 1984 to February 1985.

The ADBEX cruises were national programs. The Division's participation in SIBEX II was co-ordinated with South Africa, Japan and France. Grid sampling stations were set out covering an area from 58° to 93°E and from 60°S to the coast of Antarctica (Figure 1). At each krill sampling station, a CTD cast and water collection for phytoplankton pigment, nutrients and primary production measurements were made.

2. SAMPLING METHODS

A Rectangular Midwater Trawl (RMT 1+8, mesh size 4.5 mm for the RMT 8 and 300 µm for the RMT 1) designed by Baker et al. (1973) was used to collect larval and postlarval (juvenile and adult) krill *Euphausia superba*. The RMT 8 and RMT 1 nets had effective mouth areas of 8 m^2 and 1 m^2, respectively, when towed at a speed of 2 knots.

At each station, a shallow oblique haul (0-200 m) was made. In addition to this shallow oblique haul, a deep haul (0-1000 m) was also made at every third station. Because a net monitor system comprising a depth sensor was not available during the cruise, the depth of the trawl reached was read by a TSK depth-distance recorder (shallow hauls) or estimated from wire length and wire angle (deep hauls). Horizontal tows were also made only when krill swarms were located at a particular depth by a Simrad EK 120 echo sounder (adjustment of sampling depth was made by wire length and angle).

To register the amount of water that passed through the nets, a flowmeter (General Oceanics) was hung by a cord over the upper net bars and positioned near the centre of the net mouths. The effective mouth area of the RMT 8 is a function of the towing speed. In this study, the towing speed of the RMT 1+8 ranged between 2 and 3.5 knots; this may have affected the effective mouth areas of both nets (c.f. Roe et al. 1980). However, the authors assumed that the originally designed mouth areas of both nets remained at constant for the calculation of the volume of water passed through the nets.

3. PROCESSING OF SAMPLES

On board the ship, large and fragile zooplankton (jellyfish, salps, etc.) were sorted from the rest of the specimens. All specimens were preserved in Steedman's solution (Steedman 1976) for later examination at the Antarctic Division. Krill catches from swarms were weighed by using a clock-faced spring balance and part of the catches (>200 specimens) were preserved in Steedman's solution for later examination.

After the cruise the RMT 8 samples of krill were sorted into juvenile, male and female, then body length (standard 1 and reference measurements, Mauchline 1980) and body weight were measured. Body length was measured using a slide caliper (accuracy: 0.01 mm) and body weight by a Mettler top-pan balance (accuracy: 0.001 g). Male and female krill were further classified into maturation stages according to the system of Makarov and Denys (1981). Non-krill zooplankton in the RMT 8 samples were identified to phylum, class, sub-class or order level and weighed. Euphausiids were identified to the following species; *Euphausia crystallorophias*, *E. frigida*, *E. triacantha*, and *Thysanoessa macrura*.

Most of the RMT 1 samples contained a large amount of phytoplankton making the measurement of wet weight of the whole sample difficult. Settling volume was measured instead by standing the samples in a 2 L measuring cylinder for two weeks. Larvae of krill and other euphausiid species were extracted, staged and counted under a dissecting microscope. For identification, the diagnostic features described by Makarov (1980) were consulted. The larvae of *E. superba* and *E. crystallorophias* raised from eggs in the author's laboratory (Ikeda 1984, 1985) were also used as a reference. No further sorting of the RMT 1 samples was made for zooplankton other than euphausiid larvae mentioned above.

4. DATA

TABLE 1. FLOWMETER DATA

FLOWMETER NUMBER	FLOWMETER MAKE AND MODEL	CALIBRATION (Counts per metre)
1	General Oceanics - 2030R (B03106)	37.40
2	General Oceanics - 2030R (B03160)	32.82
3	General Oceanics - 2031 (B06864)	35.83
4	General Oceanics - 2031 (B07250)	35.09

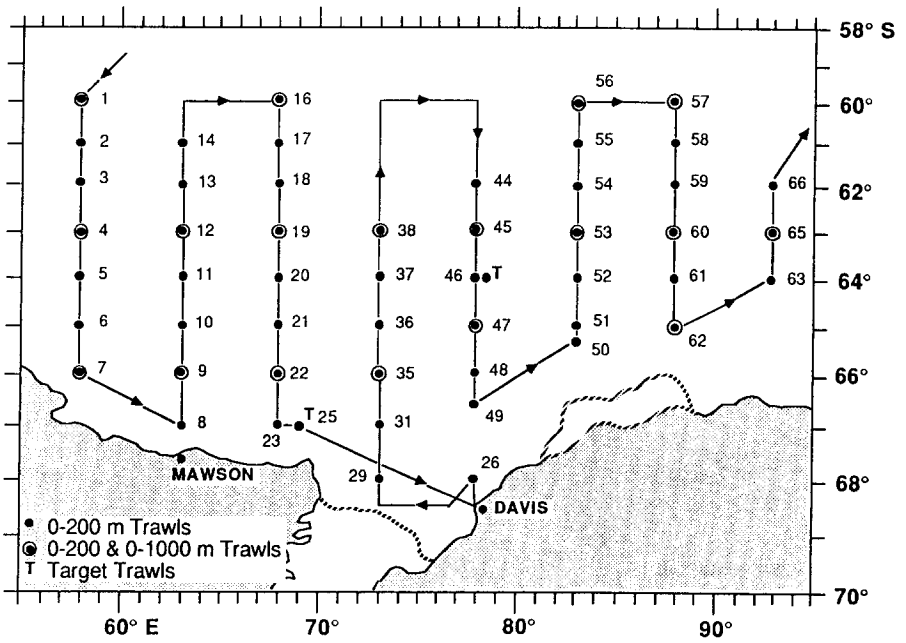

Figure 1. Cruise track and sampling stations.

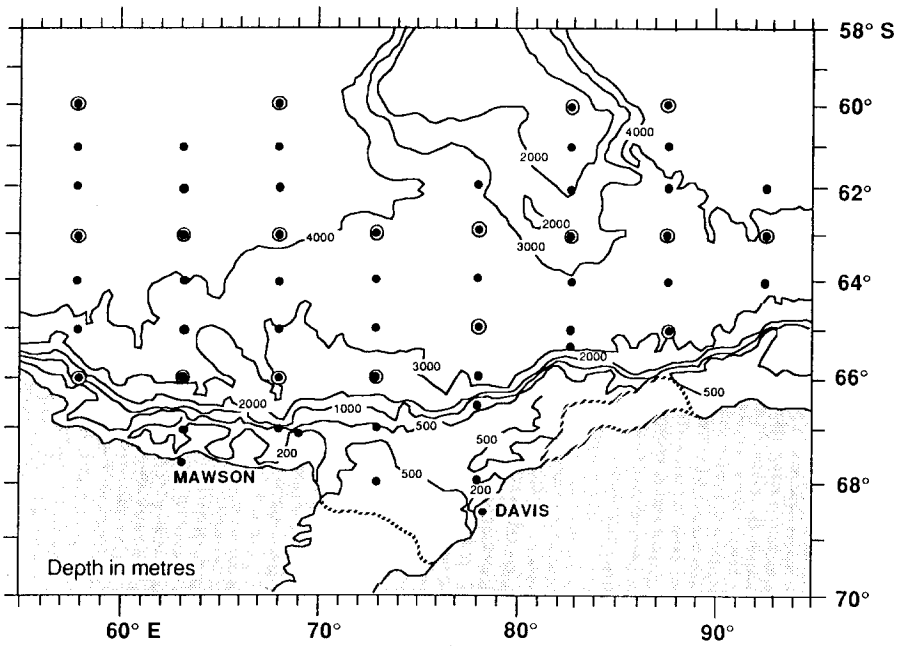

Figure 2. Bathymetric map of the study area, with sampling sites.

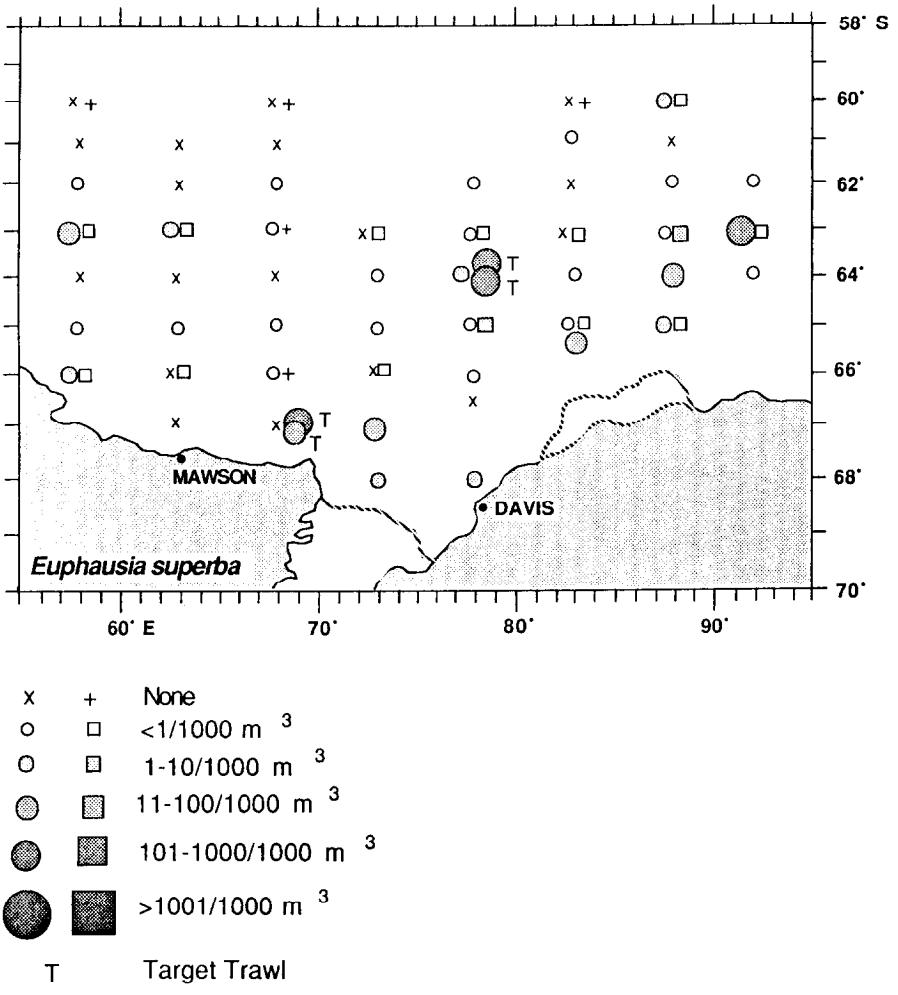

Figure 3. Distribution of adult krill abundance.

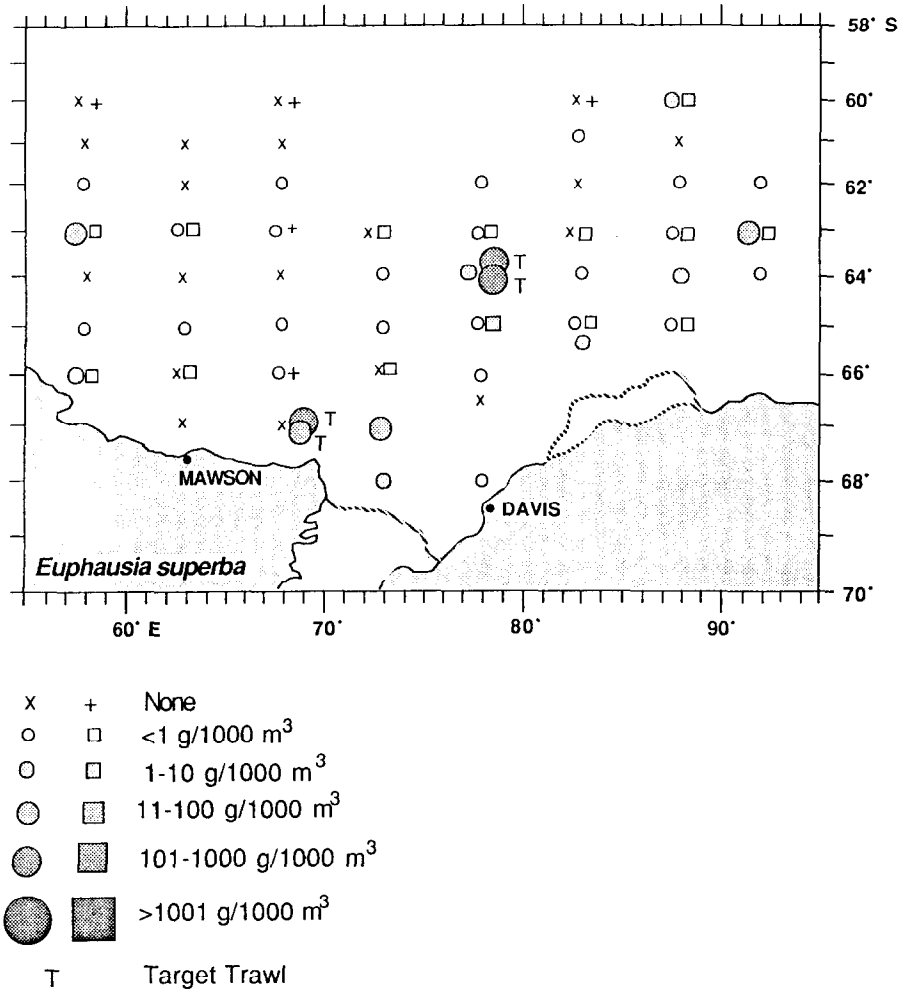

Figure 4. Distribution of adult krill biomass.

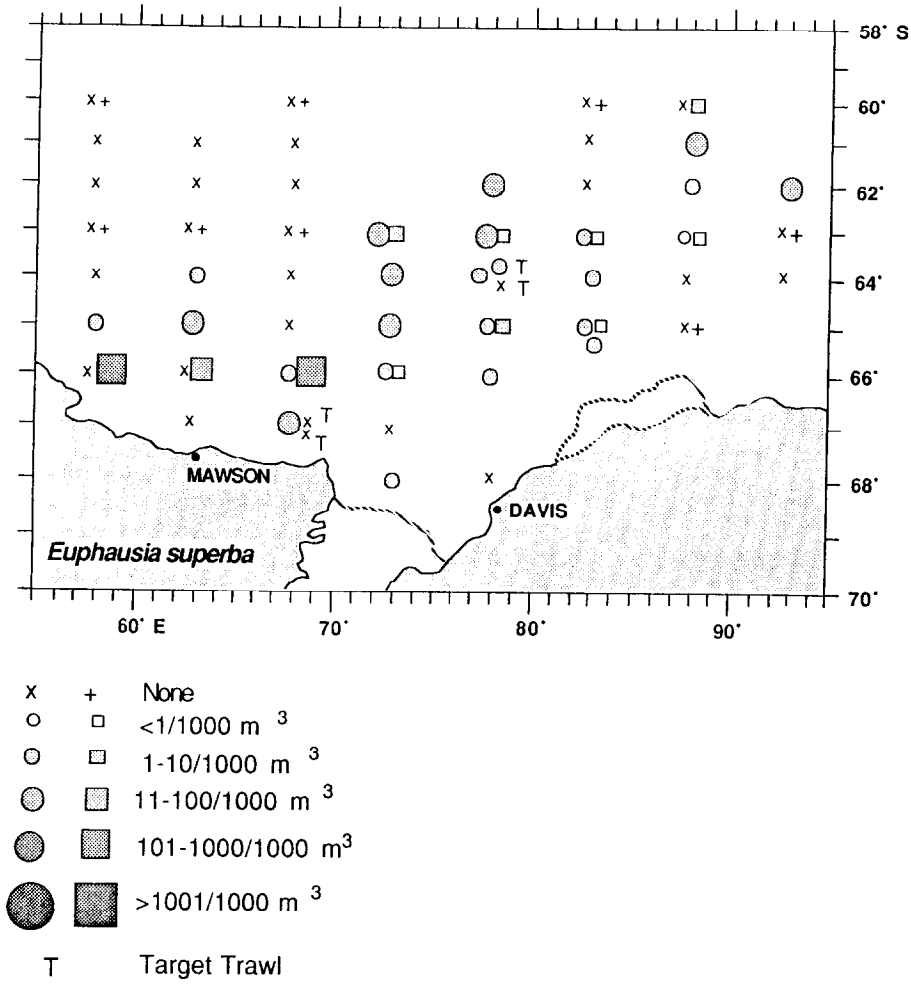

Figure 5. Distribution of krill larvae abundance.

TABLE 2. RMT 1+8 SAMPLING DATA

*: Denotes previous day, #: Depth of target, †: Graded from 0 to 10 depending on the degree of ice coverage, 0= no ice, 10= complete ice cover, Haul type: S,D,T, refer to shallow, deep and target hauls. Depth range is from reading of a depth-distance meter (only shallow hauls).

STN NO.	DATE LOCAL JAN/1985	NET IN-OUT SHIP TIME	NET IN-OUT GMT TIME	START POSITION LAT. (S)	START POSITION LONG. (E)	HAUL TYPE	WIRE OUT (m)	WIRE ANGLE °	DEPTH RANGE (m)	ICE†	SEA STATE
1	4	0704-0735	0004-0035	60° 01.6'	057° 56.6'	S	400	30	0-236	0	2
		0745-0912	0045-0212	60° 03.3'	057° 55.0'	D	1500	26	0-658	0	2
2	4	1512-1526	0812-0826	61° 01.1'	057° 58.5'	S	400	34	0-290	0	3
3	4	2235-2250	1535-1550	61° 59.5'	057° 56.8'	S	400	30	0-280	0	2
4	5	0514-0536	*2214-2236	63° 00.2'	058° 22.2'	S	400	38	0-250	0	2
		0553-0717	*2253-0017	63° 00.9'	058° 00.7'	D	1750	30	0-875	0	2
5	5	1420-1439	0720-0739	63° 59.6'	057° 58.4'	S	320	44	0-250	0	2
6	5	2052-2111	1352-1411	65° 01.0'	057° 59.6'	S	300	30	0-200	0	2
7	6	0408-0427	*2108-2127	66° 00.8'	057° 59.4'	S	300	44	0-240	0	2
		0439-0559	*2139-2259	66° 00.8'	058° 00.6'	D	1750	22	0-656	0	2
8	6	2003-2021	1303-1321	66° 59.9'	063° 07.5'	S	300	32	0-206	0	2
9	7	0429-0446	*2129-2146	65° 59.5'	062° 56.3'	S	300	30	0-200	0	3
		0502-0625	*2202-2326	65° 59.3'	062° 59.1'	D	1750	31	0-901	0	3
10	7	1227-1252	0527-0552	65° 00.1'	062° 55.7'	S	300	41	0-233	0	4
11	7	1855-1910	1155-1210	63° 59.3'	062° 59.0'	S	300	40	0-231	0	3
12	8	0101-0120	*1801-1820	62° 59.0'	062° 59.8'	S	330	20	0-173	0	3
		0135-0252	*1835-1952	62° 59.9'	062° 59.6'	D	1750	26	0-767	0	3
13	8	0844-0904	0144-0204	61° 59.4'	062° 59.9'	S	300	32	0-206	0	1
14	8	1517-1533	0817-0833	61° 00.4'	063° 01.6'	S	300	45	0-244	0	3
16	9	1159-1216	0459-0516	60° 00.5'	068° 01.1'	S	300	58	0-275	0	3
		1227-1357	0527-0657	60° 00.2'	067° 58.1'	D	1750	36	0-1029	0	3

STN NO.	DATE LOCAL JAN/1985	NET IN-OUT SHIP TIME	NET IN-OUT GMT TIME	START POSITION LAT. (S)	START POSITION LONG. (E)	HAUL TYPE	WIRE OUT (m)	WIRE ANGLE°	DEPTH RANGE (m)	ICE†	SEA STATE
17	9	1940-1958	1240-1258	61° 00.5'	068° 00.7'	S	300	43	0-239	0	3
18	10	0146-0204	*1846-1904	62° 01.1'	068° 00.7'	S	300	34	0-213	0	3
19	10	0746-0804	0046-0104	63° 00.2'	067° 58.4'	S	300	40	0-231	0	2
		0816-0934	0116-0234	63° 00.8'	067° 57.4'	D	1750	30	0-875	0	2
20	10	1544-1600	0844-0900	64° 00.6'	068° 00.2'	S	300	40	0-231	0	2
21	10	2232-2249	1532-1549	65° 01.4'	068° 02.2'	S	300	34	0-213	0	0
22	11	0625-0640	*2325-2340	66° 00.8'	067° 56.6'	S	300	46	0-247	0	2
		0704-0846	0004-0146	66° 00.8'	067° 58.6'	D	1750	30	0-875	0	2
23	11	1527-1540	0827-0840	66° 59.9'	067° 58.8'	S	300	45	0-244	0	3
25	11	1922-1946	1222-1246	67° 00.4'	069° 03.4'	T	80-130	30	50-70#	1	3
		2042-2107	1342-1407	66° 59.8'	069° 02.8'	T	40-85	20-45	15-30#	1	3
26	13	1703-1720	1003-1020	68° 00.2'	078° 00.8'	S	300	20-45	0-242	0	4
29	14	1202-1222	0502-0522	67° 59.8'	072° 57.4'	S	300	50	0-257	1	2
31	14	1945-2005	1245-1305	67° 01.3'	072° 59.1'	S	300	42	0-236	0	5
35	15	1722-1738	1022-1038	66° 00.9'	072° 54.7'	S	300	32	0-206	0	4
		1755-1921	1055-1221	66° 01.3'	072° 57.2'	D	1750	24	0-712	0	4
36	16	0214-0231	*1914-1931	64° 59.8'	072° 58.7'	S	300	40	0-231	0	3
37	16	0820-0838	0120-0138	64° 00.3'	073° 00.1'	S	300	35	0-216	0	2
38	16	1402-1419	0702-0719	62° 59.8'	073° 00.2'	S	300	19	0-163	0	3
		1432-1625	0732-0925	62° 59.8'	073° 00.2'	D	1750	20	0-599	0	3
44	19	0456-0512	*2156-2212	62° 02.0'	077° 58.4'	S	300	25-30	0-183/200	0	5
45	19	1015-1035	0315-0335	63° 00.4'	077° 59.7'	S	300	40	0-231	0	4
		1044-1209	0344-0509	63° 00.5'	077° 59.0'	D	1750	42	0-1171	0	4
46	19	1933-1955	1233-1255	64° 00.0'	077° 58.2'	S	300	39	0-228	0	3
		2006-2048	1306-1348	64° 00.0'	077° 57.8'	T	35-80	15-45	12-20#	0	3
		2115-2128	1415-1428	64° 01.0'	077° 56.6'	T	45-55	50	30#	0	3

STN NO.	DATE LOCAL JAN/1985	NET IN-OUT SHIP TIME	NET IN-OUT GMT TIME	START POSITION LAT. (S)	START POSITION LONG. (E)	HAUL TYPE	WIRE OUT (m)	WIRE ANGLE°	DEPTH RANGE (m)	ICE†	SEA STATE
47	20	0424-0441	*2124-2141	65° 01.2'	077° 59.2'	S	300	36	0-219	0	3
		0455-0642	*2155-2342	65° 01.4'	077° 58.0'	D	1750	20	0-599	0	3
48	20	1126-1145	0426-0445	66° 00.6'	077° 59.2'	S	300	42	0-236	0	3
49	20	1726-1742	1026-1042	66° 33.5'	077° 56.4'	S	300	57	0-273	1	1
50	21	1112-1130	0412-0430	65° 17.2'	083° 02.3'	S	300	55	0-268	1	3
51	21	1517-1535	0817-0835	64° 59.7'	083° 02.1'	S	300	42	0-236	0	3
		1555-1744	0855-1044	64° 59.3'	083° 04.5'	D	1750	42	0-1171	0	3
52	22	0058-0112	*1758-1812	63° 59.9'	083° 00.3'	S	300	41	0-233	0	3
53	22	0758-0812	0058-0112	62° 59.5'	082° 59.9'	S	300	34	0-213	0	3
		0825-1005	0125-0305	62° 59.1'	082° 59.8'	D	1750	30	0-875	0	3
54	22	2024-2038	1324-1338	61° 59.6'	083° 00.2'	S	300	40	0-231	0	2
55	23	0250-0304	*1950-2004	60° 59.7'	083° 00.5'	S	300	40	0-231	0	3
56	23	0834-0850	0134-0150	60° 00.1'	082° 59.9'	S	300	40	0-231	0	2
		0902-1022	0202-0322	59° 59.9'	082° 59.9'	D	1750	50	0-1341	0	2
57	24	0006-0020	*1706-1720	60° 00.2'	088° 01.3'	S	300	42	0-236	0	3
		0031-0155	*1731-1855	60° 00.6'	088° 01.3'	D	1750	36	0-1029	0	3
58	24	0657-0713	*2357-0013	60° 59.9'	088° 01.4'	S	300	60	0-278	0	3
59	24	1343-1354	0643-0654	62° 00.3'	087° 58.7'	S	300	50	0-257	0	3
60	24	1913-1932	1213-1232	62° 59.9'	087° 58.8'	S	300	40	0-231	0	3
		1942-2109	1242-1409	63° 00.3'	088° 00.6'	D	1750	30	0-875	0	3
61	25	0344-0356	*2044-2056	64° 00.4'	088° 00.5'	S	300	50	0-257	0	3
62	25	0912-0929	0212-0229	64° 58.1'	087° 58.1'	S	300	49	0-255	1	3
		0940-1015	0240-0315	64° 57.9'	087° 58.0'	D	1750	34	0-979	1	3
63	26	0913-0934	0213-0234	63° 59.3'	092° 58.4'	S	300	26	0-187	0	3
65	26	1520-1541	0820-0841	62° 59.4'	093° 00.8'	S	300	48	0-252	0	3
		1549-1727	0849-1027	62° 58.4'	092° 59.5'	D	1750	15-30	0-453-875	0	3
66	26	2226-2244	1526-1544	61° 59.8'	093° 00.1'	S	300	32	0-206	0	3

TABLE 3. RMT 8 KRILL BIOMASS DATA

Haul Type: S,D,T, refer to shallow, deep and target hauls. *: The flowmeter was damaged, fouled or not mounted in the RMT8 net. Therefore, the volume filtered was estimated by multiplying the flowmeter reading of the RMT1 net by the previously calculated filtering ratio between the two nets of 9.42.

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	KRILL DENSITY ($NO.1000m^{-3}$)	KRILL BIOMASS ($g.1000m^{-3}$)	TOTAL BIOMASS ($g.1000m^{-3}$)
1	S	1	104685	22393	0.00	0.00	63.54
	D	1	190895	40833	0.00	0.00	14.59
2	S	1	42773	9149	0.00	0.00	25.57
3	S	1	42123	9010	0.78	0.15	14.42
4	S	1	40332	8627	47.41	38.98	70.38
	D	1	138674	29663	0.91	0.82	229.57
5	S	1	45521	9737	0.00	0.00	13.20
6	S	1	45009	9628	0.10	0.01	14.39
7	S	1	30403	6503	2.00	1.68	15.18
	D	1	136866	29276	0.34	0.34	11.99
8	S	3	28831	6437	0.00	0.00	22.01
9	S	3	26062	5819	0.00	0.00	17.09
	D	3	87862	19618	0.10	0.09	17.80
10	S	3	32647	7289	0.14	0.11	484.18
11	S	4	29071	6628	0.00	0.00	4.73
12	S	4	47081	10733	1.30	0.09	4.69
	D	4	130437	29737	0.10	0.05	18.95
13	S	4	28839	6575	0.00	0.00	12.59
14	S	4	19925	4542	0.00	0.00	6.51
16	S	4	24403	5563	0.00	0.00	90.49
	D	4	108496	25722	0.00	0.00	106.75
17	S	4	39348	8970	0.00	0.00	9.00
18	S	4	39152	8926	0.11	0.03	20.39
19	S	4	35092	8000	0.25	0.02	10.24
	D	4	80529	18359	0.00	0.00	21.12

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	KRILL DENSITY ($NO.1000m^{-3}$)	KRILL BIOMASS ($g.1000m^{-3}$)	TOTAL BIOMASS ($g.1000m^{-3}$)
20	S	4	24306	5541	0.00	0.00	11.51
21	S	4	33375	7609	0.26	0.25	14.50
22	S	4	21070	4803	0.83	0.67	19.22
	D	4	121101	27608	0.00	0.00	16.02
23	S	4	28275	6446	0.00	0.00	14.36
25	T1	4	51211	11675	296.79	238.03	247.53
	T2	4	111048	25317	72.17	35.19	36.43
26	S	—	—	*8125	2.34	0.91	4.11
29	S	4	35271	8081	9.78	9.33	10.72
31	S	—	—	*9556	27.94	15.85	19.01
35	S	4	32452	7398	0.00	0.00	6.94
	D	4	178163	40167	0.15	0.13	45.81
36	S	4	26001	5928	0.51	0.53	15.35
37	S	4	35019	7984	0.50	0.56	10.59
38	S	4	38415	8758	0.00	0.00	9.03
	D	4	253310	57749	0.04	0.02	351.98
44	S	4	29360	6693	0.45	0.47	27.90
45	S	—	—	*8963	0.11	0.13	7.39
	D	—	—	*22041	0.05	0.04	7.36
46	S	—	—	*10253	4.97	4.33	329.97
	T1	—	—	*27031	126.15	128.37	135.37
	T2	—	—	*7043	268.49	279.14	289.39
47	S	—	—	*7994	0.38	0.34	7.39
	D	—	—	*57235	1.33	1.27	8.37
48	S	—	—	*7033	0.14	0.07	9.57
49	S	—	—	*4312	0.00	0.00	6.05
50	S	—	—	*6948	21.01	1.11	3.97
51	S	—	—	*8380	0.24	0.20	1.79
	D	—	—	*42821	0.02	0.02	18.23

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	KRILL DENSITY ($NO.1000m^{-3}$)	KRILL BIOMASS ($g.1000m^{-3}$)	TOTAL BIOMASS ($g.1000m^{-3}$)
52	S	—	—	*5527	0.72	0.03	15.75
53	S	—	—	*8888	0.00	0.00	6.22
	D	—	—	*12729	0.16	0.07	45.96
54	S	—	—	*4802	0.00	0.00	7.52
55	S	—	—	*5988	0.50	0.43	124.24
56	S	—	—	*6996	0.00	0.00	90.41
	D	—	—	*15384	0.00	0.00	307.27
57	S	—	—	*4990	3.21	2.65	275.68
	D	—	—	*23952	0.42	0.13	308.15
58	S	—	—	*4839	0.00	0.00	53.58
59	S	—	—	*5950	0.34	0.30	1.14
60	S	—	—	*9632	0.93	0.58	19.83
	D	—	—	*22936	2.83	0.77	38.34
61	S	—	—	*4086	18.11	1.14	9.58
62	S	—	—	*7768	1.03	0.05	2.31
	D	—	—	*32671	0.06	0.01	14.86
63	S	—	—	*11138	0.09	0.00	2.79
65	S	—	—	*11110	155.99	22.43	25.36
	D	—	—	*44402	0.59	0.11	13.05
66	S	—	—	*8850	0.23	0.20	65.23

TABLE 4. RMT 8 KRILL DATA BODY LENGTH-CLASS VS. DENSITIES (NO. $1000m^{-3}$)

*: Body Length refers to standard 1 measurement (Mauchline, 1980). Haul Type: S,D,T, refers shallow, deep and target hauls.

	STATION NUMBER AND HAUL TYPE									
	3	4	4	6	7	7	9	10	12	12
BODY LENGTH-CLASS*	S	S	D	S	S	D	D	S	S	D
(mm)										
14-15.9	0	0	0	0	0	0	0	0	0	0
16-17.9	0	0	0	0	0	0	0	0	0.093	0
18-19.9	0	0	0	0	0	0	0	0	0.280	0.034
20-21.9	0.444	1.114	0	0	0	0	0	0	0.466	0.034
22-23.9	0.111	2.228	0	0.104	0	0	0	0	0.466	0
24-25.9	0	1.362	0	0	0	0	0	0	0	0
26-27.9	0	1.114	0	0	0	0	0	0	0	0
28-29.9	0.111	1.114	0	0	0	0	0	0	0	0
30-31.9	0	1.485	0	0	0	0	0	0	0	0
32-33.9	0	3.342	0	0	0	0	0	0	0	0
34-35.9	0	3.218	0	0	0	0	0	0	0	0
36-37.9	0	3.095	0	0	0	0	0	0	0	0
38-39.9	0	0.990	0	0	0	0.068	0	0	0	0
40-41.9	0	0.743	0.101	0	0.154	0.034	0	0	0	0
42-43.9	0	0.371	0.169	0	0.461	0.068	0	0	0	0
44-45.9	0	0.743	0.303	0	0.769	0.068	0.051	0.137	0	0
46-47.9	0.111	2.476	0.236	0	0.308	0.068	0.051	0	0	0
48-49.9	0	6.808	0.067	0	0.308	0.034	0	0	0	0
50-51.9	0	7.675	0.034	0	0	0	0	0	0	0.034
52-53.9	0	7.179	0	0	0	0	0	0	0	0
54-55.9	0	1.609	0	0	0	0	0	0	0	0
56-57.9	0	0.743	0	0	0	0	0	0	0	0

BODY LENGTH-CLASS* (mm)	STATION NUMBER AND HAUL TYPE									
	18 S	19 S	21 S	22 S	25 T1	25 T2	26 S	29 S	31 S	35 D
14-15.9	0	0	0	0	0	0	0	0	0.209	0
16-17.9	0	0	0	0	0	0.265	0	0	0.942	0
18-19.9	0	0	0	0	0.989	0	0	0.124	0.837	0
20-21.9	0	0	0	0	0	1.001	0	0	0.733	0
22-23.9	0	0	0.131	0	0	0.531	0	0	0.105	0
24-25.9	0	0.250	0	0	0.989	1.061	0	0	0	0
26-27.9	0	0	0	0	0	2.122	0	0	0	0
28-29.9	0	0	0	0	0	0.531	0.130	0	0	0
30-31.9	0	0	0	0	0	2.918	0.260	0	0.209	0
32-33.9	0	0	0	0	0	4.245	0.260	0	0.419	0
34-35.9	0.112	0	0	0	0.989	11.939	0.260	0.247	2.302	0
36-37.9	0	0	0	0	5.936	19.102	0.650	0	5.651	0
38-39.9	0	0	0	0	34.625	14.592	0.520	0.371	7.325	0
40-41.9	0	0	0	0.208	79.143	7.163	0.130	2.227	5.023	0.050
42-43.9	0	0	0	0.208	65.293	3.714	0.130	2.475	1.779	0.025
44-45.9	0	0	0	0.208	58.368	1.061	0	2.351	1.570	0
46-47.9	0	0	0	0.208	39.572	1.592	0	1.609	0.628	0.025
48-49.9	0	0	0	0	8.904	0.265	0	0.247	0.209	0.050
50-51.9	0	0	0	0	0.989	0	0	0.124	0	0
52-53.9	0	0	0.131	0	0.989	0	0	0	0	0
54-55.9	0	0	0	0	0	0	0	0	0	0
56-57.9	0	0	0	0	0	0	0	0	0	0

	STATION NUMBER AND HAUL TYPE									
	36	37	38	44	45	45	46	46	46	47
BODY LENGTH-CLASS*	S	S	D	S	S	D	S	T1	T2	S
(mm)										
14-15.9	0	0	0	0	0	0	0	0	0	0
16-17.9	0	0	0	0	0	0	0	0	0	0
18-19.9	0	0	0	0	0	0	0	0	0	0
20-21.9	0	0	0	0	0	0	0	0	0	0
22-23.9	0	0	0	0	0	0	0	0	0	0.125
24-25.9	0	0	0	0	0	0	0.098	0.354	0	0
26-27.9	0	0	0	0	0	0	0.293	1.417	2.050	0
28-29.9	0	0	0.017	0	0	0	0.293	1.063	2.050	0
30-31.9	0	0	0	0	0	0	0	0	2.050	0
32-33.9	0	0	0	0	0	0	0.195	0	2.050	0
34-35.9	0	0	0	0	0	0	0.098	0.709	1.025	0
36-37.9	0	0	0	0	0	0	0	1.063	5.124	0
38-39.9	0	0	0	0	0	0	0	1.417	7.173	0
40-41.9	0	0	0	0	0	0	0.293	4.252	14.347	0
42-43.9	0.169	0	0	0	0	0.045	0.683	8.150	29.719	0.125
44-45.9	0	0.125	0	0.149	0	0	1.073	24.805	40.991	0
46-47.9	0	0.251	0.017	0	0	0	0.683	35.790	64.561	0
48-49.9	0.337	0	0	0.299	0	0	0.683	25.514	48.165	0
50-51.9	0	0.125	0	0	0.112	0	0.293	12.757	31.768	0
52-53.9	0	0	0	0	0	0	0.195	4.252	10.248	0.125
54-55.9	0	0	0	0	0	0	0.098	3.544	5.124	0
56-57.9	0	0	0	0	0	0	0	1.063	2.050	0

	STATION NUMBER AND HAUL TYPE									
	47	48	50	51	51	52	53	55	57	57
BODY LENGTH-CLASS*	D	S	S	S	D	S	D	S	S	D
(mm)										
14-15.9	0	0	0.145	0	0	0.241	0	0	0	0
16-17.9	0	0	1.159	0	0	0.241	0	0	0	0
18-19.9	0	0	13.043	0	0	0.241	0.079	0	0	0
20-21.9	0	0	6.232	0	0	0	0	0	0	0
22-23.9	0	0	0.435	0	0	0	0	0	0.214	0.093
24-25.9	0	0	0	0	0	0	0	0	0	0.046
26-27.9	0	0	0	0	0	0	0	0	0	0.046
28-29.9	0	0	0	0	0	0	0	0	0.428	0.139
30-31.9	0	0	0	0	0	0	0	0	0.428	0
32-33.9	0	0	0	0	0	0	0	0	0	0
34-35.9	0	0	0	0	0	0	0	0	0	0
36-37.9	0	0	0	0	0	0	0	0	0	0
38-39.9	0	0.142	0	0	0	0	0	0	0	0
40-41.9	0.018	0	0	0	0	0	0	0.167	0	0
42-43.9	0.106	0	0	0.119	0	0	0.079	0	0	0
44-45.9	0.390	0	0	0	0	0	0	0.167	0.214	0.046
46-47.9	0.390	0	0	0.119	0	0	0	0.167	0.428	0
48-49.9	0.301	0	0	0	0.023	0	0	0	0.641	0
50-51.9	0.124	0	0	0	0	0	0	0	0.641	0.046
52-53.9	0	0	0	0	0	0	0	0	0.214	0
54-55.9	0	0	0	0	0	0	0	0	0	0
56-57.9	0	0	0	0	0	0	0	0	0	0

	STATION NUMBER AND HAUL TYPE									
	59	60	60	61	62	62	63	65	65	66
BODY LENGTH-CLASS*	S	S	D	S	S	D	S	S	D	S
(mm)										
14-15.9	0	0	0	0.248	0.147	0	0	0	0	0
16-17.9	0	0	0	2.233	0.441	0	0.090	0	0.023	0
18-19.9	0	0	0	7.195	0.147	0	0	6.958	0	0
20-21.9	0	0	0.044	5.458	0.294	0.031	0	31.893	0.023	0
22-23.9	0	0	0.436	2.233	0	0	0	55.088	0.117	0
24-25.9	0	0	0.916	0.744	0	0	0	33.633	0.164	0
26-27.9	0	0	0.567	0	0	0	0	6.958	0.070	0
28-29.9	0	0.104	0.087	0	0	0	0	4.059	0.047	0
30-31.9	0	0	0.087	0	0	0	0	3.479	0.023	0
32-33.9	0	0	0.044	0	0	0	0	0.580	0.023	0
34-35.9	0	0	0.087	0	0	0.031	0	1.160	0.023	0
36-37.9	0	0.104	0.087	0	0	0	0	2.319	0	0
38-39.9	0	0	0.044	0	0	0	0	5.789	0	0
40-41.9	0	0.415	0.044	0	0	0	0	0.580	0.023	0
42-43.9	0	0.104	0.087	0	0	0	0	0.580	0.023	0
44-45.9	0.168	0.208	0.044	0	0	0	0	1.740	0	0.113
46-47.9	0.168	0	0.131	0	0	0	0	0.580	0.023	0.113
48-49.9	0	0	0.131	0	0	0	0	0	0	0
50-51.9	0	0	0	0	0	0	0	0.580	0	0
52-53.9	0	0	0	0	0	0	0	0	0	0
54-55.9	0	0	0	0	0	0	0	0	0	0
56-57.9	0	0	0	0	0	0	0	0	0	0

TABLE 5. RMT 8 KRILL DATA WEIGHT-CLASS VS. DENSITIES

(NO. $1000m^{-3}$)

Haul Type: S,D,T, refers to shallow, deep and target hauls.

	STATION NUMBER AND HAUL TYPE									
	3	4	4	6	7	7	9	10	12	12
WEIGHT-CLASS	S	S	D	S	S	D	D	S	S	D
(wet wt., g)										
0.000-0.099	0.555	3.466	0	0.104	0	0	0	0	1.304	0.067
0.100-0.199	0.111	3.961	0	0	0	0	0	0	0	0
0.200-0.299	0	3.837	0	0	0	0	0	0	0	0
0.300-0.399	0	4.704	0	0	0	0	0	0	0	0
0.400-0.499	0	2.847	0	0	0	0	0	0	0	0
0.500-0.599	0	1.485	0.034	0	0.154	0.034	0	0	0	0
0.600-0.699	0	0.495	0.067	0	0.154	0.034	0	0	0	0
0.700-0.799	0	0.495	0.169	0	0.461	0.068	0.051	0.137	0	0
0.800-0.899	0.111	0.866	0.236	0	0.615	0	0	0	0	0
0.900-0.999	0	1.857	0.270	0	0.154	0	0.051	0	0	0
1.000-1.099	0	4.850	0.034	0	0.461	0.068	0	0	0	0
1.100-1.199	0	5.942	0	0	0	0.034	0	0	0	0
1.200-1.299	0	5.323	0.067	0	0	0.068	0	0	0	0
1.300-1.399	0	4.704	0.034	0	0	0.034	0	0	0	0.034
1.400-1.499	0	2.599	0	0	0	0	0	0	0	0
1.500-1.599	0	0.495	0	0	0	0	0	0	0	0
1.600-1.699	0	0.495	0	0	0	0	0	0	0	0
1.700-1.799	0	0.124	0	0	0	0	0	0	0	0
1.800-1.899	0	0.124	0	0	0	0	0	0	0	0
1.900-1.999	0	0	0	0	0	0	0	0	0	0
2.000-2.099	0	0	0	0	0	0	0	0	0	0
2.400-2.499	0	0	0	0	0	0	0	0	0	0

	STATION NUMBER AND HAUL TYPE									
	18	19	21	22	25	25	26	29	31	35
WEIGHT-CLASS (wet wt., g)	S	S	S	S	T1	T2	S	S	S	D
0.000-0.099	0	0.250	0.131	0	0.989	1.857	0	0.124	2.721	0
0.100-0.199	0	0	0	0	0.989	3.449	0.130	0	0.105	0
0.200-0.299	0.112	0	0	0	0	3.449	0.390	0	0.209	0
0.300-0.399	0	0	0	0	0.989	13.000	0.779	0.124	1.988	0
0.400-0.499	0	0	0	0	13.850	19.898	0.520	0.124	3.453	0
0.500-0.599	0	0	0	0.208	35.615	13.266	0.390	0.124	7.116	0
0.600-0.699	0	0	0	0	46.497	8.225	0	1.114	5.442	0.050
0.700-0.799	0	0	0	0.208	61.336	4.776	0.130	0.990	3.349	0
0.800-0.899	0	0	0	0.208	41.550	2.122	0	1.237	1.674	0.025
0.900-0.999	0	0	0	0.208	40.561	0.531	0	1.856	0.733	0.025
1.000-1.099	0	0	0	0	31.657	1.061	0	1.732	0.628	0.025
1.100-1.199	0	0	0	0	11.872	0.265	0	0.866	0.209	0
1.200-1.299	0	0	0	0	5.936	0.265	0	0.619	0.314	0
1.300-1.399	0	0	0	0	2.968	0	0	0.247	0	0.025
1.400-1.499	0	0	0	0	0.989	0	0	0.495	0	0
1.500-1.599	0	0	0	0	0	0	0	0.124	0	0
1.600-1.699	0	0	0	0	0.989	0	0	0	0	0
1.700-1.799	0	0	0	0	0	0	0	0	0	0
1.800-1.899	0	0	0.131	0	0	0	0	0	0	0
1.900-1.999	0	0	0	0	0	0	0	0	0	0
2.000-2.099	0	0	0	0	0	0	0	0	0	0
2.400-2.499	0	0	0	0	0	0	0	0	0	0

	STATION NUMBER AND HAUL TYPE									
	36	37	38	44	45	45	46	46	46	47
WEIGHT-CLASS (wet wt., g)	S	S	D	S	S	D	S	T1	T2	S
0.000-0.099	0	0	0	0	0	0	0	0	0	0.125
0.100-0.199	0	0	0.017	0	0	0	0.585	2.835	4.099	0
0.200-0.299	0	0	0	0	0	0	0.195	0	4.099	0
0.300-0.399	0	0	0	0	0	0	0.195	1.417	4.099	0
0.400-0.499	0	0	0	0	0	0	0.098	1.417	5.124	0
0.500-0.599	0	0	0	0	0	0	0.098	3.544	15.372	0
0.600-0.699	0	0	0	0	0	0	0.195	3.898	12.297	0
0.700-0.799	0	0	0	0	0	0	0.390	10.985	18.446	0.125
0.800-0.899	0.169	0.125	0	0.149	0	0.045	0.683	14.174	29.719	0
0.900-0.999	0	0	0.017	0	0	0	0.683	22.325	31.768	0
1.000-1.099	0.169	0	0	0.149	0	0	0.390	26.222	24.595	0
1.100-1.199	0.169	0.125	0	0	0.112	0	0.293	13.111	43.041	0
1.200-1.299	0	0.251	0	0	0	0	0.488	7.796	20.496	0
1.300-1.399	0	0	0	0.149	0	0	0.390	4.961	17.426	0
1.400-1.499	0	0	0	0	0	0	0	4.252	10.248	0
1.500-1.599	0	0	0	0	0	0	0.098	2.126	8.198	0
1.600-1.699	0	0	0	0	0	0	0.098	2.126	7.173	0
1.700-1.799	0	0	0	0	0	0	0	2.481	4.099	0
1.800-1.899	0	0	0	0	0	0	0	1.063	3.074	0.125
1.900-1.999	0	0	0	0	0	0	0	1.417	1.025	0
2.000-2.099	0	0	0	0	0	0	0.098	0	3.074	0
2.400-2.499	0	0	0	0	0	0	0	0	1.025	0

	STATION NUMBER AND HAUL TYPE									
	47	48	50	51	51	52	53	55	57	57
WEIGHT-CLASS (wet wt., g)	D	S	S	S	D	S	D	S	S	D
0.000-0.099	0	0	21.013	0	0	0.724	0.079	0	0.214	0.139
0.100-0.199	0	0	0	0	0	0	0	0	0.428	0.186
0.200-0.299	0	0	0	0	0	0	0	0	0.428	0
0.300-0.399	0	0	0	0	0	0	0	0	0	0
0.400-0.499	0	0.142	0	0	0	0	0	0	0	0
0.500-0.599	0	0	0	0	0	0	0	0	0	0
0.600-0.699	0.035	0	0	0	0	0	0	0.167	0	0
0.700-0.799	0.159	0	0	0.119	0	0	0	0	0.214	0.046
0.800-0.899	0.390	0	0	0	0	0	0.079	0	0	0
0.900-0.999	0.230	0	0	0.119	0	0	0	0.344	0	0
1.000-1.099	0.248	0	0	0	0.023	0	0	0	0.641	0
1.100-1.199	0.124	0	0	0	0	0	0	0	0	0.046
1.200-1.299	0.089	0	0	0	0	0	0	0	0.428	0
1.300-1.399	0.018	0	0	0	0	0	0	0	0.641	0
1.400-1.499	0.035	0	0	0	0	0	0	0	0.214	0
1.500-1.599	0	0	0	0	0	0	0	0	0	0
1.600-1.699	0	0	0	0	0	0	0	0	0	0
1.700-1.799	0	0	0	0	0	0	0	0	0	0
1.800-1.899	0	0	0	0	0	0	0	0	0	0
1.900-1.999	0	0	0	0	0	0	0	0	0	0
2.000-2.099	0	0	0	0	0	0	0	0	0	0
2.400-2.499	0	0	0	0	0	0	0	0	0	0

	STATION NUMBER AND HAUL TYPE									
	59	60	60	61	62	62	63	65	65	66
WEIGHT-CLASS	S	S	D	S	S	D	S	S	D	S
(wet wt., g)										
0.000-0.099	0	0	0.436	16.870	1.030	0.031	0.090	91.040	0.270	0
0.100-0.199	0	0	1.613	1.240	0	0	0	46.970	0.180	0
0.200-0.299	0	0.104	0.218	0	0	0	0	5.219	0.068	0
0.300-0.399	0	0	0.044	0	0	0.031	0	4.639	0	0
0.400-0.499	0	0.104	0.087	0	0	0	0	2.319	0	0
0.500-0.599	0	0.208	0	0	0	0	0	1.740	0.023	0
0.600-0.699	0	0.208	0.044	0	0	0	0	0.580	0	0
0.700-0.799	0.168	0.104	0.044	0	0	0	0	1.740	0.023	0.113
0.800-0.899	0	0.208	0.131	0	0	0	0	0.580	0	0
0.900-0.999	0.168	0	0.087	0	0	0	0	0	0.023	0.133
1.000-1.099	0	0	0.044	0	0	0	0	0	0	0
1.100-1.199	0	0	0	0	0	0	0	0.58	0	0
1.200-1.299	0	0	0.087	0	0	0	0	0	0	0
1.300-1.399	0	0	0	0	0	0	0	0	0	0
1.400-1.499	0	0	0	0	0	0	0	0	0	0
1.500-1.599	0	0	0	0	0	0	0	0.58	0	0
1.600-1.699	0	0	0	0	0	0	0	0	0	0
1.700-1.799	0	0	0	0	0	0	0	0	0	0
1.800-1.899	0	0	0	0	0	0	0	0	0	0
1.900-1.999	0	0	0	0	0	0	0	0	0	0
2.000-2.099	0	0	0	0	0	0	0	0	0	0
2.400-2.499	0	0	0	0	0	0	0	0	0	0

TABLE 6. RMT 8 KRILL DATA MATURITY VS. DENSITIES

(NO. $1000m^{-3}$)
Haul Type: S,D,T, refers to shallow, deep and target hauls.

	STATION NUMBER AND HAUL TYPE									
	3	4	4	6	7	7	9	10	12	12
MATURITY	S	S	D	S	S	D	D	S	S	D
STAGE										
1	0.555	9.737	0	0.104	0	0	0	0	1.304	0.067
MALE										
2M	0	6.259	0	0	0	0	0	0	0	0
3AM	0	3.362	0	0	0	0	0	0	0	0
3BM	0	4.057	0.135	0	0.308	0	0	0	0	0
FEMALE										
2F	0.111	4.637	0	0	0	0	0	0	0	0
3AF	0.111	9.853	0.034	0	0	0	0	0	0	0
3BF	0	3.362	0.067	0	0.461	0	0	0.137	0	0
3CF	0	5.216	0.303	0	0.769	0.068	0.102	0	0	0
3DF	0	0.927	0.337	0	0.154	0.273	0	0	0	0.034
3EF	0	0	0.034	0	0.308	0	0	0	0	0
% Female (stage 3 only)	100.00	72.29	85.16	—	84.60	100.00	100.00	100.00	—	100.00
% Female (stages 2 & 3)	100.00	63.69	85.16	—	84.60	100.00	100.00	100.00	—	100.00

	STATION NUMBER AND HAUL TYPE									
	18	19	21	22	25	25	26	29	31	35
MATURITY STAGE	S	S	S	S	T1	T2	S	S	S	D
1	0	0.250	0.131	0	1.979	8.763	0.123	0.124	3.349	0
2M	0.112	0	0	0	75.186	22.938	0.985	0.124	7.116	0
3AM	0	0	0	0.208	40.561	2.320	0.123	0	2.302	0.075
3BM	0	0	0	0	8.904	0.773	0	0.990	1.151	0.025
2F	0	0	0	0	3.957	22.165	0.369	0.247	8.162	0
3AF	0	0	0	0	8.904	5.412	0	0.124	3.663	0
3BF	0	0	0	0.416	40.561	4.381	0.615	0.124	0.028	0
3CF	0	0	0	0.208	91.015	3.866	0.123	1.237	1.256	0.025
3DF	0	0	0.131	0	25.722	1.546	0	6.806	0.314	0.025
3EF	0	0	0	0	0	0	0	0	0	0
% Female (stage 3 only)	—	—	100.00	75.00	77.06	83.10	85.71	89.33	60.37	33.33
% Female (stages 2 & 3)	0.00	—	100.00	75.00	57.72	58.94	49.98	88.46	55.95	33.33

	STATION NUMBER AND HAUL TYPE									
	36	37	38	44	45	45	46	46	46	47
MATURITY STAGE	S	S	D	S	S	D	S	T1	T2	S
1	0	0	0.017	0	0	0	0.683	3.710	6.011	0.125
2M	0	0	0	0	0	0	0.878	3.373	32.059	0
3AM	0	0	0	0	0	0	0.098	7.421	23.042	0
3BM	0.337	0.251	0.017	0.149	0.112	0.045	1.268	54.306	42.077	0.125
2F	0	0	0	0	0	0	0	2.698	5.099	0
3AF	0	0	0	0.149	0	0	0	1.349	5.099	0
3BF	0	0	0	0	0	0	0.293	7.758	14.026	0
3CF	0.169	0	0	0	0	0	1.073	21.250	56.103	0
3DF	0	0.251	0	0.149	0	0	0.683	21.925	82.151	0.125
3EF	0	0	0	0	0	0	0	2.361	3.006	0
% Female (stage 3 only)	33.40	50.00	0.00	66.67	0.00	0.00	60.00	46.96	71.12	50.00
% Female (stages 2 & 3)	33.40	50.00	0.00	66.67	0.00	0.00	47.73	46.83	63.00	50.00

	STATION NUMBER AND HAUL TYPE									
	47	48	50	51	51	52	53	55	57	57
MATURITY STAGE	D	S	S	S	D	S	D	S	S	D
1	0	0	21.013	0	0	0.724	0.079	0	1.002	0.292
2M	0	0	0	0	0	0	0	0	0	0
3AM	0.018	0	0	0	0	0	0	0.167	0	0
3BM	1.133	0	0	0.239	0.023	0	0.079	0.334	1.002	0.084
2F	0	0	0	0	0	0	0	0	0	0
3AF	0	0	0	0	0	0	0	0	0	0
3BF	0	0.142	0	0	0	0	0	0	0	0
3CF	0.018	0	0	0	0	0	0	0	0.802	0.042
3DF	0.159	0	0	0	0	0	0	0	0.200	0
3EF	0	0	0	0	0	0	0	0	0.200	0
% Female (stage 3 only)	13.33	100.00	—	0.00	0.00	—	0.00	0.00	54.54	33.33
% Female (stages 2 & 3)	13.33	100.00	—	0.00	0.00	—	0.00	0.00	54.54	33.33

	STATION NUMBER AND HAUL TYPE									
MATURITY STAGE	59 S	60 S	60 D	61 S	62 S	62 D	63 S	65 S	65 D	66 S
1	0	0.104	2.136	18.111	1.030	0.031	0.090	140.909	0.473	0
2M	0	0.311	0	0	0	0	0	8.118	0.045	0
3AM	0	0	0	0	0	0	0	1.160	0	0
3BM	0.336	0	0.218	0	0	0	0	0	0.023	0.226
2F	0	0.104	0.174	0	0	0	0	1.740	0	0
3AF	0	0.208	0.087	0	0	0.031	0	2.319	0.023	0
3BF	0	0.104	0.044	0	0	0	0	0	0	0
3CF	0	0.104	0.174	0	0	0	0	1.160	0.023	0
3DF	0	0	0	0	0	0	0	0.580	0	0
3EF	0	0	0	0	0	0	0	0	0	0
% Female (stage 3 only)	0.00	100.00	58.32	—	—	100.00	—	77.77	66.67	0.00
% Female (stages 2 & 3)	0.00	62.58	68.72	—	—	100.00	—	38.46	40.35	0.00

TABLE 7. RMT 8 KRILL LENGTH/WEIGHT REGRESSION ANALYSIS.

Expressed as $\log_{10}w = \log_{10} a + b.\log_{10}l$, where w is wet weight in g, l is standard 1 measurement in mm. Haul type: S,D,T, refer to shallow, deep and target hauls, n: sample size, r^2: correlation coefficient. Hauls with less than 10 specimens are not displayed but are include in the total analysis.

STN. NO.	HAUL TYPE	n	b	$\log_{10}a$	r^2
4	S	385	3.1937	-5.3710	0.9907
4	D	27	3.0908	-5.1660	0.8027
7	S	13	2.8474	-4.7962	0.8788
12	S	14	2.8533	-4.9609	0.9284
25	T1	300	3.4420	-5.7267	0.8509
25	T2	273	3.2653	-5.4484	0.9393
26	S	18	3.3837	-5.6988	0.9266
29	S	79	3.4474	-5.6780	0.8969
31	S	268	3.3717	-5.5974	0.9782
46	S	51	3.5729	-5.9524	0.9819
46	T1	356	3.6250	-6.0630	0.9436
46	T2	262	3.7046	-6.1724	0.9317
47	D	75	3.2703	-5.4811	0.8043
50	S	145	2.3498	-4.3175	0.5691
57	S	15	3.3708	-5.6408	0.9967
60	D	65	3.3634	-5.6444	0.9760
61	S	73	3.0461	-5.1768	0.8778
65	S	269	3.1071	-5.2813	0.9507
65	D	25	3.3234	-5.6355	0.9704
MATURITY STAGE					
1		745	3.1180	-5.2935	0.9359
MALE					
2M		357	3.3853	-5.6568	0.8393
3AM		150	2.8461	-4.7658	0.7433
3BM		381	3.0809	-5.1642	0.8945
FEMALE					
2F		229	3.7221	-6.1691	0.7409
3AF		168	2.9811	-4.9971	0.9227
3BF		144	2.9080	-4.9007	0.8901
3CF		338	2.5224	-4.2060	0.8518
3DF		288	2.8251	-4.6534	0.8734
3EF		11	2.9371	-4.0981	0.7980
TOTAL		2811	3.3706	-5.6280	0.9852

TABLE 8. RMT 8 KRILL LENGTH/WEIGHT REGRESSION STATISTICAL PARAMETERS.

For the relationship $\log_{10}w = \log_{10} a + b.\log_{10}l$, where w is wet weight in g, l is standard 1 measurement in mm. Haul type: S,D,T, refer to shallow, deep and target hauls, n: sample size, r^2: correlation coefficient. Hauls with less than 10 specimens are not displayed but are include in the total analysis.

STN. NO.	HAUL TYPE	n	$\Sigma\log_{10}l$	$\Sigma\log_{10}w$	$\Sigma(\log_{10}l)^2$	$\Sigma(\log_{10}w)^2$	$\Sigma(\log_{10}l)(\log_{10}w)$
4	S	385	621.9219	-81.5928	1010.7890	74.3030	-114.1179
4	D	27	44.6359	-1.5223	73.8071	0.2748	-2.4676
7	S	13	21.5220	-1.0684	35.6385	0.1619	-1.7460
12	S	14	18.4249	-16.8810	24.2731	20.5708	-22.1463
25	T1	300	489.2186	-34.1335	789.1941	9.6109	-54.2466
25	T2	273	425.5566	-97.8273	664.6177	49.2859	-148.4013
26	S	18	28.0139	-7.7887	43.6324	3.7852	-12.0082
29	S	79	129.1003	-3.5055	211.1553	2.5688	-5.1008
31	S	268	418.3194	-89.6717	655.8399	63.5673	-130.2306
46	S	51	82.9227	-7.3020	135.2066	5.9826	-10.5157
46	T1	356	593.4760	-7.0872	990.1517	11.1020	-8.9616
46	T2	262	435.2364	-4.7720	723.6175	9.7103	-5.5069
47	D	75	125.1773	-1.7182	208.9565	0.4601	-2.7643
50	S	145	187.0136	-186.5849	241.3001	241.0605	-240.4142
57	S	15	24.1880	-3.0780	39.2148	3.0356	-4.2525
60	D	65	94.7628	-48.1604	138.8260	43.4784	-67.9507
61	S	73	94.7177	-89.3850	123.0373	110.9377	-115.5478
65	S	269	373.1642	-261.2307	519.3312	270.6203	-357.2047
65	D	25	35.8635	-21.6975	51.6868	21.5528	-30.3313
MATURITY STAGE							
1		745	1008.5262	-799.0545	1368.9076	894.8333	-1070.3544
MALE							
2M		357	568.62.11	-94.5178	916.2275	32.4171	-148.7127
3AM		150	249.5135	-4.7247	415.1773	1.5719	-7.4876
3BM		381	637.1455	-4.6499	1065.7055	2.2689	-7.1337
FEMALE							
2F		229	357.1926	-83.2085	557.3097	33.2873	-129.1803
3AF		168	276.3730	-15.6357	455.2753	7.4306	-23.8725
3BF		144	235.5013	-20.8400	385.4469	5.6989	-33.2620
3CF		338	560.5227	-7.7913	930.0662	4.0831	-11.6025
3DF		288	483.4145	25.5317	811.7904	5.6294	43.8961
3EF		11	18.1279	-1.7359	29.8920	0.4627	-2.8094
TOTAL		2811	4394.9442	-1006.6266	6925.7984	987.6833	-1390.5190

TABLE 9. RMT8 NON-KRILL ZOOPLANKTON BIOMASS DATA (g. $1000m^{-3}$)

Haul Type: S,D,T, refers to shallow, deep and target hauls. *: biomass <0.001 g. $1000m^{-3}$

STATION NO.	1	1	2	3	4	4	5	6
HAUL TYPE	S	D	S	S	S	D	S	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.027	0.001	0.000	0.000	0.031	0.002	0.003	0.012
E. triacantha	0.000	0.343	0.000	0.000	0.000	0.033	0.000	0.000
T. macrura	0.036	0.066	0.080	0.049	0.143	0.070	0.189	0.057
Copepoda	0.001	0.061	0.170	0.069	0.373	0.055	0.991	0.501
Amphipoda	0.153	0.085	0.078	0.101	0.056	0.167	0.160	0.001
Decapoda	0.000	0.026	0.000	0.000	0.000	0.067	0.000	0.122
Ostracoda	0.000	0.153	0.000	0.000	0.000	0.000	0.000	0.000
Mysidacea	0.000	0.000	0.003	0.000	0.000	0.084	0.003	0.000
Pteropoda	0.128	0.024	0.252	0.293	0.580	0.094	0.735	0.507
Cephalopoda	0.003	0.205	0.012	0.007	0.027	0.011	0.073	0.074
Chaetognatha	0.247	1.126	0.812	0.568	1.771	0.155	2.437	2.615
Polychaeta	0.009	0.043	0.143	0.085	0.152	0.032	0.507	0.238
Salpida	62.309	9.204	23.295	11.701	3.265	1.259	4.420	1.047
Hydromedusae	0.538	1.685	0.368	1.295	1.494	0.736	2.978	1.515
Scyphomedusae	0.000	0.931	0.000	0.000	13.942	223.065	0.000	6.881
Ctenophora	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nemertea	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pisces	0.050	0.600	0.250	0.042	0.045	2.919	0.042	0.408
Eggs	*	0.000	0.068	0.018	0.045	0.000	0.096	0.101
Residue	0.000	0.032	0.042	0.045	9.473	0.000	0.564	0.299

STATION NO.	7	7	8	9	9	10	11	12
HAUL TYPE	S	D	S	S	D	S	S	S
TAXA								
E. crystallorophias	0.000	0.000	3.230	0.000	0.000	0.000	0.000	0.000
E. frigida	0.000	0.000	0.000	0.041	0.001	0.000	0.040	0.416
E. triacantha	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000
T. macrura	0.464	0.015	0.022	0.438	0.134	0.070	0.404	0.930
Copepoda	0.299	0.124	0.300	0.495	0.142	0.010	0.182	0.586
Amphipoda	*	0.018	*	0.048	0.053	0.000	0.015	0.092
Decapoda	*	0.000	0.000	0.000	0.072	0.003	0.000	0.000
Ostracoda	*	*	0.000	0.042	0.163	0.000	0.000	*
Mysidacea	0.000	0.001	0.001	0.000	0.021	0.000	0.000	0.000
Pteropoda	1.475	0.186	0.497	0.734	0.138	0.190	0.258	1.559
Cephalopoda	0.000	0.000	0.000	0.484	0.002	0.007	0.209	0.020
Chaetognatha	2.971	0.315	4.242	4.369	0.937	0.274	0.699	0.143
Polychaeta	0.146	0.001	0.089	0.519	0.077	0.002	0.054	0.152
Salpida	0.288	0.035	2.812	3.269	0.856	0.000	0.418	0.022
Hydromedusae	2.584	0.341	10.107	3.217	2.157	1.232	1.473	0.225
Scyphomedusae	0.000	9.344	0.000	0.000	5.347	480.176	0.000	0.000
Ctenophora	3.634	0.386	0.304	2.384	4.066	0.000	0.003	0.000
Nemertea	0.000	0.184	0.000	0.000	0.000	0.000	0.000	0.000
Pisces	0.976	0.596	0.006	0.062	3.529	0.006	0.293	0.027
Eggs	0.113	0.000	0.091	0.062	0.000	0.000	0.048	0.193
Residue	0.547	0.100	0.311	0.925	0.002	2.102	0.629	0.230

STATION NO.	12	13	14	16	16	17	18	19
HAUL TYPE	D	S	S	S	D	S	S	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.023	0.150	0.000	0.000	0.017	0.013	0.592	0.445
E. triacantha	0.054	0.000	0.000	0.000	0.389	0.000	1.186	0.166
T. macrura	0.111	0.166	0.031	0.000	0.054	0.142	3.055	0.528
Copepoda	0.102	0.258	0.841	0.539	0.784	0.420	1.481	0.738
Amphipoda	0.050	0.352	0.236	0.499	0.534	0.047	0.026	0.044
Decapoda	0.202	0.000	0.000	0.000	0.377	0.000	0.000	0.000
Ostracoda	0.138	0.000	0.000	0.000	0.311	*	*	0.000
Mysidacea	0.009	0.000	0.000	0.005	0.002	0.000	0.000	0.000
Pteropoda	0.423	0.564	0.734	0.189	0.807	0.449	6.146	0.960
Cephalopoda	0.040	0.237	0.029	0.000	0.018	0.012	0.126	0.123
Chaetognatha	0.506	1.600	0.636	2.053	3.917	2.122	2.414	4.106
Polychaeta	0.035	1.030	0.500	0.265	0.406	0.303	0.412	0.224
Salpida	0.032	7.158	2.698	86.773	88.463	4.112	0.066	0.296
Hydromedusae	1.821	0.706	0.394	0.107	4.192	0.686	2.393	1.872
Scyphomedusae	7.635	0.000	0.000	0.000	5.608	0.000	0.000	0.000
Ctenophora	0.000	0.000	0.017	0.000	0.000	0.000	0.000	0.000
Nemertea	0.000	0.000	0.000	0.000	0.053	0.011	0.000	0.000
Pisces	7.723	0.020	0.044	0.010	0.233	0.049	1.202	0.070
Eggs	0.000	0.235	0.155	0.000	0.000	0.403	0.493	0.387
Residue	0.000	0.111	0.197	0.045	0.583	0.235	0.764	0.258

STATION NO.	19	20	21	22	22	23	25	25
HAUL TYPE	D	S	S	S	D	S	T1	T2
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.021	0.381	0.000	0.000	0.000	0.000	0.004	0.001
E. triacantha	0.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000
T. macrura	0.110	0.374	0.807	0.371	0.100	0.191	0.040	0.000
Copepoda	0.116	0.748	0.487	0.708	0.123	0.495	0.675	0.146
Amphipoda	0.062	0.074	0.009	0.100	0.063	0.053	0.000	0.005
Decapoda	0.144	0.000	0.000	0.041	*	*	0.000	0.000
Ostracoda	0.038	*	*	0.054	0.073	*	0.000	0.000
Mysidacea	0.002	0.000	0.000	0.000	0.006	0.000	0.034	0.000
Pteropoda	0.220	1.635	0.752	2.317	0.189	0.982	6.495	0.597
Cephalopoda	0.072	0.104	0.000	0.084	0.241	0.057	0.000	0.000
Chaetognatha	0.848	2.854	3.999	7.419	0.719	2.646	0.347	0.095
Polychaeta	0.112	0.103	0.177	0.353	0.168	0.047	0.245	0.014
Salpida	0.001	0.433	0.287	1.252	0.021	6.179	0.000	0.000
Hydromedusae	1.629	3.229	6.956	4.964	5.491	3.181	1.283	0.099
Scyphomedusae	14.581	0.000	0.000	0.000	3.041	0.000	0.000	0.000
Ctenophora	0.412	1.085	0.448	0.044	0.091	0.088	0.000	0.041
Nemertea	*	0.007	0.000	0.000	0.000	0.015	0.000	0.000
Pisces	2.612	0.051	0.064	0.294	5.690	0.179	0.152	0.056
Eggs	0.030	0.140	0.089	0.076	0.001	0.070	0.040	0.022
Residue	0.000	0.292	0.175	0.472	0.006	0.177	0.190	0.163

STATION NO.	26	29	31	35	35	36	37	38
HAUL TYPE	S	S	S	S	D	S	S	S
TAXA								
E. crystallorophias	2.196	0.954	0.047	0.000	0.000	0.000	0.000	0.000
E. frigida	0.000	0.000	0.000	0.000	0.000	0.008	0.241	0.000
E. triacantha	0.000	0.000	0.000	0.000	0.006	0.039	0.220	0.000
T. macrura	0.018	0.058	0.017	1.093	0.078	0.584	0.420	0.199
Copepoda	0.040	0.032	0.156	0.442	0.140	0.998	1.105	1.229
Amphipoda	0.348	0.000	0.002	0.001	0.077	0.030	0.039	0.001
Decapoda	0.000	0.000	0.000	0.016	0.005	0.000	0.000	*
Ostracoda	*	0.000	*	0.038	0.005	0.000	*	0.000
Mysidacea	0.002	0.000	0.029	0.000	0.000	0.000	0.000	0.000
Pteropoda	0.160	0.001	0.044	0.474	0.177	3.022	0.960	0.855
Cephalopoda	0.000	0.000	0.000	0.000	0.010	0.104	0.206	0.110
Chaetognatha	0.025	0.100	0.492	0.974	1.048	3.917	2.146	2.085
Polychaeta	0.000	0.017	0.015	0.103	0.060	0.582	0.131	0.326
Salpida	0.000	0.000	0.000	0.123	0.211	1.393	1.936	0.080
Hydromedusae	0.207	0.203	2.171	3.297	0.992	2.769	1.569	3.355
Scyphomedusae	0.000	0.000	0.000	0.000	39.215	0.000	0.000	0.000
Ctenophora	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nemertea	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000
Pisces	0.088	0.001	0.013	0.075	3.658	0.530	0.734	0.144
Eggs	0.000	0.000	0.000	0.101	*	0.109	0.124	0.273
Residue	0.115	0.028	0.180	0.202	0.000	0.737	0.194	0.369

STATION NO.	38	44	45	45	46	46	46	47
HAUL TYPE	D	S	S	D	S	T1	T2	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.027	0.494	0.000	0.007	0.000	0.000	0.000	0.113
E. triacantha	0.123	0.060	0.000	0.052	0.000	0.000	0.000	0.000
T. macrura	0.013	1.165	0.000	0.028	0.090	0.000	0.000	0.269
Copepoda	0.028	0.300	0.358	0.140	0.216	0.165	0.189	0.651
Amphipoda	0.038	0.098	0.001	0.019	0.009	0.000	0.012	0.136
Decapoda	*	0.002	0.000	0.045	0.000	0.000	0.000	0.001
Ostracoda	0.063	0.000	0.000	0.096	*	0.000	0.000	0.000
Mysidacea	0.003	0.000	0.000	0.002	0.000	0.000	0.000	0.000
Pteropoda	0.080	0.794	0.282	0.038	0.311	1.075	4.814	0.852
Cephalopoda	0.019	0.034	0.045	0.016	0.007	0.000	0.000	0.007
Chaetognatha	0.021	1.569	1.869	0.476	0.410	0.010	0.401	1.376
Polychaeta	0.004	0.519	1.078	0.029	0.095	0.153	0.191	0.204
Salpida	0.139	20.823	1.910	0.694	1.274	4.857	3.898	1.059
Hydromedusae	2.065	0.981	1.240	1.085	1.043	0.171	0.024	0.175
Scyphomedusae	348.029	0.000	0.000	1.198	321.857	0.000	0.000	0.000
Ctenophora	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nemertea	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000
Pisces	1.254	0.004	0.104	3.389	0.027	0.000	0.000	0.060
Eggs	*	0.101	0.123	0.000	0.043	0.014	0.026	0.097
Residue	0.052	0.484	0.252	0.000	0.260	0.559	0.697	2.049

STATION NO.	47	48	49	50	51	51	52	53
HAUL TYPE	D	S	S	S	S	D	S	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.010	0.000	0.000	0.000	0.000	0.000	0.038	0.000
E. triacantha	0.062	0.000	0.000	0.000	0.000	0.081	0.672	0.000
T. macrura	0.141	0.082	0.353	0.081	0.010	0.038	0.161	0.000
Copepoda	0.100	0.455	0.279	0.533	0.287	0.097	0.344	0.038
Amphipoda	0.062	0.075	0.046	0.010	0.030	0.077	0.094	0.058
Decapoda	0.003	0.001	0.061	0.037	0.033	0.218	0.059	0.000
Ostracoda	0.004	*	*	*	*	0.001	*	0.000
Mysidacea	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000
Pteropoda	0.061	0.962	0.467	0.240	0.243	0.027	6.464	0.845
Cephalopoda	0.065	0.294	0.004	0.000	0.007	0.014	0.217	0.064
Chaetognatha	0.495	1.753	0.861	0.818	0.293	0.393	0.439	0.420
Polychaeta	0.022	0.660	0.359	0.380	0.000	0.033	0.734	0.109
Salpida	0.134	0.080	0.109	0.053	0.031	0.162	3.583	3.960
Hydromedusae	1.196	4.432	2.986	0.623	0.400	6.193	0.894	0.596
Scyphomedusae	3.732	0.000	0.000	0.000	0.000	6.501	0.000	0.000
Ctenophora	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nemertea	0.000	0.137	0.193	0.000	0.000	0.008	0.000	0.000
Pisces	0.931	0.131	0.006	0.000	0.119	4.330	0.022	0.015
Eggs	*	0.065	0.061	*	0.057	0.000	0.075	0.038
Residue	0.081	0.371	0.270	0.084	0.084	0.000	1.922	0.076

STATION NO.	53	54	55	56	56	57	57	58
HAUL TYPE	D	S	S	S	D	S	D	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.190	0.000	0.637	0.000	0.043	1.067	0.613	0.096
E. triacantha	0.372	0.000	0.671	0.000	0.108	0.857	0.181	0.000
T. macrura	0.177	0.083	0.451	0.419	0.269	0.677	0.202	0.186
Copepoda	0.387	0.104	0.243	0.262	1.042	0.288	0.065	0.404
Amphipoda	0.121	0.002	0.211	0.249	0.239	2.265	0.534	0.230
Decapoda	0.913	0.005	0.051	0.000	0.296	0.000	0.290	0.004
Ostracoda	0.257	*	0.000	*	0.007	0.000	0.009	0.000
Mysidacea	0.044	0.000	0.000	0.000	0.027	0.000	0.009	0.000
Pteropoda	0.474	0.383	0.200	0.081	0.099	0.890	0.075	0.450
Cephalopoda	0.010	0.020	0.015	0.033	0.050	0.023	0.016	0.133
Chaetognatha	1.219	0.729	0.597	0.303	2.506	0.788	0.522	1.619
Polychaeta	0.094	0.882	0.041	0.209	0.478	4.224	0.475	0.403
Salpida	5.360	3.051	116.947	87.990	138.729	259.341	294.903	49.221
Hydromedusae	5.050	0.323	0.820	0.628	6.411	2.464	1.088	0.509
Scyphomedusae	21.272	1.483	0.000	0.000	150.339	0.000	2.132	0.000
Ctenophora	0.000	0.000	0.000	0.000	0.000	1.617	2.703	0.000
Nemertea	0.000	0.000	0.000	0.000	0.255	0.301	0.000	0.000
Pisces	9.905	0.131	2.747	0.096	6.302	1.082	4.127	0.094
Eggs	*	0.006	0.083	0.000	0.014	0.000	0.000	0.000
Residue	0.000	0.319	0.094	0.140	0.051	0.142	0.072	0.229

STATION NO.	59	60	60	61	62	62	63	65
HAUL TYPE	S	S	D	S	S	D	S	S
TAXA								
E. crystallorophias	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E. frigida	0.005	0.000	0.003	0.056	0.000	0.000	0.000	0.000
E. triacantha	0.000	0.000	0.075	0.085	0.000	0.020	0.000	0.000
T. macrura	0.009	17.112	0.087	0.122	0.555	0.088	0.061	0.136
Copepoda	0.046	0.091	0.137	0.374	0.142	0.136	0.466	0.562
Amphipoda	0.000	0.000	0.053	0.070	0.010	0.023	0.048	0.026
Decapoda	0.000	0.000	0.173	0.001	0.002	0.024	0.018	0.001
Ostracoda	0.000	0.000	0.029	0.000	*	0.002	0.020	0.000
Mysidacea	0.000	0.000	0.019	0.000	0.000	0.004	0.000	0.000
Pteropoda	0.191	0.212	0.187	1.988	0.528	0.135	0.458	0.386
Cephalopoda	0.000	0.000	0.000	0.000	0.000	0.001	0.025	0.056
Chaetognatha	0.066	0.078	0.137	0.760	0.441	0.626	0.661	0.467
Polychaeta	0.063	0.512	0.023	0.147	0.019	0.011	0.074	0.052
Salpida	0.006	0.001	0.000	3.317	0.000	0.042	0.032	0.000
Hydromedusae	0.376	1.140	0.632	0.978	0.316	3.404	0.741	1.143
Scyphomedusae	0.000	0.000	26.625	0.000	0.000	4.450	0.000	0.000
Ctenophora	0.000	0.000	0.722	0.000	0.000	0.368	0.000	0.000
Nemertea	0.000	0.000	0.000	0.054	0.000	0.000	0.000	0.000
Pisces	0.007	0.015	8.671	0.245	0.005	5.513	0.088	0.000
Eggs	0.000	*	0.000	*	*	*	*	0.028
Residue	0.070	0.091	0.000	0.246	0.239	0.001	0.100	0.074

STATION NO.	65	66
HAUL TYPE	D	S
TAXA		
E. crystallorophias	0.000	0.000
E. frigida	0.011	0.142
E. triacantha	0.401	0.072
T. macrura	0.081	0.612
Copepoda	0.239	0.165
Amphipoda	0.104	0.768
Decapoda	0.011	0.001
Ostracoda	0.186	0.000
Mysidacea	0.004	0.000
Pteropoda	0.147	1.224
Cephalopoda	0.143	0.061
Chaetognatha	0.993	0.870
Polychaeta	0.027	0.065
Salpida	0.041	60.438
Hydromedusae	0.662	0.298
Scyphomedusae	8.622	0.000
Ctenophora	0.000	0.000
Nemertea	*	0.000
Pisces	1.266	0.232
Eggs	0.000	0.000
Residue	0.000	0.084

TABLE 10. RMT 1 SAMPLING DATA

Haul Type: S,D,T, refer to shallow, deep and target hauls. *: The flowmeter was fouled in the RMT 1 net. Therefore, the volume filtered was estimated by dividing the flowmeter reading of the RMT 8 net by the previously calculated filtering ratio between the two nets of 9.42.

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	SETTLING VOLUME ($ml.1000m^{-3}$)
1	S	2	62283	1898	210.75
	D	2	162334	4946	2.02
2	S	2	32965	1004	199.20
3	S	2	36465	1111	90.00
4	S	2	36265	1105	796.38
	D	2	10597	3228	402.73
5	S	2	34803	1060	1132.08
6	S	2	34236	1043	1853.31
7	S	2	23874	727	1558.46
	D	2	120476	3671	354.13
8	S	4	17713	505	1055.45
9	S	4	18402	524	1578.24
	D	4	96500	2750	315.27
10	S	4	36371	1036	386.10
11	S	3	26153	730	1369.86
12	S	3	39612	1106	1169.08
	D	3	117966	3292	263.37
13	S	3	23797	664	225.90
14	S	3	20560	574	130.66
16	S	3	*10405	591	338.41
	D	3	115201	3215	87.09
17	S	3	28209	787	711.56
18	S	3	28011	782	852.94

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	SETTLING VOLUME ($ml.1000m^{-3}$)
19	S	3	33325	930	967.74
	D	3	97527	2722	293.90
20	S	3	20899	583	1600.34
21	S	3	25599	714	1726.89
22	S	3	*3753	510	294.12
	D	3	108964	3041	156.72
23	S	3	18877	527	664.14
25	T1	3	43731	1121	1754.68
	T2	3	69569	1942	995.37
26	S	3	30904	863	772.89
29	S	3	29163	814	737.10
31	S	3	36356	1015	591.13
35	S	3	30058	839	762.81
	D	3	167107	4664	221.48
36	S	3	25650	716	1340.78
37	S	3	29760	831	1203.37
38	S	3	32247	900	1111.11
	D	3	220085	6142	227.94
44	S	3	*18457	711	1078.76
45	S	3	34104	952	420.17
	D	3	83880	2341	106.79
46	S	3	39017	1089	160.70
	T1	3	102863	2871	431.91
	T2	3	26796	748	2709.89
47	S	3	30409	849	1177.86
	D	3	217824	6079	120.58
48	S	3	26753	747	1356.09
50	S	3	26455	738	176.15

STN. NO.	HAUL TYPE	FLOWMETER NO.	FLOWMETER READING	VOLUME FILTERED (m^3)	SETTLING VOLUME ($ml.1000m^{-3}$)
51	S	3	31877	890	224.72
	D	3	162971	4548	131.93
52	S	3	21023	587	383.30
53	S	3	33820	944	264.83
	D	3	48445	1352	369.82
54	S	3	18261	510	294.12
55	S	3	27789	636	817.61
56	S	3	26637	743	897.71
	D	3	58541	1634	306.00
57	S	3	18989	530	754.72
	D	3	91143	2544	471.70
58	S	3	18405	514	1361.87
59	S	3	22648	632	118.67
60	S	3	3660	1023	146.63
	D	3	87290	2436	82.10
61	S	3	15549	434	1324.88
62	S	3	29542	825	2666.67
	D	3	124338	3470	422.77
63	S	3	42399	1183	1183.43
65	S	3	42294	1180	904.24
	D	3	168971	4716	148.43
66	S	3	33694	940	851.06

TABLE 11 RMT1 EUPHAUSIID LARVAE DATA, LARVAE VS. DENSITIES (NO.1000 m^{-3})

N: nauplis, MN: metanauplius, C: calyptopis, F: furcilia, BF: broken (damaged) furcilia that could not be classified to a particular stage, Haul Type: S,D,T, refers to shallow, deep, and target hauls.

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
1	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	49.53	–	–	–	–
		CII	49.53	–	–	2.11	–
		CIII	15.81	–	–	–	–
		FI	16.86	–	–	–	–
		FII	4.22	–	–	17.91	–
		FIII	2.11	–	–	8.43	–
		FIV	2.11	–	–	9.48	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	3.16	–	–	4.21	–
1	D	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	0.20	—	—	—	—
		CII	0.40	—	—	—	—
		CIII	0.40	—	—	—	—
		FI	0.20	—	—	—	—
		FII	—	—	—	—	—
		FIII	0.20	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
2	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	35.86	—	—	2.99	—
		CII	30.88	—	—	7.97	—
		CIII	24.90	—	—	1.99	—
		FI	73.71	—	—	13.94	—
		FII	26.89	—	—	17.92	—
		FIII	3.98	—	—	11.95	—
		FIV	1.99	—	—	3.98	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	4.98	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
3	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	20.70	—	—	—	—
		CII	8.10	—	—	—	—
		CIII	7.20	—	—	—	—
		FI	22.50	—	—	—	—
		FII	3.60	—	—	1.80	—
		FIII	—	—	—	0.90	—
		FIV	—	—	—	1.80	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
4	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	9.05	—	—	—	—
		CII	9.05	—	—	—	—
		CIII	12.67	—	—	—	—
		FI	19.91	—	—	—	—
		FII	16.29	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	3.62	—	—	—	—
4	D	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	4.96	—	—	—	—
		CII	4.96	—	—	—	—
		CIII	4.96	—	—	—	—
		FI	21.07	—	—	—	—
		FII	2.48	—	—	—	—
		FIII	3.72	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
5	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	139.62	—	—	—	—
		CII	143.40	—	—	—	—
		CIII	79.25	—	—	—	—
		FI	120.75	—	—	—	—
		FII	—	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
6	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	421.86	—	3.84	—	—
		CII	617.45	—	—	—	—
		CIII	214.77	—	—	—	—
		FI	118.89	—	—	—	—
		FII	7.67	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
7	S	NI	—	—	—	—	—
		NII	—	16.51	—	—	—
		MN	—	165.06	—	—	—
		CI	209.09	478.68	—	—	—
		CII	132.05	154.06	—	—	—
		CIII	99.04	—	—	—	—
		FI	99.04	—	—	—	—
		FII	—	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	11.00	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
7	D	NI	2.18	—	44.67	—	—
		NII	—	6.54	23.97	—	—
		MN	3.27	75.18	660.31	—	—
		CI	5.45	66.47	19.61	2.18	—
		CII	7.63	21.79	—	1.09	—
		CIII	8.72	—	—	—	—
		FI	17.43	—	—	—	—
		FII	3.27	—	—	—	—
		FIII	4.36	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	1.09	—	—	—	—
8	S	NI	—	—	—	—	—
		NII	—	11.88	—	—	—
		MN	—	27.72	—	—	—
		CI	3.96	39.60	—	—	—
		CII	11.88	35.64	—	—	—
		CIII	11.88	3.96	—	—	—
		FI	—	—	—	—	—
		FII	—	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
9	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	106.87	167.94	—	—	—
		CII	419.85	183.21	—	—	—
		CIII	358.78	7.63	—	—	—
		FI	435.11	—	—	—	—
		FII	61.07	—	—	—	—
		FIII	53.44	—	—	—	—
		FIV	15.27	—	—	—	—
		FV	38.17	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
9	D	NI	—	1.45	5.82	—	—
		NII	—	—	1.45	—	—
		MN	—	2.91	16.00	—	—
		CI	11.64	168.73	2.91	—	—
		CII	81.45	151.27	16.00	—	—
		CIII	106.18	—	1.45	—	—
		FI	222.55	—	—	—	—
		FII	17.45	—	—	—	—
		FIII	8.73	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—
10	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	28.96	1.93	9.65	—	—
		CII	55.98	—	1.93	—	—
		CIII	88.80	—	—	—	—
		FI	310.81	—	—	—	—
		FII	9.65	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	11.58	—	—	—	—
11	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	76.71	—	—	—	—
		CII	219.18	16.44	5.48	—	—
		CIII	334.25	—	—	—	—
		FI	175.34	—	—	—	—
		FII	10.96	—	—	—	—
		FIII	—	—	—	—	—
		FIV	—	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	—	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
12	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	21.70	—	—	3.62	—
		CII	43.40	—	—	3.62	—
		CIII	79.57	—	—	—	—
		FI	363.80	—	—	—	—
		FII	285.71	—	—	—	—
		FIII	101.27	—	—	—	—
		FIV	119.35	—	—	—	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	32.55	—	—	—	—
12	D	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	7.29	—	—	—	—
		CII	10.94	—	—	—	—
		CIII	20.66	—	—	—	—
		FI	68.04	—	—	—	—
		FII	47.39	—	—	—	—
		FIII	37.67	—	—	—	—
		FIV	42.53	—	—	—	—
		FV	1.22	—	—	—	—
		FVI	1.22	—	—	—	—
		BF	12.15	—	—	—	—
13	S	NI	—	—	—	—	—
		NII	—	—	—	—	—
		MN	—	—	—	—	—
		CI	51.20	—	—	—	—
		CII	22.59	—	—	—	—
		CIII	46.69	—	—	4.52	—
		FI	57.23	—	—	6.02	—
		FII	22.59	—	—	57.23	—
		FIII	—	—	—	9.04	—
		FIV	3.01	—	—	6.02	—
		FV	—	—	—	—	—
		FVI	—	—	—	—	—
		BF	12.05	—	—	—	—

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
14	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	66.20	–	–	–	–
		CII	90.59	–	–	–	–
		CIII	101.05	–	–	6.97	3.48
		FI	74.91	–	–	10.45	–
		FII	64.46	–	–	108.01	–
		FIII	15.68	–	–	66.20	–
		FIV	78.40	–	–	27.87	–
		FV	5.23	–	–	–	–
		FVI	–	–	–	–	–
		BF	6.97	–	–	13.94	–
16	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–		–	–	–
		CI	16.92	–	–	18.61	–
		CII	25.38	–	–	40.61	–
		CIII	32.15	–	–	22.00	3.38
		FI	99.83	–	–	33.84	1.69
		FII	52.45	–	–	49.07	3.38
		FIII	54.15	–	–	60.91	–
		FIV	20.30	–	–	22.00	–
		FV	3.38	–	–	1.69	–
		FVI	–	–	–	1.69	–
		BF	8.46	–	–	10.15	–
16	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	3.73	–	–	–	–
		CII	0.62	–	–	0.62	–
		CIII	4.98	–	–	0.62	–
		FI	26.75	–	–	0.62	–
		FII	14.93	–	–	3.11	–
		FIII	5.60	–	–	1.87	–
		FIV	5.60	–	–	6.22	–
		FV	3.11	–	–	0.62	–
		FVI	1.87	–	–	2.49	–
		BF	1.87	–	–	4.98	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
17	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	25.41	–	–	5.08	–
		CII	40.66	–	–	–	–
		CIII	106.73	–	–	–	–
		FI	216.01	–	–	10.17	–
		FII	48.28	–	–	35.58	–
		FIII	48.28	–	–	76.23	–
		FIV	12.71	–	–	–	–
		FV	7.62	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
18	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	40.92	–	–	–	–
		CII	10.23	–	–	–	–
		CIII	35.81	–	–	–	–
		FI	86.96	–	–	5.12	–
		FII	86.96	–	–	10.23	–
		FIII	20.46	–	–	10.23	–
		FIV	25.58	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	10.23	–	–	–	–
19	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	2.15	–	–	–	–
		CI	21.51	–	–	–	–
		CII	34.41	–	–	2.15	–
		CIII	36.56	–	–	–	–
		FI	124.73	–	–	2.15	–
		FII	62.37	–	–	10.75	–
		FIII	23.66	–	–	–	–
		FIV	43.01	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	23.66	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
19	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	2.94	–	–	–	–
		CII	20.57	–	–	–	–
		CIII	10.29	–	–	–	–
		FI	35.27	–	–	–	–
		FII	27.92	–	–	–	–
		FIII	14.70	–	–	–	–
		FIV	27.92	–	–	–	–
		FV	1.47	–	–	–	–
		FVI	–	–	–	–	–
		BF	4.41	–	–	–	–
20	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	61.75	6.86	–	–	–
		CII	171.52	13.72	–	–	–
		CIII	205.83	–	–	–	–
		FI	423.67	–	–	–	–
		FII	154.37	–	–	–	–
		FIII	8.58	–	–	–	–
		FIV	6.86	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	13.72	–	–	–	–
21	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	44.82	–	–	–	–
		CII	56.02	–	–	–	–
		CIII	50.42	–	–	–	–
		FI	190.48	–	–	–	–
		FII	28.01	–	–	–	–
		FIII	5.60	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
22	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	29.41	9.80	–	–	–
		CII	101.96	1.96	–	–	–
		CIII	143.14	–	1.96	–	–
		FI	325.49	–	–	–	–
		FII	58..82	–	–	–	–
		FIII	11.76	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	31.37	–	–	–	–
22	D	NI	–	–	18.74	–	–
		NII	–	–	95.36	–	–
		MN	–	–	26.64	–	–
		CI	23.31	11.84	30.91	–	–
		CII	18.41	3.95	0.66	1.32	–
		CIII	5.26	–	–	–	–
		FI	21.05	–	–	–	–
		FII	2.63	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	2.63	–	–	–	–
23	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	7.59	3.80	–	–
		CI	396.58	26.57	43.64	–	–
		CII	316.89	28.46	7.59	–	–
		CIII	180.27	13.28	1.90	–	–
		FI	267.55	–	–	–	–
		FII	13.28	–	–	–	–
		FIII	13.28	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
25	T1	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	16.38	6.55	–	–	–
		CII	3.28	–	–	–	–
		CIII	3.28	–	–	–	–
		FI	65.52	–	–	–	–
		FII	3.28	–	–	–	–
		FIII	3.28	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
25	T2	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	—	–	–	–	–
		CII	2.06	4.12	–	–	–
		CIII	2.06	–	–	–	–
		FI	18.54	–	–	–	–
		FII	—	–	–	–	–
		FIII	—	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
26	S	NI	–	208.57	–	–	–
		NII	–	403.24	–	–	–
		MN	–	1107.76	–	–	–
		CI	13.90	936.27	–	–	–
		CII	4.63	125.14	–	–	–
		CIII	4.63	4.63	–	–	–
		FI	4.63	–	–	–	–
		FII	–	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
29	S	NI	–	22.11	–	–	–
		NII	–	22.11	–	–	–
		MN	–	1103.19	2.46	–	–
		CI	19.66	3154.75	–	–	–
		CII	76.17	366.09	–	–	–
		CIII	24.57	19.66	–	–	–
		FI	39.31	–	–	–	–
		FII	–	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	2.46	–	–	–	–
31	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	3.94	–	–	–
		CI	15.76	45.32	–	–	–
		CII	72.91	35.47	–	–	–
		CIII	63.05	5.91	–	–	–
		FI	78.82	–	–	–	–
		FII	–	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
35	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	121.57	2.38	2.38	–	–
		CII	64.36	2.38	–	–	–
		CIII	81.05	–	–	–	–
		FI	109.65	–	–	–	–
		FII	7.15	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	2.38	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
35	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	0.86	–	–
		CI	7.72	–	–	–	–
		CII	18.87	–	–	–	–
		CIII	16.30	–	–	–	–
		FI	64.32	–	–	–	–
		FII	11.15	–	–	–	–
		FIII	6.86	–	–	–	–
		FIV	2.57	–	–	–	–
		FV	0.86	–	–	–	–
		FVI	–	–	–	–	–
		BF	2.57	–	–	–	–
36	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	67.04	–	2.79	–	–
		CII	189.94	–	8.38	–	–
		CIII	106.15	–	2.79	–	–
		FI	223.46	–	–	–	–
		FII	111.73	–	–	–	–
		FIII	103.35	–	–	–	–
		FIV	36.31	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	25.14	–	–	–	–
37	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	33.96	–	–	–	–
		CII	52.95	–	14.44	–	–
		CIII	48.13	–	4.81	–	–
		FI	149.22	–	–	–	–
		FII	77.02	–	–	–	–
		FIII	43.32	–	–	–	–
		FIV	52.95	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	24.07	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
38	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	4.44	–	4.44	–	–
		CII	44.44	–	4.44	–	–
		CIII	26.67	–	–	–	–
		FI	38.89	4.44	8.89	–	–
		FII	18.89	–	–	–	–
		FIII	5.56	–	–	–	–
		FIV	18.89	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
38	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	0.65	–	1.30	–	–
		CI	0.65	–	–	–	–
		CII	1.95	–	–	0.65	–
		CIII	1.30	–	–	–	–
		FI	6.51	–	–	–	–
		FII	1.95	–	–	–	–
		FIII	0.65	–	–	–	–
		FIV	0.65	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	0.65	–	–	–	–
44	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	22.50	–	11.25	–	–
		CII	50.63	–	5.63	–	–
		CIII	118.14	–	–	11.25	–
		FI	348.80	–	–	5.63	–
		FII	208.16	–	–	28.13	–
		FIII	50.63	–	–	16.88	–
		FIV	253.16	–	–	39.38	–
		FV	22.50	–	–	–	–
		FVI	–	–	–	–	–
		BF	90.01	–	–	5.63	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
45	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	8.40	–	6.30	–	–
		CII	46.22	–	8.40	–	–
		CIII	69.33	–	–	–	–
		FI	191.18	–	–	–	–
		FII	105.04	–	–	–	–
		FIII	63.03	–	–	4.20	–
		FIV	134.45	–	–	–	–
		FV	10.50	–	–	–	–
		FVI	2.10	–	–	–	–
		BF	29.41	–	–	–	–
45	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	0.43	–	–
		CI	1.28	–	0.43	–	–
		CII	2.14	–	–	–	–
		CIII	4.27	–	–	–	–
		FI	23.92	–	–	–	–
		FII	15.38	–	–	–	–
		FIII	8.97	–	–	–	–
		FIV	16.66	–	–	–	–
		FV	0.43	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
46	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	0.92	–	0.92	–	–
		CII	2.75	–	0.92	–	–
		CIII	14.69	–	–	–	–
		FI	35.81	–	–	–	–
		FII	30.30	–	–	–	–
		FIII	18.37	–	–	–	–
		FIV	32.14	–	–	–	–
		FV	1.84	–	–	–	–
		FVI	–	–	–	–	–
		BF	1.84	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
46	T1	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	2.79	–	2.79	5.57	–
		CII	11.15	–	–	–	–
		CIII	11.15	–	–	–	–
		FI	184.26	–	–	5.57	–
		FII	136.89	–	–	–	–
		FIII	70.01	–	–	–	–
		FIV	148.03	–	–	–	–
		FV	11.49	–	–	–	–
		FVI	–	–	–	–	–
		BF	8.36	–	–	–	–
46	T2	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	–	–	–	–	–
		CII	5.35	–	–	–	–
		CIII	21.39	–	–	–	–
		FI	133.69	–	–	–	–
		FII	53.48	–	–	–	–
		FIII	37.43	–	–	–	–
		FIV	37.43	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
47	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	75.38	–	9.42	–	–
		CII	108.36	–	–	–	–
		CIII	89.52	–	–	–	–
		FI	142.52	–	–	–	–
		FII	88.34	–	–	–	–
		FIII	83.63	–	–	–	–
		FIV	93.05	–	–	–	–
		FV	10.60	–	–	–	–
		FVI	–	–	–	–	–
		BF	14.13	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
47	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	4.61	–	1.97	–	–
		CII	12.50	–	–	–	–
		CIII	4.61	–	0.66	–	–
		FI	23.69	–	–	–	–
		FII	5.26	–	–	–	–
		FIII	3.95	–	–	–	–
		FIV	3.95	–	–	–	–
		FV	0.66	–	–	–	–
		FVI	0.66	–	–	–	–
		BF	1.97	–	–	–	–
48	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	64.26	–	–	–	–
		CII	85.68	–	–	–	–
		CIII	91.03	–	5.35	–	–
		FI	144.58	–	–	–	–
		FII	48.19	–	–	–	–
		FIII	16.06	–	–	–	–
		FIV	26.77	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	5.35	–	–	–	–
50	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	66.40	28.46	2.71	–	–
		CII	88.08	–	4.07	–	–
		CIII	60.98	–	–	–	–
		FI	33.88	–	–	–	–
		FII	1.36	–	–	–	–
		FIII	–	–	–	–	–
		FIV	1.36	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	5.42	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
51	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	8.99	4.49	1.12	–	–
		CII	25.84	–	–	–	–
		CIII	5.62	–	–	–	–
		FI	29.21	–	–	–	–
		FII	11.24	–	–	–	–
		FIII	3.37	–	–	–	–
		FIV	14.61	–	–	–	–
		FV	1.12	–	–	–	–
		FVI	–	–	–	–	–
		BF	4.49	–	–	–	–
51	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	5.72	0.88	0.44	–	–
		CII	7.92	–	–	–	–
		CIII	5.72	–	–	–	–
		FI	30.34	–	–	–	–
		FII	3.96	–	–	–	–
		FIII	2.64	–	–	–	–
		FIV	4.84	–	–	–	–
		FV	0.44	–	–	–	–
		FVI	–	–	–	–	–
		BF	1.76	–	–	–	–
52	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	3.41	–	1.70	–	–
		CII	22.15	–	–	–	–
		CIII	40.89	–	–	–	–
		FI	202.73	–	–	–	–
		FII	98.81	–	–	–	–
		FIII	109.03	–	–	1.70	–
		FIV	155.03	–	–	–	–
		FV	22.15	–	–	–	–
		FVI	–	–	–	–	–
		BF	32.37	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
53	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	12.71	–	1.06	–	–
		CII	16.95	–	–	1.06	–
		CIII	18.01	–	–	–	–
		FI	91.10	–	–	–	–
		FII	79.45	–	–	1.06	–
		FIII	39.19	–	–	–	–
		FIV	1.06	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	8.47	–	–	–	–
53	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	2.96	–	–	–	–
		CII	13.31	–	–	–	–
		CIII	17.75	–	–	1.48	–
		FI	220.41	–	–	–	–
		FII	91.72	–	–	–	–
		FIII	34.02	–	–	–	–
		FIV	65.09	–	–	–	–
		FV	2.96	–	–	–	–
		FVI	–	–	–	–	–
		BF	59.17	–	–	–	–
54	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	23.53	–	–	5.88	–
		CII	9.80	–	–	–	–
		CIII	27.45	–	–	–	–
		FI	166.67	–	–	–	–
		FII	131.37	–	–	–	–
		FIII	117.65	–	–	–	–
		FIV	166.67	–	–	–	–
		FV	15.69	–	–	1.96	–
		FVI	1.96	–	–	–	–
		BF	1.96	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
55	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	18.87	–	–	–	–
		CII	31.45	–	–	–	–
		CIII	34.59	–	–	3.14	–
		FI	50.31	–	–	–	–
		FII	50.31	–	–	–	3.14
		FIII	47.17	–	–	–	–
		FIV	15.47	–	–	3.14	–
		FV	22.01	–	–	3.14	–
		FVI	12.58	–	–	3.14	–
		BF	6.29	–	–	3.14	–
56	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	16.15	–	–	5.38	–
		CII	37.69	–	–	–	–
		CIII	43.07	–	–	5.38	–
		FI	113.06	–	–	5.38	–
		FII	37.69	–	–	10.77	–
		FIII	26.92	–	–	5.38	–
		FIV	107.67	–	–	–	–
		FV	91.52	–	–	–	–
		FVI	83.84	–	–	–	–
		BF	21.53	–	–	–	–
56	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	–	–	–	–	–
		CII	6.12	—	—	—	—
		CIII	9.79	–	–	1.22	–
		FI	39.17	–	–	1.22	–
		FII	14.69	–	–	–	–
		FIII	13.46	–	–	–	–
		FIV	23.26	–	–	–	–
		FV	12.24	–	–	–	–
		FVI	9.79	–	–	–	–
		BF	14.69	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
57	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	–	–	–	7.55	–
		CII	7.55	–	–	7.55	–
		CIII	30.19	–	–	–	–
		FI	90.57	–	–	–	–
		FII	69.81	–	–	–	–
		FIII	90.57	–	–	7.55	–
		FIV	41.51	–	–	60.38	9.43
		FV	83.02	–	–	52.83	–
		FVI	424.53	–	–	158.49	–
		BF	77.36	–	–	45.28	–
57	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	1.57	–	1.57	–	–
		CII	3.14	–	–	1.57	–
		CIII	7.86	–	–	1.57	–
		FI	17.30	–	–	6.29	–
		FII	20.44	–	–	1.57	1.57
		FIII	1.57	–	–	3.14	3.14
		FIV	7.86	–	–	6.29	–
		FV	4.72	–	–	1.57	–
		FVI	18.87	–	–	7.86	–
		BF	3.14	–	–	11.01	–
58	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	15.56	–	15.56	–	–
		CII	3.89	–	–	3.89	–
		CIII	23.35	–	–	3.89	–
		FI	77.82	–	–	11.67	–
		FII	54.47	–	–	11.67	3.89
		FIII	15.56	–	–	–	–
		FIV	38.91	–	–	15.56	–
		FV	42.80	–	–	–	–
		FVI	7.78	–	–	7.78	–
		BF	23.35	–	–	35.02	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
59	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	14.24	–	–	–	–
		CII	3.16	–	–	–	–
		CIII	6.33	–	1.58	–	–
		FI	28.48	–	–	–	–
		FII	3.16	–	–	–	–
		FIII	1.58	–	–	–	–
		FIV	1.58	–	–	–	–
		FV	1.58	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
60	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	53.76	–	0.98	–	–
		CII	54.74	–	–	–	–
		CIII	35.19	–	–	–	–
		FI	42.03	–	–	–	–
		FII	–	–	–	–	–
		FIII	4.89	–	–	–	–
		FIV	0.98	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
60	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	6.98	–	0.82	–	–
		CII	6.57	–	–	–	–
		CIII	4.52	–	–	–	–
		FI	13.14	–	–	–	–
		FII	2.87	–	–	–	–
		FIII	2.46	–	–	–	–
		FIV	1.64	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	0.41	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
61	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	39.17	4.61	–	–	–
		CII	23.04	–	–	–	–
		CIII	39.17	–	–	–	–
		FI	20.74	–	–	–	–
		FII	2.30	–	–	–	–
		FIII	4.61	–	–	–	–
		FIV	2.30	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
62	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	29.09	–	–	–	–
		CII	31.52	–	–	–	–
		CIII	50.91	–	–	–	–
		FI	36.36	–	–	–	–
		FII	9.70	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	2.42	–	–	–	–
62	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	8.07	–	–	–	–
		CII	5.76	–	–	–	–
		CIII	11.53	–	–	–	–
		FI	2.31	–	–	–	–
		FII	–	–	–	–	–
		FIII	1.15	–	–	–	–
		FIV	1.15	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
63	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	114.96	–	–	–	–
		CII	87.91	–	–	–	–
		CIII	62.55	–	–	–	–
		FI	148.77	–	–	–	–
		FII	–	–	–	–	–
		FIII	–	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–
65	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	37.29	–	–	–	–
		CII	47.46	–	–	–	–
		CIII	40.68	–	–	–	–
		FI	162.71	–	–	–	–
		FII	10.17	–	–	–	–
		FIII	6.78	–	–	–	–
		FIV	–	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	3.39	–	–	–	–
65	D	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	13.78	–	–	–	–
		CII	17.39	–	–	–	–
		CIII	8.91	–	–	–	–
		FI	31.91	–	–	–	–
		FII	–	–	–	–	–
		FIII	–	–	–	–	–
		FIV	0.42	–	–	–	–
		FV	–	–	–	–	–
		FVI	–	–	–	–	–
		BF	–	–	–	–	–

STN. NO.	HAUL TYPE	STAGE	*Thysanoessa macrura*	*Euphausia crystallorophias*	*Euphausia superba*	*Euphausia frigida*	*Euphausia triacantha*
66	S	NI	–	–	–	–	–
		NII	–	–	–	–	–
		MN	–	–	–	–	–
		CI	17.02	–	8.51	–	–
		CII	14.89	–	2.13	–	–
		CIII	14.89	–	1.06	–	–
		FI	86.17	–	–	2.13	–
		FII	95.74	–	–	1.06	–
		FIII	51.06	–	1.06	–	–
		FIV	101.06	–	–	1.06	–
		FV	43.62	–	–	3.19	–
		FVI	46.81	–	–	18.09	–
		BF	9.57	–	–	2.13	–

5. RESEARCH UNDERTAKEN BY NON-DIVISIONAL SCIENTISTS

Name	Projects
Dr G. Ettershank, Monash University	Age-morphometry study on krill Krill bioacoustics
Miss S. A. Harrington, New England University	Fecundity and egg hatchability experiments on krill Histological study on reproductive systems in krill
Mr. D. P. O'Brien, University of Tasmania	Behavioural study on krill and other euphausiids in the laboratory.

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