

**Euphausiid Larvae in Plankton Samples
from the Vicinity of the Antarctic
Peninsula, February 1982**

by Sigrid Marschall and Elke Mizdalski

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Summary

This report gives the results of the identification of euphausiid larvae, caught during the Joint Biological Expedition on RRS "John Biscoe" in February 1982. Sampling was carried out with the RMT 1+8 m and the Nansen-Closing-Net in the region of the Antarctic Peninsula and the Scotia Sea. Larvae of four euphausiid species occurred in this area. Euphausia superba was dominant.

Zusammenfassung

Im folgenden Bericht werden die Ergebnisse der Bestimmung und Stadieneinteilung der Euphausiaceen-Larven aus den Planktonfängen der Deutsch-Britischen Antarktis-Expedition mit RRS "John Biscoe" im Februar 1982 dargestellt. Die Planktonfänge wurden mit dem RMT 1+8 m und dem Nansen-Schließ-Netz im Raum der antarktischen Halbinsel und der Scotia See durchgeführt. Vier Arten von Euphausiaceen-Larven kamen in diesem Gebiet vor. Euphausia superba war die dominante Art.

EUPHAUSIID LARVAE IN PLANKTON SAMPLES FROM THE VICINITY OF THE
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1. Introduction

The following data lists and distribution maps are the results of the identification work on euphausiid larvae caught during the Joint Biological Expedition on RRS "John Biscoe" in the austral summer of 1981/82. On the third leg of this expedition in February 1982 zooplankton was sampled at four time stations and on several profiles in five areas:

- Scotia Sea, including the Elephant Island region,
- Bransfield Strait
- areas west of the Antarctic Peninsula
- North-western Weddell Sea
- South Georgia region.

For detailed information see HEMPEL & HEYWOOD (1982), who give a description of cruise track, reports of individual working groups and preliminary results.

2. Methods

Two types of nets were used:

1. The RMT 1+8 m ("Rectangular Midwater Trawl") is a multiple opening and closing net system. For this report only material from the RMT 1 net was used. The RMT 1 net has a mouth area of approximately 1 m² and a mesh-size of 320 µm. 76 oblique hauls were performed with this net. Usually three depth strata were sampled: 200 - 140 m, 140 m - thermocline region (around 60 m), thermocline region - below surface (~ 5 m). These hauls were performed for studies on zooplankton and micronekton distribution and abundance.
2. The NCN (Nansen-Closing-Net) is a vertical net with a circular mouth opening of 70 cm, a mesh-size of 200 µm and a closing device which allows sampling discrete depth layers. It was used for 92 vertical hauls usually in depth layers from 2000 - 1000, 1000 - 500 m, 500 - 200 m, 200 - 0 m to give more insight into the vertical distribution of krill eggs and larvae during the developmental ascent.

The samples were fixed in 4% chalk-buffered formaldehyde solution.

For station lists and comments to stations, see PIATKOWSKI (1983).

Figures 1-4 give the locations of stations, at which zooplankton-sampling was carried out.

The early life history stages of Euphausiids from the RMT-1-samples were sorted into the following categories:

- Euphausia superba: eggs, naupliar stages, calyptopes and furciliae.
- Euphausiid larvae other than krill: naupliar stages, calyptopes and furciliae.

Very rich samples were split with a Wiborg splitter or a Folsom splitter:

4 samples down to 2^{-1} ,
1 sample down to 2.5^{-1} ,
1 sample down to 3.3^{-1} ,
3 samples down to 4^{-1} ,
13 samples down to 5^{-1} ,
40 samples down to 10^{-1} and
4 samples down to 100^{-1} .

The early life history stages of Euphausiids from the NCN-samples were sorted as described for the RMT 1-samples.

A Wiborg splitter was used to obtain subsamples. 7 samples were split down to 10^{-1} , 1 sample down to 100^{-1} .

The following data lists give the results of the identification of euphausiid larvae:

- the first list contains data on Euphausia superba eggs and larvae,
- the second list gives data on euphausiid larvae other than krill, i.e. Thysanoessa sp., Euphausia frigida and Euphausia crystallorophias. The larvae of the genus Thysanoessa (T. vicina and T. macrura) are given as Thysanoessa sp., because they can not be distinguished.

Number of individuals is given as $n/1000 \text{ m}^3$.

3. Results

Euphausia superba larvae were found in the entire investigated area with numbers up to $20000/1000 \text{ m}^3$. The main areas of distribution were around Elephant Island, the Bransfield Strait and the Antarctic Sound (Figs. 5-6).

Of the other euphausiid larvae, Thysanoessa sp. was the dominant species with numbers up to more than $3000/1000 \text{ m}^3$. It was found in almost every sample but at higher concentrations around South Georgia and the area west of the South Shetland Islands (Fig. 7a). In the Bransfield Strait Thysanoessa sp. had a homogeneous distribution (Fig. 7b).

E. crystallorophias and E. frigida were only found in a few hauls. The main area of distribution of E. frigida larvae was around South Georgia and in the Scotia Sea (up to $231/1000 \text{ m}^3$, Figs. 8-9). Few larvae were caught along the South Shetland Islands. These results are in accordance with those of HEMPEL & MARSCHOFF (1980).

Large numbers of E. crystallorophias occurred in the lagoon of Deception Island ($12114/1000 \text{ m}^3$, Fig. 8b), where it was the only euphausiid species.

An interesting fact was the occurrence of larvae of all 4 euphausiid species in the Antarctic Sound.

Acknowledgement

We thank all sorters for their useful help. G. Dieckmann kindly revised the English text.

4. References

- HEMPEL, G. & R.B. HEYWOOD (1982): Joint Biological Expedition on RRS John Biscoe, February 1982. Ber. Polarforsch. 5, 39 pp.
- HEMPEL, I. & E. MARSCHOFF (1980): Euphausiid larvae in the Atlantic Sector of the Southern Ocean. Meeresforsch. 28, 32-47.
- PIATKOWSKI, U. (1983): Joint Biological Expedition on RRS "John Biscoe", February 1982 (II). Data of micronekton and zooplankton hauls. Ber. Polarforsch. 11, 40 pp.

5. Station maps

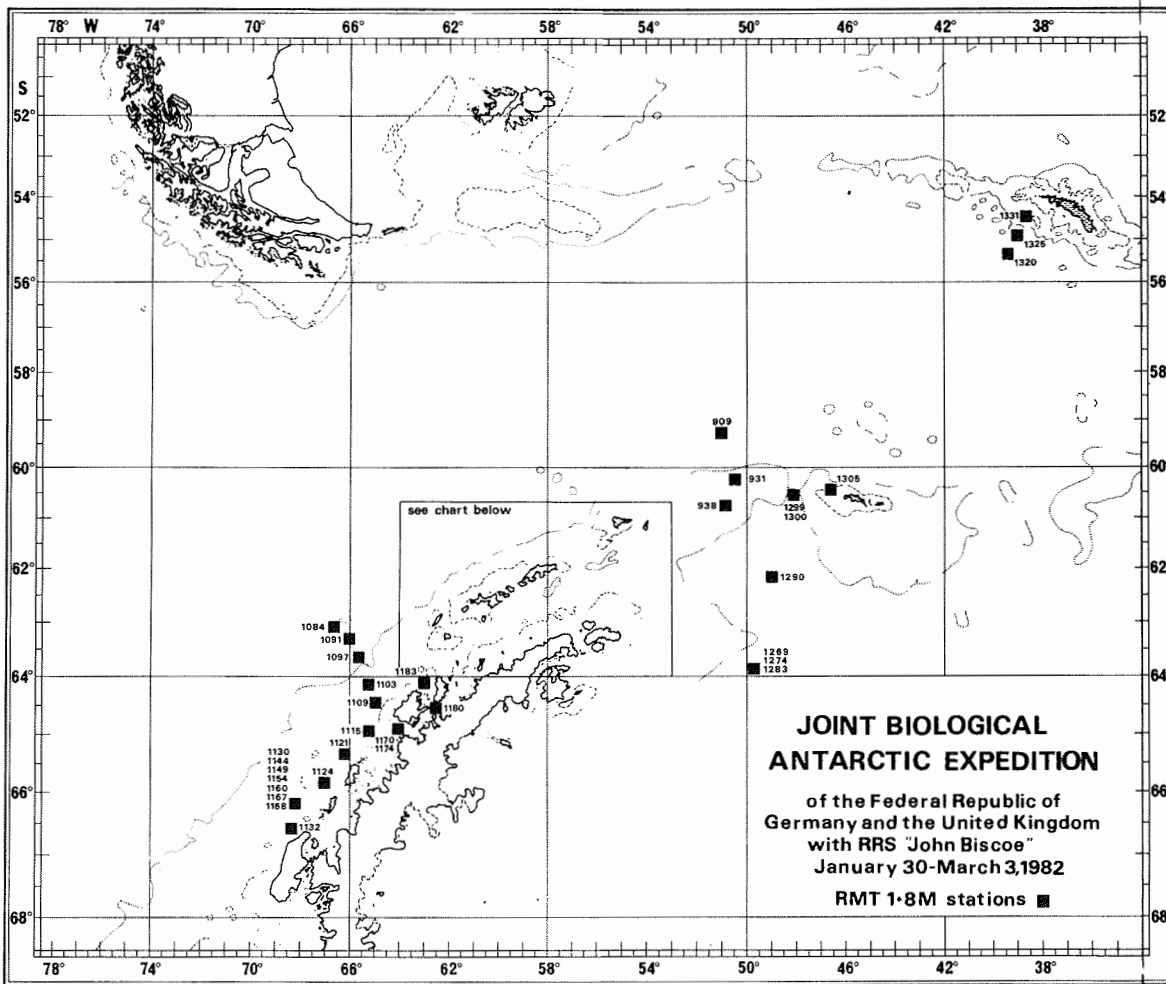


Fig. 1 RMT 1+8 m stations of whole investigated area.
(From PIATKOWSKI, 1983).

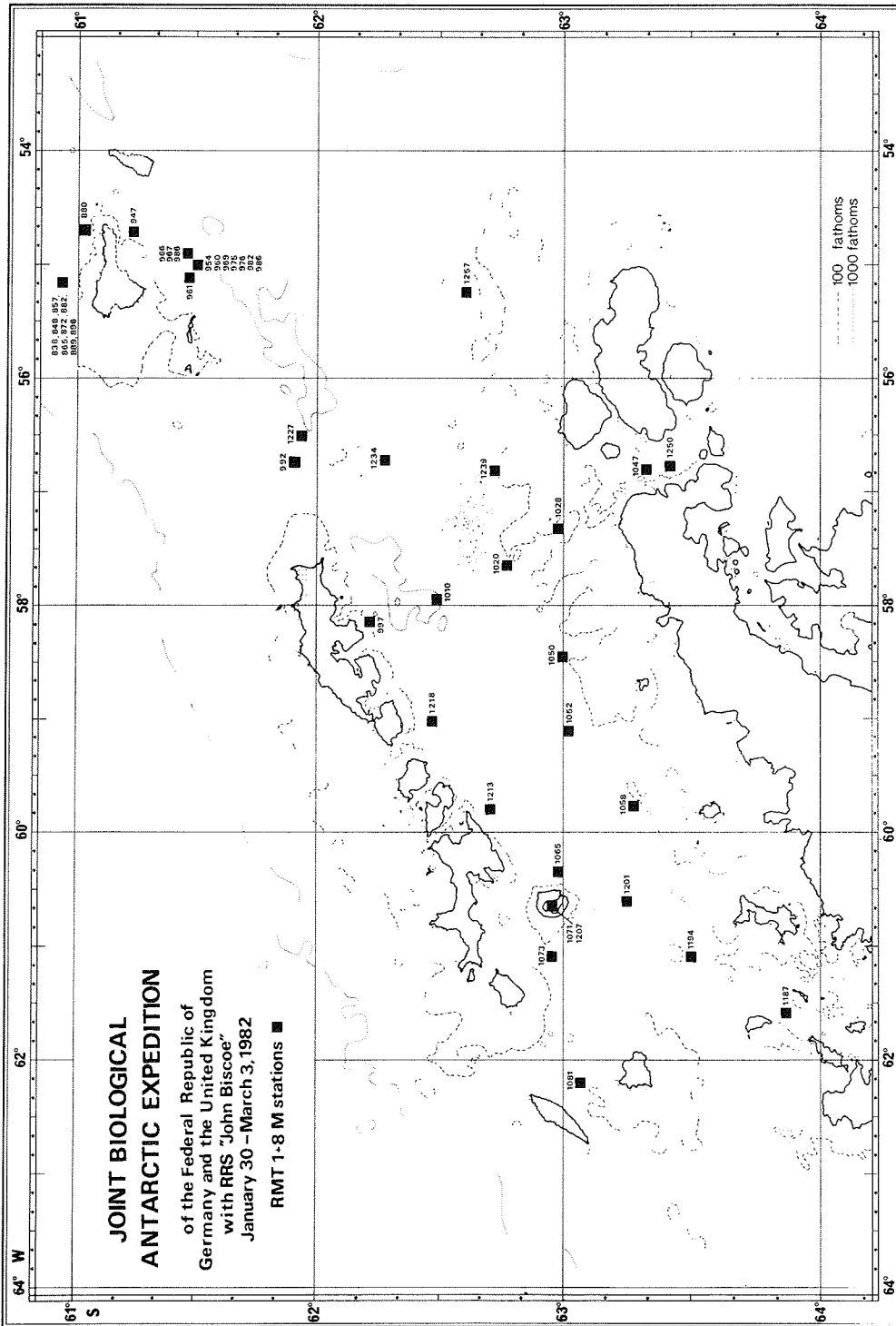


Fig. 2 RMT 1+8m stations in Bransfield Strait and adjacent waters.
(From PIATKOWSKI, 1983).

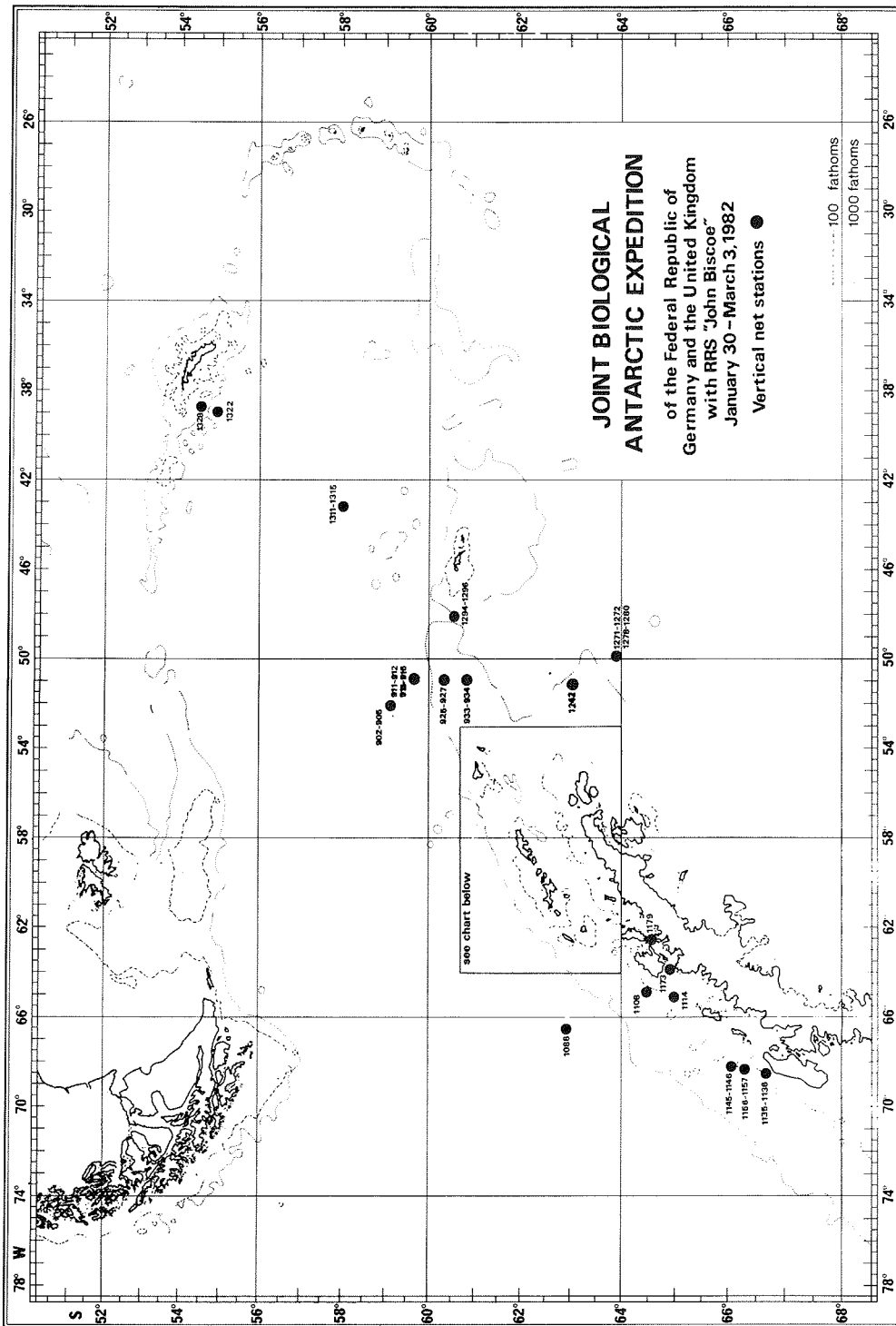


Fig. 3 Vertical net stations of whole investigated area.
 (From PIATKOWSKI, 1983).

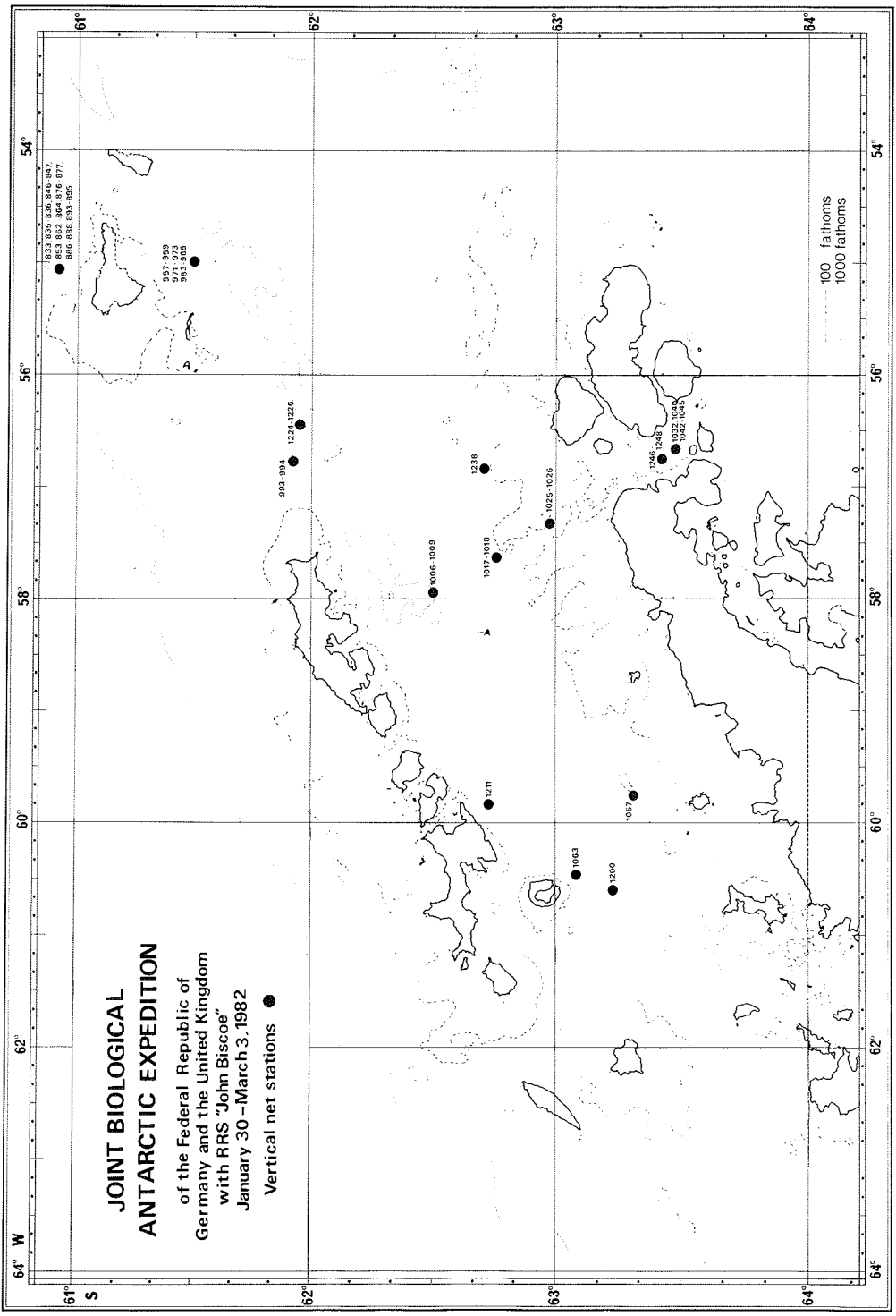


Fig. 4 Vertical net stations in Bransfield Strait and adjacent waters.
(From PIATKOWSKI, 1983).

6. Distribution maps

The following maps include only those stations where the entire water column was sampled.

The NCN-samples did not yield quantitative data on furciliae. These stages are therefore not included in the maps.

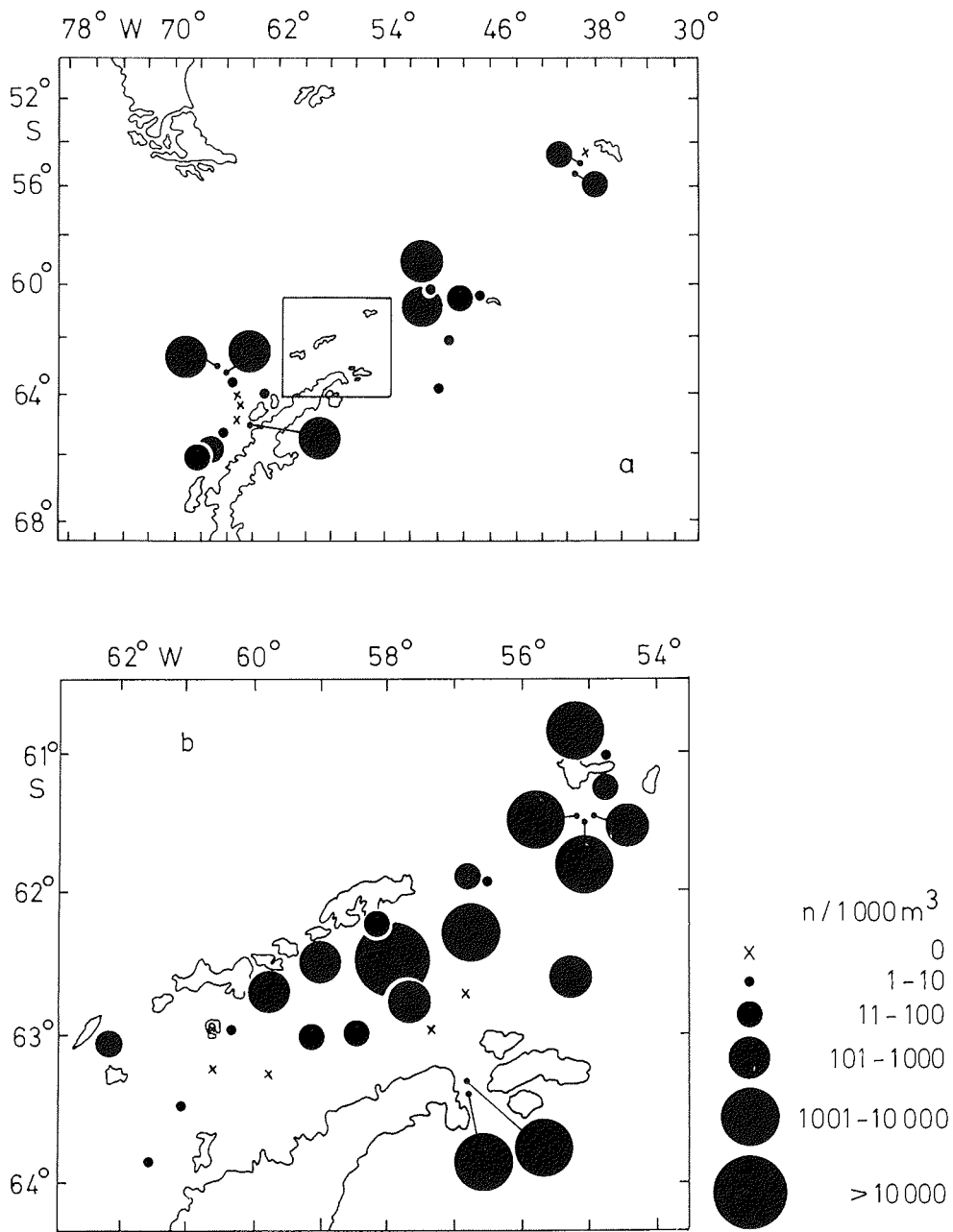


Fig. 5 Horizontal distribution of *Euphausia superba* larvae, RMT 1, 320 μm .

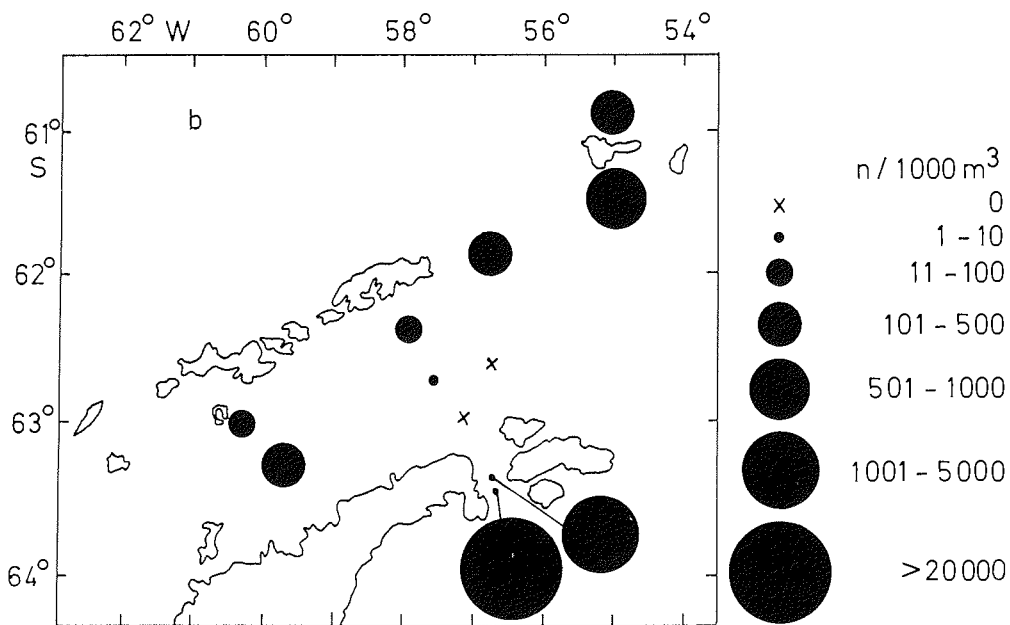
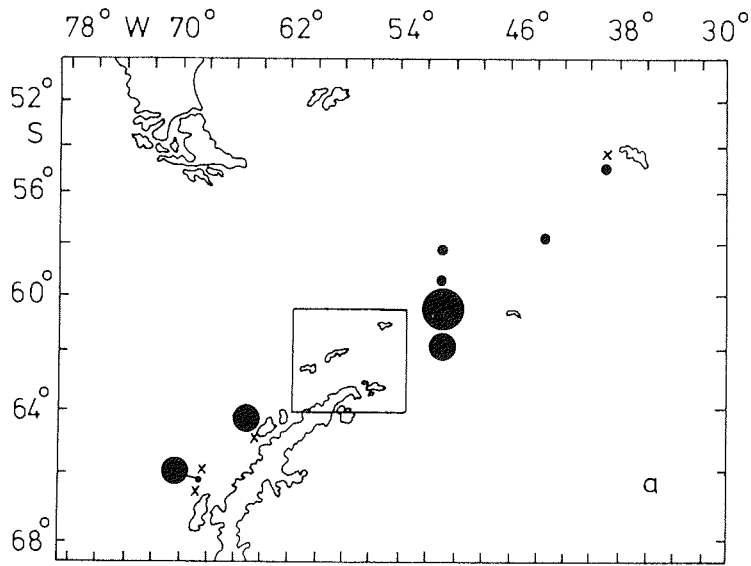


Fig. 6 Horizontal distribution of *Euphausia superba* larvae except furcillae, NCN, 200 μ m.

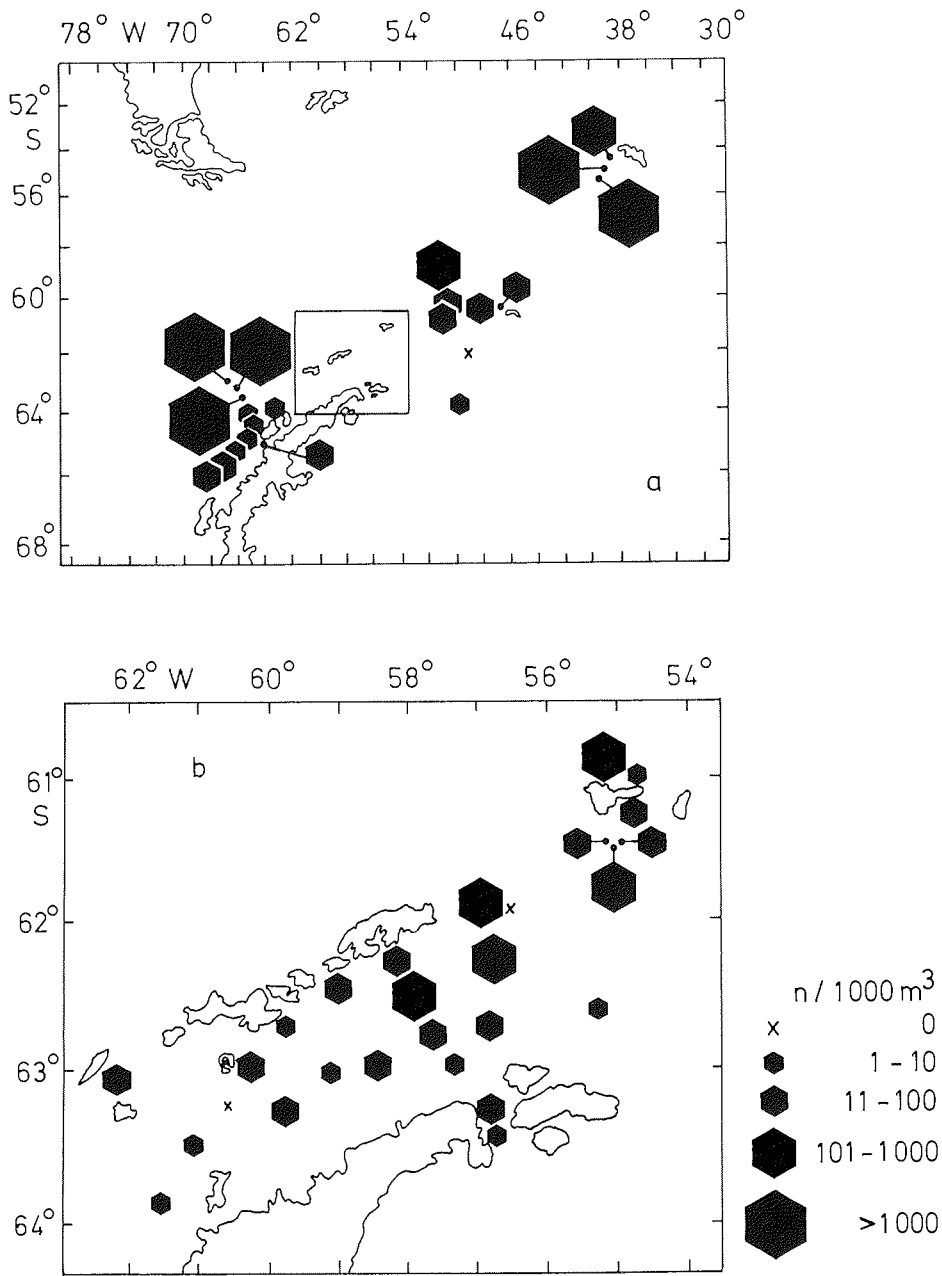


Fig. 7 Horizontal distribution of *Thysanoessa* sp. larvae, RMT 1, 320 μ m.

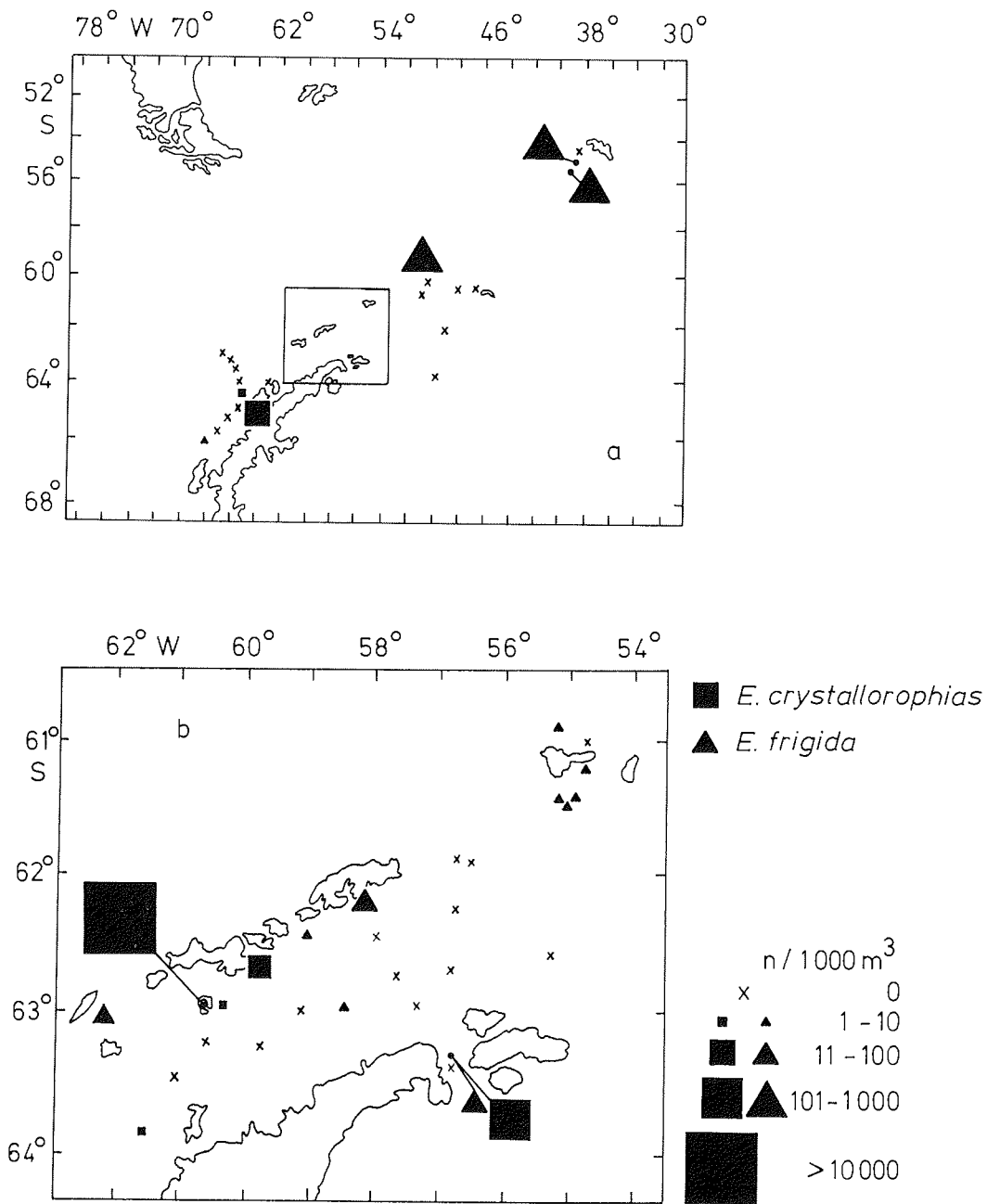


Fig. 8 Horizontal distribution of Euphausia crystallorophias and Euphausia frigida larvae, RMT 1, 320 μ m.

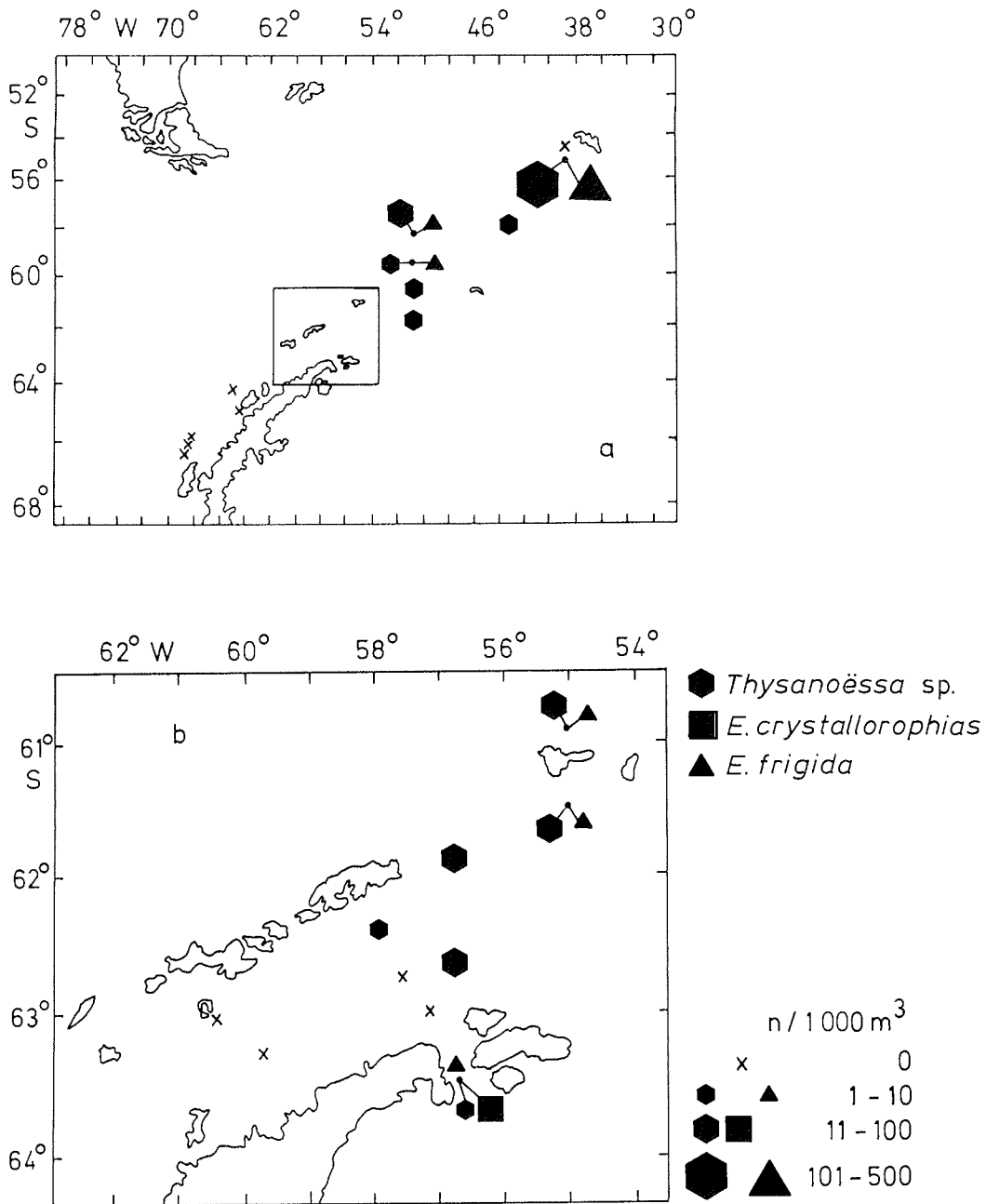


Fig. 9 Horizontal distribution of *Thysanoëssa* sp., *Euphausia crystallorophias* and *Euphausia frigida* larvae except furcilliae, NCN, 200 μ m.

Antarctic Expedition 1981/82 RRS "John Biscoe". Distribution of Euphausia superba eggs and larvae.
Used nets: RMT1, NANSEN-CLOSING-NET (NCN). Individuals per 1000 m³.

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	Calyptopis			Furcilia			Total number of larvae	Comment	Euphausiid larvae data lists
							I	II	III	Early	Mean	Late			
835/ 2	Febr 2	NCN	1000- 200	20	7	20	68	0	0	0	0	0	94	-	
836/ 3	2	NCN	200- 0	39	0	0	104	0	0	0	0	0	104	-	
838/ 1	2	RMT1-1	200- 140	0	0	0	1699	6	0	0	0	0	1 705	-	
		RMT1-2	140- 70	18	0	0	4225	59	0	12	0	0	4 296	-	
		RMT1-3	70- 15	0	0	0	1823	44	3	3	0	0	1 872	-	
846/ 4	2	NCN	500- 0	15	0	0	292	0	0	0	0	0	292	-	
847/ 5	2	NCN	1000- 500	0	16	37	73	0	0	0	0	0	125	-	
853/ 6	2	NCN	2000-1000	5	221	148	5	0	0	0	0	0	374	-	
848/ 2	2	RMT1-1	200- 160	18	0	0	6	0	0	0	0	0	6	-	
		RMT1-2	160- 125	52	0	6	10	0	0	0	0	0	16	-	
		RMT1-3	125- 10	7	0	0	7	0	0	0	0	0	7	-	
857/ 3	2	RMT1-1	255- 135	32	0	0	520	0	0	3	0	0	523	-	
		RMT1-2	135- 70	4	0	0	0	0	0	0	0	0	0	-	
		RMT1-3	70- 20	0	0	0	19*	0	0	0	0	0	19	* partly fragments	
862/ 7	2	NCN	2019-1000	34	237	482	13	0	0	0	0	0	732	-	
863/ 8	3	NCN	1000- 500	15	57	188	125	0	0	0	0	0	370	-	
864/ 9	3	NCN	500- 200	9	78	122	70	0	0	0	0	0	270	-	
865/ 4	3	RMT1-1	200- 140	10	0	0	0	0	0	0	0	0	0	-	
		RMT1-2	140- 60	0	0	0	0	0	0	0	0	0	0	-	
		RMT1-3	60- 10	0	0	0	0	0	0	0	0	0	0	-	
872/ 5	3	RMT1-1	200- 145	59	0	0	12	0	0	0	0	0	12	-	
		RMT1-2	145- 70	139	0	0	94	0	0	0	0	0	94	-	
		RMT1-3	70- 15	0	0	0	7	0	0	0	0	0	7	-	

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	Calyptopis			Furcilia			Total number of larvae	Comment
							I	II	III	Early	Mean	Late		
	Febr													
876/10	3	NCN	2000-1000	8	42	86	0	0	0	0	0	0	127	-
877/11	3	NCN	1000- 500	26	52	52	10	0	0	0	0	0	115	-
880/ 6	3	RMT1-1	200- 140	29	0	0	0	0	0	3	0	0	3	-
		RMT1-2	140- 70	27	0	0	0	0	0	0	0	0	0	-
		RMT1-3	70- 5	15	0	0	0	0	0	0	0	0	0	-
882/ 7	3	RMT1-1	200- 140	118	0	0	42	1	0	0	0	0	44	-
		RMT1-2	140- 70	57	0	0	13	0	0	0	0	0	13	-
		RMT1-3	70- 10	10	0	0	0	0	0	0	0	0	0	-
886/12	4	NCN	2000-1000	24	210	429	0	3	0	0	0	0	642	-
887/13	4	NCN	1000- 500	5	42	224	47	0	0	0	0	0	313	-
888/14	4	NCN	500- 0	0	0	5	630	5	0	0	0	0	641	-
889/ 8	4	RMT1-1	200- 100	73	0	0	2140	38	0	0	0	0	2 177	-
		RMT1-2	100- 85	133	0	0	8447	192	0	89	89	0	8 817	-
		RMT1-3	85- 20	0	0	0	7205	432	0	0	0	0	7 637	-
893/15	4	NCN	500- 0	78	5	10	953	42	0	0	0	0	1 010	-
894/16	4	NCN	1000- 500	25	10	412	328	0	0	0	0	0	750	-
895/17	4	NCN	2350-1000	6	21	96	8	0	0	0	0	0	125	-
896/ 9	4	RMT1-1	200- 140	61	0	0	23	4	0	0	0	0	27	-
		RMT1-2	140- 65	24	0	0	46	0	0	0	0	0	46	-
		RMT1-3	65- 15	0	0	0	5	0	0	0	0	0	5	-
902/18	5	NCN	2000-1000	0	0	8	0	0	0	0	0	0	8	-
903/19	5	NCN	1000- 500	0	0	5	0	0	0	0	0	0	5	-
904/20	5	NCN	500- 200	0	0	0	35	0	0	0	0	0	35	-
905/21	5	NCN	200- 0	0	0	0	0	0	0	0	0	0	0	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	II	III	Furcilia Early Mean	Late	Total number of larvae	Comment
Febr													
909/10	5	RMT1-1	195- 110	0	0	0	605	0	0	0	0	605	-
		RMT1-2	110- 55	3	0	0	141	0	0	0	0	141	-
		RMT1-3	55- 10	0	0	0	13	2	0	0	0	14	-
911/22	5	NCN	200- 0	0	0	0	0	0	0	0	0	0	-
912/23	5	NCN	500- 200	0	0	0	9	0	0	0	0	9	-
915/24	5	NCN	1000- 500	0	0	0	0	0	0	0	0	0	-
916/25	5	NCN	2000-1000	0	0	0	0	0	0	0	0	0	-
925/26	6	NCN	200- 0	26	0	0	195	0	0	0	0	195	-
926/27	6	NCN	500- 200	0	0	383	687	0	0	0	0	1 070	-
927/28	6	NCN	1455- 500	0	117	112	11	0	0	0	0	240	-
931/11	6	RMT1-1	200- 95	17	0	0	3	0	0	0	0	3	-
		RMT1-2	95- 60	17	0	0	2	0	0	0	0	2	-
		RMT1-3	60- 10	16	0	0	0	0	0	0	0	0	-
933/29	6	NCN	200- 0	0	91	26	0	0	0	0	0	117	-
934/30	6	NCN	2000- 200	7	3	0	2	0	0	0	0	4	-
938/12	6	RMT1-1	200- 125	1	0	3	383	0	0	0	0	383	-
		RMT1-2	125- 70	0	0	1	338	0	0	0	0	339	-
		RMT1-3	70- 5	0	0	0	15	0	0	0	0	15	-
947/13	7	RMT1-1	205- 150	61	0	0	98	29	9	0	0	136	-
		RMT1-2	150- 65	110	0	0	13	1	0	0	0	15	-
		RMT1-3	65- 10	3	0	0	13	1	0	0	0	15	-
954/14	7	RMT1-1	205- 140	1	0	0	1	0	0	0	0	1	-
		RMT1-1	140- 90	5	0	0	8	0	0	0	0	8	-
		RMT1-3	90- 20	0	0	0	1	0	0	0	0	1	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	Calypptopis			Furcilia			Total number of larvae	Comment
							I	II	III	Early	Mean	Late		
	Febr													
957/31	7	NCN	670- 500	46	77	262	15	0	0	0	0	0	354	-
958/32	7	NCN	500- 200	17	9	35	426	96	0	0	0	0	565	-
959/33	7	NCN	200- 0	0	0	0	13	0	0	0	0	0	13	-
960/15	7	RMT1-1	195- 110	0	0	0	0	0	0	0	0	0	0	-
		RMT1-2	110- 65	2	0	0	3	2	0	0	0	0	5	-
		RMT1-3	65- 10	1	0	0	0	0	0	0	0	0	0	-
961/16	7	RMT1-1	750- 500	4	29	428	635	258	29	4	0	0	1 362	-
		RMT1-2	500- 250	8	0	8	3749	1519	80	8	0	0	4 564	-
		RMT1-3	250- 200	0	0	0	2004	580	59	22	0	0	2 709	-
966/17	8	RMT1-2	145- 105	1	0	0	63	31	3	0	0	0	97	-
		RMT1-3	105- 5	0	0	0	241	161	27	1	0	0	430	-
967/18	8	RMT1-1	700- 480	24	4	65	63	7	4	0	0	0	142	-
		RMT1-2	480- 300	30	0	27	241	67	7	0	0	0	315	-
		RMT1-3	300- 200	4	0	0	200	35	2	0	0	0	237	-
969/19	8	RMT1-1	200- 140	7	0	0	5954	2384	289	51	0	0	8 678	-
		RMT1-2	140- 60	4	0	0	639	78	10	0	0	0	727	-
		RMT1-3	60- 10	0	0	1	61	26	0	1	0	0	90	-
971/34	8	NCN	620- 500	22	44	130	22	22	0	0	0	0	217	-
972/35	8	NCN	500- 200	9	9	200	826	200	26	0	0	0	1 261	-
973/36	8	NCN	200- 0	0	0	13	39	0	0	0	0	0	52	-
975/20	8	RMT1-1	205- 135	19	0	0	20	10	0	1	0	0	32	-
		RMT1-2	135- 100	12	0	0	3	1	0	0	0	0	4	-
		RMT1-3	100- 5	1	0	1	1	0	0	0	0	0	3	-
976/21	8	RMT1-1	710- 535	65	89	938	388	36	0	0	0	0	1 451	-
		RMT1-2	535- 290	0	14	590	1244	144	18	7	0	0	2 017	-
		RMT1-3	290- 225	0	4	0	287	45	15	0	0	0	351	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	Calypptopsis			Furcilia Early Mean Late	Total number of larvae	Comment
							I	II	III			
982/23	8	RMT1-1	185- 140	6	0	0	3	0	0	0	3	-
		RMT1-2	140- 60	1	0	0	6	7	0	0	13	-
		RMT1-3	60- 10	0	0	0	10	0	0	0	10	-
983/37	8	NCN	720- 500	47	0	0	1259	165	0	0	1 424	-
		NCN	500- 200	0	0	35	600	209	35	0	878	-
		NCN	200- 0	52	0	0	818	195	65	0	1 078	-
986/24	9	RMT1-1	215- 140	15	0	8	5802	484	83	15	6 392	-
		RMT1-2	140- 75	-	0	23	3625	279	76	-	4 003	eggs and fur- cillae missing
		RMT1-3	75- 5	0	0	2	553	48	5	9	2	618
992/25	9	RMT1-1	200- 135	1	0	1	91	9	1	0	103	-
		RMT1-2	135- 60	0	0	0	16	2	0	0	17	-
		RMT1-3	60- 10	0	0	0	6	1	0	0	7	-
993/40	9	NCN	450- 200	177	21	73	365	63	10	0	531	-
		NCN	200- 0	0	0	13	0	13*	0	0	26	* exuvias
997/26	9	RMT1-1	200- 142	59	0	0	88	59	0	0	146	-
		RMT1-2	142- 80	63	0	0	13	4	4	1	24	-
		RMT1-3	80- 20	0	0	0	6	3	0	0	9	-
1006/42	10	NCN	1640-1000	69	69	4	0	0	0	0	73	-
		NCN	1000- 500	37	10	10	0	0	0	0	21	-
		NCN	500- 200	43	44	9	26	0	0	0	78	-
		NCN	200- 0	0	0	0	52	39	0	0	91	-
1010/27	10	RMT1-1	200- 140	7	0	0	23	1	0	0	25	-
		RMT1-2	140- 80	0	0	0	1753	88	0	0	1 841	-
		RMT1-3	80- 5	0	0	0	36230	1031	0	0	37 261	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	II	III	Furcilia Early Mean Late	Total number of larvae	Comment
Febr												
1017/46	10	NCN	420- 200	12	0	12	0	0	0	0	12	-
1018/47	10	NCN	200- 0	0	0	0	0	0	0	0	0	-
1020/28	10	RMT1-1	200- 140	0	0	0	0	0	0	0	0	-
		RMT1-2	140- 75	1	0	0	938	60	0	0	997	-
		RMT1-3	75- 5	0	0	0	42	1	0	0	44	-
1025/48	10	NCN	460- 200	20	0	0	0	0	0	0	0	-
1026/49	10	NCN	200- 0	0	0	0	0	0	0	0	0	-
1028/29	10	RMT1-1	205- 125	0	0	0	0	0	0	0	0	-
		RMT1-2	125- 70	1	0	0	0	0	0	0	0	-
		RMT1-3	70- 10	0	0	0	0	0	0	0	0	-
1032/50	10	NCN	1040- 500	5	0	0	0	0	0	0	0	-
1040/51	11	NCN	1040- 500	14423	16827	7692	1731	0	0	0	26 250	-
1042/52	11	NCN	500- 200	6522	11652	5739	5826	139	0	0	23 357	-
1043/53	11	NCN	200- 0	2857	649	779	468	13	0	0	1 909	-
1044/54	11	NCN	870- 770	9231	16923	4359	667	26	0	0	21 974	-
1045/55	11	NCN	950- 500	3584	5087	1445	405	0	0	0	6 936	-
1047/30	11	RMT1-1	200- 140	0	0	1341	1171	0	0	0	2 512	-
		RMT1-2	140- 70	558	195	478	1230	80	80	0	2 062	-
		RMT1-3	70- 0	40	8	232	1272	80	0	0	1 592	-
1050/31	11	RMT1-1	200- 130	12	22	42	52	1	0	0	118	-
		RMT1-2	130- 50	0	1	6	16	1	0	0	25	-
		RMT1-3	50- 5	0	0	0	6	1	0	0	7	-

Stat./Haul	Date	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	II	III	Furcilia Early Mean Late	Total number of larvae	Comment
1052/32	Febr 11	RMT1-1 RMT1-2 RMT1-3	200- 135 135- 65 65- 15	22 4 0	0 0 0	0 0 0	33 0 1	4 0 0	0 0 0	0 0 0	38 0 1	- - -
1057/56	12	NCN	160- 0	16	65	32	16	0	0	0	113	-
1058/33	12	RMT1-1 RMT1-2 RMT1-3	190- 120 120- 55 55- 10	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	- - -
1063/57	12	NCN	670- 0	20	0	0	12	0	0	0	12	-
1065/34	12	RMT1-1 RMT1-2 RMT1-3	205- 160 160- 85 85- 5	8 0 0	0 0 0	0 0 0	8 3 0	0 0 0	0 0 0	0 0 0	8 3 0	- - -
1071/35	12	RMT1-1	135- 120	0	0	0	0	0	0	0	0	-
1081/37	12	RMT1-1 RMT1-2 RMT1-3	200- 120 120- 70 70- 0	19 3 3	0 0 0	0 0 0	13 105 23	3 10 0	0 0 2	4 0 2	20 116 26	- - -
1084/38	13	RMT1-1	200- 135	0	0	0	15	102	29	-	145	87 furcillae missing
1088/58	13	RMT1-2 RMT1-3	135- 75 75- 10	0 0	0 0	0 0	44 0	148 0	15 0	0 0	207 0	- -
1091/39	13	NCN	300- 0	0	0	0	17	70	9	0	896	-
		RMT1-1 RMT1-2 RMT1-3	210- 145 145- 75 75- 10	0 0 0	0 0 0	0 0 0	29 30 0	102 162 0	15 15 0	0 15 0	146 222 0	- - -

Stat./Haul	Date	Gear	Haul depth (m)	Eggs	Nauplii	Meta-naupl.	I	II	III	Early Furcilia	Late Furcilia	Total number of larvae	Comment
	Febr												
1097/40	14	RMT1-1	210-140	0	0	0	0	4	0	0	0	4	-
		RMT1-2	140-40	0	0	0	0	7	0	0	0	7	-
		RMT1-3	40-5	0	0	0	0	0	0	0	0	0	-
1103/41	14	RMT1-1	200-140	1	0	0	0	0	0	0	0	0	-
		RMT1-2	140-50	6	0	0	0	0	0	0	0	0	-
		RMT1-3	50-15	14	0	0	0	0	0	0	0	0	-
1108/59	14	NCN	570-0	0	0	9	23	0	0	5	0	37	-
1109/42	14	RMT1-1	200-140	0	0	0	0	0	0	0	0	0	-
		RMT1-2	140-70	0	0	0	0	0	0	0	0	0	-
		RMT1-3	70-5	0	0	0	0	0	0	0	0	0	-
1114/60	14	NCN	300-0	18	0	0	0	0	0	0	0	0	-
1115/43	14	RMT1-1	200-140	19	0	0	0	0	0	0	0	0	-
		RMT1-2	140-65	0	0	0	0	0	0	0	0	0	-
		RMT1-3	65-5	0	0	0	0	0	0	0	0	0	-
1121/44	14	RMT1-1	200-130	6	0	0	1	0	0	0	0	1	-
		RMT1-2	130-65	0	0	0	1	0	0	0	0	1	-
		RMT1-3	65-1	0	0	0	0	0	0	0	0	0	-
1124/45	15	RMT1-1	200-140	66	0	0	0	0	0	0	0	0	-
		RMT1-2	140-70	22	0	0	80	10	0	0	0	90	-
		RMT1-3	70-10	0	0	0	10	9	0	0	0	19	-
1130/46	15	RMT1-1	200-100	103	0	0	0	0	0	0	0	0	-
		RMT1-2	100-60	50	0	0	0	0	0	0	0	0	-
		RMT1-3	60-10	missing									-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	Calyptopis II	III	Furcilia Early Mean Late	Total number of larvae	Comment
1168/53	17	RMT1-1	395-305	22	0	0	0	0	0	0	0	-
		RMT1-2	305-255	9	0	0	0	0	0	0	0	-
		RMT1-3	255-200	3	0	0	0	0	0	0	0	-
1170/54	17	RMT1-1	200-140	19	0	0	1570	0	0	0	1	570
		RMT1-2	140-60	10	0	0	43	0	0	0	43	-
		RMT1-3	60-5	0	0	0	0	0	0	0	0	-
1173/67	18	NCN	300-0	0	0	0	0	0	0	0	0	-
1174/55	18	RMT1-1	200-140	10	0	0	0	0	0	0	0	-
		RMT1-2	140-70	6	0	0	3	0	0	0	3	-
		RMT1-3	70-0	0	0	0	0	0	0	0	0	-
1179/68	18	NCN	200-0	169	13	13	571	13	0	0	610	-
1180/56	18	RMT1-1	195-0	12	0	0	0	0	0	0	0	-
1183/57	18	RMT1-1	200-135	10	0	0	1	0	0	4	6	-
		RMT1-2	135-80	15	0	0	0	0	0	0	0	-
		RMT1-3	80-1	1	0	0	0	0	0	0	0	-
1187/58	19	RMT1-1	200-150	0	0	0	0	0	0	0	0	-
		RMT1-2	150-90	0	0	0	0	0	0	10	19	-
		RMT1-3	90-15	0	0	0	0	0	0	1	8	-
1194/59	19	RMT1-1	195-145	0	0	0	3	0	0	0	3	-
		RMT1-2	145-70	0	0	0	0	0	0	0	0	-
		RMT1-3	70-10	0	0	0	0	0	0	0	0	-
1200/69	19	NCN	200-0	0	0	0	0	0	0	0	0	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	Calyptopis			Furcilia			Total number of larvae	Comment
							I	II	III	Early	Mean	Late		
	Febr													
1201/60	19	RMT1-1	200- 140	0	0	0	0	0	0	0	0	0	0	-
		RMT1-2	140- 70	0	0	0	0	0	0	0	0	0	0	-
		RMT1-3	70- 10	0	0	0	0	0	0	0	0	0	0	-
1207/61	19	RMT1-1	120- 90	0	0	0	0	0	0	0	0	0	0	-
		RMT1-2	90- 60	0	0	0	0	0	0	0	0	0	0	-
		RMT1-3	60- 5	0	0	0	0	0	0	0	0	0	0	-
1211/70	20	NCN	200- 0	0	0	0	169	52	0	13	0	0	234	-
1213/62	20	RMT1-1	205- 140	0	0	0	0	0	0	0	0	0	0	-
		RMT1-2	140- 65	0	0	0	23	5	56	156	0	0	239	-
		RMT1-3	65- 5	0	0	0	22	36	7	130	0	0	195	-
1218/63	20	RMT1-1	200- 140	13	0	0	176	165	29	19	0	0	389	-
		RMT1-2	140- 65	3	0	0	62	7	1	0	0	0	71	-
		RMT1-3	65- 5	0	0	0	1	0	0	0	0	0	1	-
1224/71	22	NCN	1000- 500	0	0	0	120	52	37	0	0	0	208	-
1225/72	22	NCN	500- 200	17	0	17	96	52	0	0	0	0	165	-
1226/73	22	NCN	200- 0	0	0	0	7013	2857	78	13	0	0	9 961	-
1227/64	22	RMT1-1	690- 510	7	0	1	1	8	0	0	0	0	10	-
		RMT1-2	510- 320	0	0	0	0	0	0	0	0	0	0	-
		RMT1-3	320- 195	2	0	0	1	0	2	0	0	0	3	-
1234/65	22	RMT1-1	200- 145	15	0	0	4891	1001	0	232	29	0	6 154	-
		RMT1-2	145- 80	29	0	0	2047	589	44	353	0	0	3 034	-
		RMT1-3	80- 0	12	0	0	1157	709	0	25	0	0	1 891	-
1238/74	22	NCN	200- 0	0	0	0	13	0	0	0	0	0	13	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	Calyptopsis II	III	Furcilia Early Mean Late	Total number of larvae	Comment
Febr												
1239/66	22	RMT1-1	175- 145	0	0	0	0	0	0	0	0	-
		RMT1-2	145- 130	0	0	0	0	0	0	0	0	-
		RMT1-3	130- 5	0	0	0	0	0	0	0	0	-
1242/75	22	NCN	100- 0	51	0	0	0	26	0	0	26	-
1246/76	23	NCN	780- 500	102	1482	1111	65	0	0	0	2 657	-
1247/77	23	NCN	500- 200	148	3044	3130	696	113	0	9	6 983	-
1248/78	23	NCN	200- 0	39	247	260	2000	597	26	0	3 130	-
1250/67	23	RMT1-1	200- 145	29	0	0	1936	1142	72	29	3 179	-
		RMT1-2	145- 70	30	0	0	4799	1575	89	15	6 478	-
		RMT1-3	70- 10	4	1	0	105	36	3	0	145	-
1257/68	23	RMT1-1	120- 105	0	0	0	494	97	6	3	600	-
		RMT1-2	105- 50	0	0	0	0	0	0	0	0	-
		RMT1-3	50- 0	0	0	0	1	1	1	0	4	-
1269/69	24	RMT1-1	735- 600	0	0	0	0	0	0	0	0	-
		RMT1-2	600- 410	0	0	0	0	0	0	0	0	-
		RMT1-3	410- 245	0	0	0	5	0	0	0	5	-
1271/79	25	NCN	400- 0	13	0	0	71	0	0	0	71	-
1272/80	25	NCN	200- 0	13	0	13	65	52	0	0	130	-
1274/70	25	RMT1-1	205- 135	0	0	0	0	0	0	1	1	-
		RMT1-2	135- 70	0	0	0	0	0	0	0	0	-
		RMT1-3	70- 5	0	0	0	0	0	0	0	0	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	Calyptopis II	III	Furcilia Early Mean Late	Total number of larvae	Comment
	Febr											
1278/81	25	NCN	500-200	0	0	0	0	0	0	0	0	-
1279/82	25	NCN	1000-500	6*	0	0	0	0	0	0	0	* damaged
1280/83	25	NCN	200-0	0	0	-	-	-	-	0	0	1 metanauplius, 3 calyptopes missing
1283/71	25	RMT1-1 RMT1-2 RMT1-3	180-120 120-70 70-0	0 1 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	- - -
1290/72	27	RMT1-1 RMT1-2 RMT1-3	200-115 115-80 80-5	0 0 0	0 0 0	0 0 0	12 0 0	0 7* 0	0 0 0	0 0 0	12 7 0	- * very damaged -
1294/84	27	NCN	200-0	117	0	0	0	0	0	0	0	-
1295/85	27	NCN	500-200	61	0	0	0	0	0	0	0	-
1296/86	27	NCN	1000-500	0	0	0	5	0	0	0	5	-
1299/73	27	RMT1-1 RMT1-2 RMT1-3	200-140 140-75 75-10	7 6 29	0 0 0	0 0 0	0 1 72	0 0 72	0 0 0	0 0 0	0 1 145	- - -
1300/74	27	RMT1-1 RMT1-2 RMT1-3	1300-815 815-500 500-200	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	0 0 0	0 0 0	0 1 0	- - -
1305/75	28	RMT1-1 RMT1-2 RMT1-3	130-110 110-60 60-5	214 84 42	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	- - -

Stat./Haul	Date 1982	Gear	Haul depth (m)	Eggs	Nau- plii	Meta- naupl.	I	Calyptopis II	III	Furcilia Early Mean Late	Total number of larvae	Comment
	Mar											
1311/87	1	NCN	1000-500	5	0	0	0	0	0	0	0	-
1312/88	1	NCN	500-200	0	0	0	0	0	0	0	0	-
1313/89	1	NCN	200-0	52	0	0	39	91	0	0	130	-
1314/90	1	NCN	200-0	0	0	0	26	0	0	0	26	-
1315/91	1	NCN	2850-1000	0	0	0	1	0	0	0	1	-
1320/76	2	RMT1-1	200-140	0	0	0	31	15	0	0	46	-
		RMT1-2	140-80	0	0	0	0	0	0	0	0	-
		RMT1-3	80-10	0	0	0	0	0	0	0	0	-
1322/92	2	NCN	300-0	0	0	0	9	0	0	0	9	-
1325/77	2	RMT1-1	200-140	0	0	0	44	0	0	0	44	-
		RMT1-2	140-70	0	0	0	40	24	1	0	65	-
		RMT1-3	70-10	0	0	0	0	0	0	0	0	-
1328/93	3	NCN	200-0	0	0	0	0	0	0	0	0	-
1331/78	3	RMT1-1	200-140	0	0	0	0	0	0	0	0	-
		RMT1-2	140-70	0	0	0	0	0	0	0	0	-
		RMT1-3	70-5	0	0	0	0	0	0	0	0	-

Antarctic Expedition 1981/82 RRS "John Biscoe". Distribution of euphausiid larvae other than krill.
 Used nets: RMT1, NANSEN-CLOSING-NET (NCN). Individuals per 1000 m³.
 E. cryst. = Euphausia crystallorophias; E. fr. = Euphausia frigida; T. sp. = Thysanoessa sp.

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment
						I	II	III	Early	Mean	Late		
	Febr												
835/ 2	2	NCN	1000- 200	T.sp.	0	7	0	0	0	0	0	7	-
836/ 3	2	NCN	200- 0	T.sp.	0	13	0	0	13	0	0	26	-
838/ 1	2	RMT1-1	200- 140	E.fr.	0	12	0	0	0	0	0	12	-
		RMT1-2	140- 70	T.sp.	0	145	23	17	133	0	0	318	-
		RMT1-3	70- 15	E.fr.	0	18	0	0	0	0	0	18	-
				T.sp.	0	24	30	24	284	6	6	373	-
				T.sp.	0	0	0	0	46	6	0	52	-
846/ 4	2	NCN	500- 0	T.sp.	0	31	10	0	26	0	0	68	-
847/ 5	2	NCN	1000- 500	T.sp.	5	0	0	0	0	0	0	5	-
853/ 6	2	NCN	2000-1000		0	0	0	0	0	0	0	0	-
848/ 2	2	RMT1-1	200- 160	E.fr.	0	6	0	0	0	0	0	6	-
		RMT1-2	160- 125	T.sp.	0	133	18	10	31	3	0	196	-
		RMT1-3	125- 10	E.fr.	0	10	0	0	0	0	0	10	-
				T.sp.	0	78	18	9	53	0	0	158	-
				T.sp.	0	15	12	4	97	1	1	131	-
857/ 3	2	RMT1-1	255- 135	T.sp.	0	14	14	35	87	4	0	155	-
		RMT1-2	135- 70	T.sp.	0	0	0	0	12	28	0	40	-
		RMT1-3	70- 20	T.sp.	0	4	1	0	52	0	0	58	-
862/ 7	2	NCN	2019-1000		0	0	0	0	0	0	0	0	-
863/ 8	3	NCN	1000- 500	T.sp.	5	21	0	0	0	0	0	26	-
864/ 9	3	NCN	500- 200	T.sp.	9	9	0	0	9	0	0	26	-

Stat./Haul	Date	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopsis I	II	III	Early Mean	Furcilia Late	Total number of larvae	Comment	
865/ 4	3	RMT1-1	200- 140	T.sp.	0	0	0	0	34	1	0	35	-
				T.sp.	0	0	0	0	15	48	0	63	-
				T.sp.	0	0	0	0	13	6	1	20	-
872/ 5	3	RMT1-1	200- 145	T.sp.	0	1	0	1	6	3	0	12	-
				E.fr.	0	27	0	0	0	0	0	27	-
				T.sp.	0	142	42	12	84	30	0	311	-
876/10	3	NCN	2000-1000	T.sp.	0	0	0	0	3	0	0	3	-
				T.sp.	0	5	0	0	0	0	0	5	-
				T.sp.	0	0	0	0	1	0	0	1	-
877/11	3	NCN	1000- 500	T.sp.	0	0	0	0	3	3	0	6	-
				T.sp.	0	0	0	0	9	7	0	16	-
				T.sp.	0	0	0	0	0	0	0	0	-
880/ 6	3	RMT1-1	200- 140	T.sp.	0	9	1	0	0	0	0	10	-
				T.sp.	0	108	31	15	23	4	0	180	-
				E.fr.	0	4	0	0	0	0	0	4	-
882/ 7	3	RMT1-2	140- 70	T.sp.	0	32	21	9	13	29	1	106	-
				T.sp.	0	0	0	0	4	54	1	59	-
				E.fr.	0	0	0	0	0	0	0	0	-
886/12	4	NCN	2000-1000	T.sp.	0	0	0	3	0	0	0	3	-
				T.sp.	0	0	0	0	0	0	0	0	-
				T.sp.	0	16	0	10	5	10	0	42	-
887/13	4	NCN	1000- 500	E.fr.	0	4	0	1	0	0	0	6	-
				T.sp.	0	397	60	26	94	15	0	592	-
				E.fr.	0	30	0	0	0	0	0	30	-
888/14	4	NCN	500- 0	T.sp.	0	547	104	30	0	0	0	680	-
				T.sp.	0	0	0	0	72	0	0	72	-
				T.sp.	0	0	0	0	0	0	0	0	-
889/ 8	4	RMT1-1	200- 100	E.fr.	0	4	0	1	0	0	0	6	-
				T.sp.	0	397	60	26	94	15	0	592	-
				E.fr.	0	30	0	0	0	0	0	30	-
889/ 8	4	RMT1-2	100- 85	T.sp.	0	547	104	30	0	0	0	680	-
				T.sp.	0	0	0	0	72	0	0	72	-
				T.sp.	0	0	0	0	0	0	0	0	-
889/ 8	4	RMT1-3	85- 20	T.sp.	0	0	0	0	0	0	0	0	-
				T.sp.	0	0	0	0	0	0	0	0	-
				T.sp.	0	0	0	0	0	0	0	0	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia		Total number of larvae	Comment
						I	II	III	Early	Late		
931/11	6	RMT1-1	200- 95	T.sp.	0	16	3	4	9	20	0	-
		RMT1-2	95- 60	T.sp.	0	0	2	0	12	38	3	-
		RMT1-3	60- 10	T.sp.	0	0	0	0	27	19	1	-
933/29	6	NCN	200- 0	T.sp.	0	0	0	0	0	0	0	-
		NCN	2000- 200	T.sp.	0	2	0	0	0	0	0	1
938/12	6	RMT1-1	200- 125	T.sp.	0	71	0	0	0	0	0	71
		RMT1-2	125- 70	T.sp.	0	24	1	1	0	0	0	27
		RMT1-3	70- 5	T.sp.	0	1	1	0	15	0	0	18
947/13	7	RMT1-1	205- 150	E.fr.	0	6	0	0	0	0	0	6
		RMT1-2	150- 65	T.sp.	0	3	3	0	0	0	0	6
		RMT1-3	65- 10	E.fr.	6	3	0	0	0	0	0	9
954/14	7	RMT1-1	205- 140	T.sp.	0	37	7	1	3	0	6	54
		RMT1-2	140- 90	E.fr.	0	3	0	0	0	0	0	3
		RMT1-3	90- 20	T.sp.	0	22	9	0	3	10	1	45
957/31	7	RMT1-1	205- 140	E.fr.	0	1	0	0	0	0	0	1
		RMT1-2	140- 90	T.sp.	0	230	69	12	1	0	0	313
		RMT1-3	90- 20	E.fr.	0	5	0	0	0	0	0	5
958/32	7	NCN	670- 500	T.sp.	0	202	95	12	12	3	0	324
		NCN	500- 200	E.fr.	0	3	0	0	0	0	0	3
959/33	7	NCN	200- 0	T.sp.	0	93	56	16	19	50	1	237
		NCN	670- 500	T.sp.	0	0	0	0	0	0	0	0
960/15	7	RMT1-1	195- 110	T.sp.	0	44	9	0	0	0	0	52
		RMT1-2	110- 65	E.fr.	0	13	0	0	0	0	0	13
		RMT1-3	65- 10	T.sp.	0	52	26	0	0	0	0	78
960/15	7	RMT1-1	195- 110	T.sp.	0	1	3	0	0	0	0	4
		RMT1-2	110- 65	T.sp.	0	28	31	3	57	2	2	122
		RMT1-3	65- 10	E.fr.	0	3	0	0	0	0	0	3
				T.sp.	0	20	43	17	219	30	0	316

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopsis I II III	Furcilia Mean Late Early	Total number of larvae	Comment			
961/16	Febr 7	RMT1-1	750- 500	E.fr.	4	0	0	0	4	-		
		RMT1-2	500- 250	T.sp.	0	11	4	0	0	15	-	
		RMT1-3	250- 200	T.sp.	0	64	0	0	0	64	-	
966/17	8	RMT1-2	145- 105	T.sp.	0	0	1	0	1	4	-	
		RMT1-3	105- 5	E.fr.	0	1	0	0	0	1	-	
				T.sp.	0	12	9	4	25	18	78	-
967/18	8	RMT1-1	700- 480	E.fr.	4	0	0	0	0	3	-	
		RMT1-2	480- 300	T.sp.	0	13	1	0	0	0	13	-
		RMT1-3	300- 200	T.sp.	0	13	0	0	0	0	13	-
969/19	8	RMT1-1	200- 140	T.sp.	0	19	2	0	0	0	21	-
		RMT1-2	140- 60	T.sp.	0	94	7	0	0	0	101	-
		RMT1-3	60- 10	E.fr.	0	162	59	4	0	0	226	-
971/34 972/35 973/36	8	NCN	620- 500	E.fr.	0	6	0	0	0	6	-	
		NCN	500- 200	T.sp.	0	71	41	10	3	15	112	-
		NCN	200- 0	T.sp.	0	0	0	0	0	0	0	-
975/20	8	RMT1-1	205- 135	T.sp.	0	13	0	0	0	0	13	-
		RMT1-2	135- 100	E.fr.	0	120	49	1	3	0	174	-
		RMT1-3	100- 5	T.sp.	0	1	0	0	0	0	1	-
976/21	8	RMT1-1	710- 535	T.sp.	0	67	39	4	4	1	116	-
		RMT1-2	535- 290	T.sp.	0	26	18	3	34	4	85	-
		RMT1-3	290- 225	T.sp.	0	0	0	0	0	0	0	-
					0	0	4	0	0	4	-	
					0	68	19	0	0	87	-	

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment
						I	II	III	Early	Mean	Late		
	Febr												
982/23	8	RMT1-1	185- 140	T.sp.	0	26	6	2	6	9	0	50	-
		RMT1-2	140- 60	T.sp.	0	40	28	12	12	19	0	111	-
		RMT1-3	60- 10	T.sp.	0	13	35	7	165	41	0	262	-
983/37	8	NCN	720- 500	T.sp.	0	0	0	0	12	0	0	12	-
984/38	9	NCN	500- 200	T.sp.	0	9	0	0	0	0	0	9	-
985/39	9	NCN	200- 0	T.sp.	0	0	26	0	0	0	0	26	-
986/24	9	RMT1-1	215- 140	E.fr.	0	8	0	0	8	0	0	15	-
		RMT1-2	140- 75	T.sp.	0	53	30	8	23	0	0	113	-
				E.fr.	-	8	0	0	-	-	-	8	eggs and fur- ciliae missing
				T.sp.	-	128	91	23	-	-	-	242	-
		RMT1-3	75- 5	E.fr.	0	6	2	0	0	0	0	8	-
				T.sp.	0	3	46		0	112		161	-
992/25	9	RMT1-1	200- 135	T.sp.	0	275	60	9	1	0	0	316	-
		RMT1-2	135- 60	T.sp.	0	38	24	6	16	11	0	95	-
		RMT1-3	60- 10	T.sp.	0	0	0	0	26	49	0	75	-
993/40	9	NCN	450- 200	T.sp.	0	10	10	0	0	0	0	21	-
994/41	9	NCN	200- 0	T.sp.	0	0	26	0	0	13	0	39	-
997/26	9	RMT1-1	200- 142	E.fr.	0	12	0	0	0	0	0	12	-
				T.sp.	0	20	6	3	0	0	0	29	-
		RMT1-2	142- 80	E.fr.	0	16	0	0	0	0	0	16	-
				T.sp.	0	1	7	0	0	0	0	9	-
		RMT1-3	80- 20	E.fr.	0	14	2	0	0	0	0	15	-
				T.sp.	0	5	34	8	8*	0	0	54	* very damaged
1006/42	10	NCN	1640-1000		0	0	0	0	0	0	0	0	-
1007/43	10	NCN	1000- 500		0	0	0	0	0	0	0	0	-
1008/44	10	NCN	500- 200		0	0	0	0	0	0	0	0	-
1009/45	10	NCN	200- 0	T.sp.	0	13	0	0	0	13	0	26	-

Stat./Haul	Date	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis I	Calyptopis II	Calyptopis III	Furcilia Early Mean	Furcilia Late	Total number of larvae	Comment	
1047/30	Febr 11	RMT1-1	200-140	E.cryst.	0	87	101	126	4	0	0	318	-
		RMT1-2	140-70	E.fr.	0	14	0	1	4	0	0	20	-
		RMT1-3	70-0	E.cryst.	0	18	53	88	0	0	0	159	-
				E.fr.	0	0	18	0	9	0	0	27	-
				E.fr.	0	16	160	8	0	0	0	184	-
				E.fr.	0	24	0	0	0	0	0	24	-
				T.sp.	0	0	0	0	16	0	0	16	-
1050/31	11	RMT1-1	200-130	T.sp.	0	3	3	3	6	0	0	15	-
		RMT1-2	130-50	T.sp.	0	1	3	1	40	1	0	47	-
		RMT1-3	50-5	E.fr.	0	1	0	0	0	0	0	1	-
				T.sp.	0	0	0	0	77	36	10	124	-
1052/32	11	RMT1-1	200-135	T.sp.	0	7	4	1	9	0	0	22	-
		RMT1-2	135-65	T.sp.	0	0	1	0	1	0	0	3	-
		RMT1-3	65-15	T.sp.	0	0	0	0	3	0	0	3	-
1057/56	12	NCN	160-0	T.sp.	0	0	0	0	0	16	0	16	-
1058/33	12	RMT1-1	190-120	T.sp.	0	0	0	0	27	6	0	33	-
		RMT1-2	120-55	T.sp.	0	0	0	0	34	4	0	38	-
		RMT1-3	55-10	T.sp.	0	0	0	0	9	0	0	9	-
1063/57	12	NCN	670-0		0	0	0	0	0	0	0	0	-
1065/34	12	RMT1-1	205-160	E.cryst.	0	0	0	0	2	0	0	2	-
		RMT1-2	160-85	T.sp.	0	0	0	0	3	0	0	3	-
		RMT1-3	85-5	T.sp.	0	0	0	0	33	5	0	38	-
1071/35	12	RMT1-1	135-120	E.cryst.	0	0	4	54	67	15	0	141	-
				T.sp.	0	0	0	0	2	0	0	2	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopsis I II III	Furcilia Early Mean Late	Total number of larvae	Comment
1081/37	Febr 12	RMT1-1	200- 120	E.fr.	0	0	0	1	-
		RMT1-2	120- 70	T.sp.	0	0	3	0	-
		RMT1-3	70- 0	E.fr.	61	0	0	61	-
				T.sp.	7	6	0	19	-
				E.fr.	12	0	0	12	-
				T.sp.	3	0	8	29	-
1084/38	13	RMT1-1	200- 135		0	0	-	-	87 furcillae missing
		RMT1-2	135- 75	T.sp.	15	59	622	1304	1659
		RMT1-3	75- 10	T.sp.	15	256	1508	4827	1207
1088/58	13	NCN	300- 0	T.sp.	0	0	148	157	556
1091/39	13	RMT1-1	210- 145	T.sp.	0	0	15	0	0
		RMT1-2	145- 75	T.sp.	0	15	266	768	162
		RMT1-3	75- 10	T.sp.	0	0	1300	3323	281
							606	5 539	-
1097/40	14	RMT1-1	210- 140	T.sp.	1	0	1	1	0
		RMT1-2	140- 40	T.sp.	0	0	0	481	650
							169	1 303	-
		RMT1-3	40- 5	T.sp.	0	0	595	2381	3125
							1786	7 887	-
1103/41	14	RMT1-1	200- 140	T.sp.	0	0	1	0	0
		RMT1-2	140- 50		0	0	0	0	0
		RMT1-3	50- 15		0	0	0	0	0
1108/59	14	NCN	570- 0		0	0	0	0	0

Stat./Haul	Date	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis I II III	Furcilia Early Mean Late	Total number of larvae	Comment
1109/42	14	RMT1-1	200-140	E. cryst.	0	1 1 0	0 0 0	2	-
		RMT1-2	140-70	T.sp.	0	0 0 0	0 0 0	1	-
		RMT1-3	70-5	T.sp.	0	7 0 14	3 0 0	24	-
				T.sp.	0	3 0 1	3 1 0	8	-
1114/60	14	NCN	300-0		0	0 0 9	9 0 0	18	-
1115/43	14	RMT1-1	200-140		0	0 0 0	0 1 0	1	-
		RMT1-2	140-65	T.sp.	0	0 0 0	9 0 0	9	-
		RMT1-3	65-5	T.sp.	0	0 0 0	0 0 0	0	-
1121/44	14	RMT1-1	200-130		0	0 1 0	3 3 0	7	-
		RMT1-2	130-65	T.sp.	0	0 1 3	9 1 0	14	-
		RMT1-3	65-1	T.sp.	0	0 0 0	5 3 0	8	-
1124/45	15	RMT1-1	200-140		0	0 0 0	20 0 0	40	-
		RMT1-2	140-70	T.sp.	0	1 9 19	95 38 7	170	-
		RMT1-3	70-10	T.sp.	0	0 0 3	40 34 6	83	-
1130/46	15	RMT1-1	200-100		0	0 0 0	0 0 0	0	-
		RMT1-2	100-60	missing	0	0 0 0	34 1 0	35	-
		RMT1-3	60-10		0	0 0 0	0 0 0	0	-
1132/47	15	RMT1-1	195-130	E. cryst.	0	0 1 0	0 0 0	1	-
		RMT1-2	130-70	E. cryst.	0	0 0 4	3 0 0	7	-
		RMT1-3	70-5	missing	0	9 12 22	1 0 0	36	-
1135/61	15	NCN	400-200		0	0 0 0	0 0 0	0	-
1136/62	15	NCN	200-0		0	0 0 0	0 0 0	52	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment	
						I	II	III	Early	Mean	Late			
1170/54	Febr 17	RMT1-1	200- 140	E.cryst.	0	0	15	0	0	0	0	15	-	
				T.sp.	0	0	15	29	20	0	0	64	-	
		RMT1-2	140- 60	E.cryst.	0	4	12	6	0	0	0	22	-	
				T.sp.	0	1	6	34	12	3	0	56	-	
		RMT1-3	60- 5	E.cryst.	0	91	35	0	0	0	0	126	-	
				T.sp.	0	1	0	4	26	0	0	32	-	
1173/67	18	NCN	300- 0		T.sp.	0	0	0	0	9	0	0	9	-
1174/55	18	RMT1-1	200- 140		T.sp.	0	0	0	0	1	0	0	1	-
		RMT1-2	140- 70	E.cryst.	0	28	6	0	0	0	0	0	34	-
				T.sp.	0	0	4	6	16	0	0	0	27	-
		RMT1-3	70- 0	E.cryst.	0	6	3	1	0	0	0	0	9	-
				T.sp.	0	0	0	2	44	5	0	51	-	
1179/68	18	NCN	200- 0			0	0	0	0	0	0	0	0	-
1180/56	18	RMT1-1	195- 0	E.cryst.	0	3	2	0	0	0	0	5	-	
				T.sp.	0	0	0	0	4	4	0	9	-	
1183/57	18	RMT1-1	200- 135		T.sp.	0	3	1	0	0	0	0	4	-
		RMT1-2	135- 80			0	0	0	0	0	0	0	0	-
		RMT1-3	80- 1			0	0	0	0	0	0	0	0	-
1187/58	19	RMT1-1	200- 150	E.cryst.	0	0	0	0	3	0	0	3	-	
				T.sp.	0	0	0	1	0	1	0	3	-	
		RMT1-2	150- 90		T.sp.	0	0	0	0	1	0	0	1	-
		RMT1-3	90- 15		T.sp.	0	0	0	0	3	0	0	3	-
1194/59	19	RMT1-1	195- 145			0	0	0	0	0	0	0	0	-
		RMT1-2	145- 70		T.sp.	0	0	0	0	3	0	0	3	-
		RMT1-3	70- 10			0	0	0	0	0	0	0	0	-

Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis I II III	Furcilia Early Mean Late	Total number of larvae	Comment
1200/69	19	NCN	200- 0		0	0 0 0	0 0 0	0	-
1201/60	19	RMT1-1 RMT1-2 RMT1-3	200- 140 140- 70 70- 10		0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0	- - -
1207/61	19	RMT1-1 RMT1-2 RMT1-3	120- 90 90- 60 60- 5	E.cryst. E.cryst. E.cryst.	0 0 0	2 38 80 2797 685 10616	309 52 6982 0 14726 0	401 9 859 26 027	- - -
1211/70	20	NCN	200- 0	E.fr. T.sp.	0 0	13 0 26 13	0 0 0 0	13 52	- -
1213/62	20	RMT1-1 RMT1-2 RMT1-3	205- 140 140- 65 65- 5	E.cryst. T.sp. E.cryst.	0 0 0	15 22 0 2 0 101	104 7 0 3 14 0	148 8 115	- - -
1218/63	20	RMT1-1 RMT1-2 RMT1-3	200- 140 140- 65 65- 5	E.fr. T.sp. E.fr. T.sp.	0 0 0 0	1 0 6 0 10 0 52 7	0 0 0 0 0 0 6 6	1 6 10 74	- - - -
1224/71	22	NCN	1000- 500	T.sp.	0	5	0 0	5	-
1225/72	22	NCN	500- 200	T.sp.	0	0	0 0	0	-
1226/73	22	NCN	200- 0	T.sp.	0	26	0 0	26	-
1227/64	22	RMT1-1 RMT1-2 RMT1-3	690- 510 510- 320 320- 195		0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0	- - -

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Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment
						I	II	III	Early	Mean	Late		
1234/65	Febr 22	RMT1-1	200- 145	T.sp.	0	58	15	15	0	0	0	87	-
		RMT1-2	145- 80	T.sp.	0	162	147	44	15	0	0	368	-
		RMT1-3	80- 0	T.sp.	0	12	12	25	75	75	0	199	-
1238/74	22	NCN	200- 0	T.sp.	0	13	13	0	0	26	0	52	-
1239/66	22	RMT1-1	175- 145	T.sp.	0	0	1	0	0	1	0	3	-
		RMT1-2	145- 130	T.sp.	0	0	0	0	12	0	0	12	-
		RMT1-3	130- 5	T.sp.	0	0	0	0	29	0	0	29	-
1242/75	22	NCN	100- 0		0	0	0	0	0	0	0	0	-
1246/76	23	NCN	780- 500		0	0	0	0	0	0	0	0	-
1247/77	23	NCN	500- 200	E.fr.	0	9	0	0	0	0	0	9	-
1248/78	23	NCN	200- 0		0	0	0	0	0	0	0	0	-
1250/67	23	RMT1-1	200- 145		0	0	0	0	0	0	0	0	-
		RMT1-2	145- 70	T.sp.	0	0	0	0	15	0	0	15	-
		RMT1-3	70- 10	T.sp.	0	0	0	1	0	0	0	1	-
1257/68	23	RMT1-1	120- 105	T.sp.	0	0	0	0	1	0	0	1	-
		RMT1-2	105- 50	T.sp.	0	0	0	0	4	0	0	4	-
		RMT1-3	50- 0	T.sp.	0	0	0	0	4	0	0	4	-
1269/69	24	RMT1-1	735- 600		0	0	0	0	0	0	0	0	-
		RMT1-2	600- 410		0	0	0	0	0	0	0	0	-
		RMT1-3	410- 245	T.sp.	0	0	0	0	5	0	0	5	-
1271/79	25	NCN	400- 0		0	0	0	0	0	0	0	-	
1272/80	25	NCN	200- 0	T.sp.	0	13	0	0	0	0	0	13	-

Sta	Stat./Haul	Date 1982	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment
							I	II	III	Early	Mean	Late		
		Febr												
	1274/70	25	RMT1-1	205- 135		0	0	0	0	0	0	0	0	-
			RMT1-2	135- 70		0	0	0	0	0	0	0	0	-
			RMT1-3	70- 5		0	0	0	0	0	0	0	0	-
	1278/81	25	NCN	500- 200		0	0	0	0	0	0	0	0	-
	1279/82	25	NCN	1000- 500		0	0	0	0	0	0	0	0	-
	1280/83	25	NCN	200- 0		-	-	-	-	0	0	0	-	1 metanauplius, 3 calyptopis missing
	1283/71	25	RMT1-1	180- 120		0	0	0	0	0	0	0	0	-
			RMT1-2	120- 70	T.sp.	0	1	0	0	0	0	0	1	-
			RMT1-3	70- 0		0	0	0	0	0	0	0	0	-
	1290/72	27	RMT1-1	200- 115		0	0	0	0	0	0	0	0	-
			RMT1-2	115- 80		0	0	0	0	0	0	0	0	-
			RMT1-3	80- 5		0	0	0	0	0	0	0	0	-
	1294/84	27	NCN	200- 0	T.sp.	0	13	0	0	0	0	13	26	-
	1295/85	27	NCN	500- 200		0	0	0	0	0	0	0	0	-
	1296/86	27	NCN	1000- 500		0	0	0	0	0	0	0	0	-
	1299/73	27	RMT1-1	200- 140	T.sp.	0	38	0	0	0	0	0	38	-
			RMT1-2	140- 75	T.sp.	0	60	0	0	0	0	0	60	-
			RMT1-3	75- 10		0	0	0	0	0	0	0	0	-
	1300/74	27	RMT1-1	1300- 815		0	0	0	0	0	0	0	0	-
			RMT1-2	815- 500		0	0	0	0	0	0	0	0	-
			RMT1-3	500- 200		0	0	0	0	0	0	0	0	-
	1305/75	28	RMT1-1	130- 110	T.sp.	0	1	0	0	3	4	1	10	-
			RMT1-2	110- 60	T.sp.	0	0	0	0	5	15	2	21	-
			RMT1-3	60- 5	T.sp.	0	0	0	0	7	1	0	8	-

Stat./Haul	Date 1981	Gear	Haul depth (m)	Species	Naupliar Stages	Calyptopis			Furcilia			Total number of larvae	Comment
						I	II	III	Early	Mean	Late		
	Mar												
1311/87	1	NCN	1000- 500		0	0	0	0	0	0	0	0	-
1312/88	1	NCN	500- 200	E.fr.	9	17	0	0	0	0	0	26	-
1313/89	1	NCN	200- 0	E.fr.	0	65	13	0	0	0	0	78	-
				T.sp.	0	0	13	0	0	0	0	13	-
1314/90	1	NCN	200- 0	E.fr.	0	65	13	0	0	0	0	78	-
				T.sp.	0	39	78	0	0	0	39	156	-
1315/91	1	NCN	2850-1000		0	0	0	0	0	0	0	0	-
1320/76	2	RMT1-1	200- 140	E.fr.	0	260	31	0	0	0	0	290	-
				T.sp.	0	260	183	15	0	15	0	473	-
		RMT1-2	140- 80	E.fr.	0	295	44	0	0	0	0	339	-
				T.sp.	0	1591	928	74	0	118	0	2 725	-
		RMT1-3	80- 10	E.fr.	0	14	0	0	0	0	0	14	-
				T.sp.	0	0	58	29	29	29	58	203	-
1322/92	2	NCN	300- 0	E.fr.	0	26	70	17	0	0	0	113	-
				T.sp.	0	17	87	96	96	218	148	661	-
1325/77	2	RMT1-1	200- 140	T.sp.	0	0	0	0	15	15	29	59	-
		RMT1-2	140- 70	E.fr.	0	41	24	15	0	0	0	80	-
				T.sp.	0	25	12	9	130	221	65		-
									----- 86 -----			547	-
		RMT1-3	70- 10	E.fr.	0	45	166	60	0	0	0	271	-
				T.sp.	0	60	211	45	2259	2560	1355		-
									----- 2410 -----			9 503	-
1328/93	3	NCN	200- 0		0	0	0	0	0	0	0	0	-
1331/78	3	RMT1-1	200- 140		0	0	0	0	0	0	0	0	-
		RMT1-2	140- 70	T.sp.	0	0	0	0	0	15	147	162	-
		RMT1-3	70- 5	T.sp.	0	0	0	0	15	208	565	789	-

