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Nr. 59

RESULTS OF THE SORTING OF THE MIKRONEKTON AND ZOOPLANKTON MATERIAL SAMPLED BY THE GERMAN ANTARCTIC EXPEDITION 1975/76

by

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1. Zusammenfassung

Im Folgenden wird eine Übersicht über alle im Kieler Sortierzentrum aus dem Zooplankton- und Mikronektonmaterial der Deutschen Antarktis-Expedition 1975/76 aussortierten Taxa gegeben. Es werden ferner die Arbeitsmethoden dieses Sortierzentrums kurz geschildert. Hinweise zur weiteren Bearbeitung des Materials werden gegeben.

1.1. Summary

A description is given of the taxa sorted out of the zooplankton and mikronekton material of the 1st German Antarctic Expedition 1975/76 by the Kiel sorting center. The methods employed in the sorting center are described in detail. Notes for further use of the material are also given.

2. Introduction

The following data collection should enable those involved in the working up of the vast amount of zooplankton and mikronekton material taken by the German Antarctic Expedition 1975/76 to gain a better impression of the spatial and temporal distribution and abundance of all the sorted taxa. Table 1 indicates the total

number of hauls and types of nets used during the expedition.

Table 1: The zooplankton and mikronekton hauls of the German Antarctic Expedition 1975/76

Net type		RMT 1+8	Bongo	Neuston	Meßhai
Leg	I	96	-	100	15
	II	108	-	99	2
	III	73	15	47	-
Total		277	15	246	17

For a description of the expedition see SAHRHAGE, SCHREIBER, STEINBERG and HEMPEL (1978). A short description of the work carried out at sea by members of the Institut für Meereskunde of the University of Kiel and an impression of the development of the working up of the material at the beginning of 1978 is given by POMMERANZ (1978). The exact positions of the various stations together with details of the nets used, type of haul and further relevant data are given by WÖRNER and KÜHN (1978).

3. Methods employed by the sorting center of the Fisheries Biology Department at the Institut für Meereskunde

The actual sorting work began on the 1st of July 1976 with a one week introductory course for antarctic zooplankton led by A. de C. Baker (Institute of Oceanographic Sciences, Wormley). Following a visit to the Polish-American plankton sorting center of the Morski Instytut Rybacki thoughts turned to the spatial concentration of our sorting work. The Kiel sorting center began work on the 1st of March 1977.

The samples were sorted into the following taxa:

Fish
Fish larvae
Fish eggs
Scyphomedusae
Euphausia superba (postlarvae + adults)
other Euphausiids (postlarvae + adults)
Euphausiid larvae
Amphipoda
Decapoda (postlarvae + adults)
Decapoda larvae
Mysidaceae
Chaetognatha
Appendicularia
Salpidae
Siphonophora
Polychaeta
Cephalopoda
other Mollusca
unidentified organisms
unidentified eggs

The remaining rest consisted of Copepoda and Ostracoda.

All non-planktonic organisms i.e. animals longer than ca. 25 mm (e.g. Salps, Euphausiids, Chaetognatha, Polychaeta, young fish) were removed from the RMT 1 samples, sorted and preserved. Fish larvae were selectively removed. The sample was then split using a modified FOLSOM-splitter (Fig. 1) which halves the sample each time. The first split results in 2 x 1/2 samples, the second splits half a sample into 2 x 1/4 of the original sample etc.

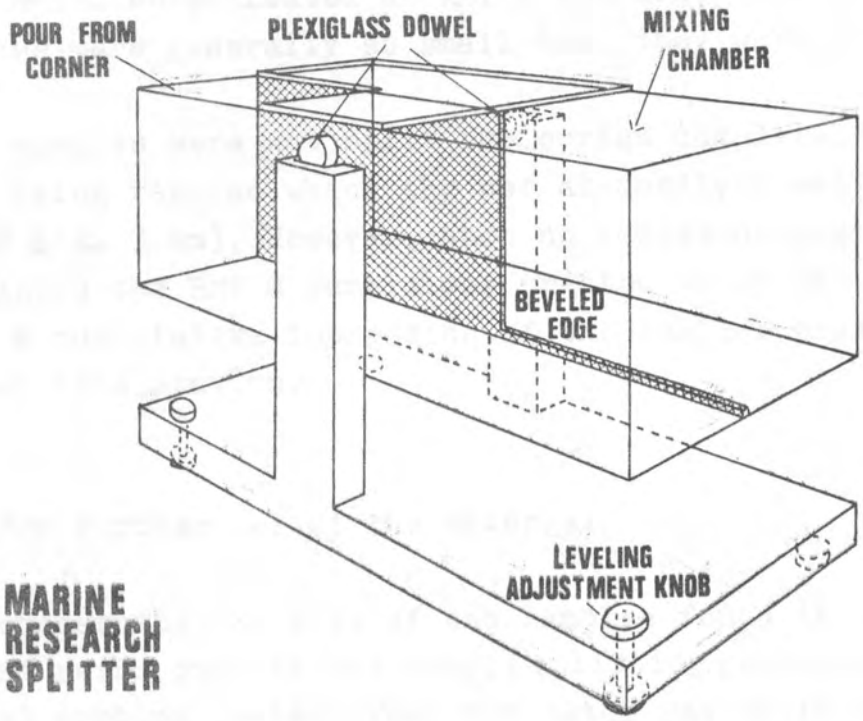

Fig. 1: Modified FOLSOM-splitter as used by the Kiel Sorting Center
(Designed by Marine Research Inc., Falmouth, Mass.)

The sample to be examined should be small enough to be worked up in a reasonable period of time and large enough to reproduce a representative picture of the total sample. The aliquot, in most cases 1/32nd or 1/64th, was completly sorted. Bongo, meßhai and neuston samples were treated as RMT 1 samples, however the neuston samples were generally so small that they were not split.

The RMT 8 samples were not split but sorted completely; only those organisms being removed which the net assumedly quantitatively samples ($\emptyset \geq$ ca. 3 mm). However, when no corresponding RMT 1 sample existed the RMT 8 sample was treated as an RMT 1 thus providing a qualitative impression of the smaller organisms which occurred at this station.

4. Notes for further use of the material

All data concerning the size of the samples found in the 'Data collection' refer only to the sample splitting procedure employed by the Kiel sorting center. When the catch was split on board the size of the subsample taken on board can be found in the 'Liste der Mikronekton und Zooplanktonfänge' (WÖRNER und KÜHN, 1978). Should the number of individuals of a particular species removed from the RMT 1 aliquot be too few the unsorted fraction (e.g. 31/32) of the total sample is available for further reference.

The labels found in the sample bottles follow the pattern shown below:

Example:

W.H. Ant. I	RMT 1	
St. 58	28.12.75	Front
Hol 149	Fl.Nr. 390	
Amphipoda		
n = 98		Rear
1/32		

W.H. = FFS "Walther Herwig"; Ant I (II, III) = 1, (2, 3) expedition leg; St. = Station number; Hol = Haul number; Fl.Nr. = Bottle number of the original sample; n = Total number of individuals of the respective organism removed from the given aliquot in the sorting center; 1/32 = size of aliquot with respect to the original sample.

A 4 % buffered Formaldehyde-fresh water solution was used to conserve all samples.

5. References

POMMERANZ, T. (1978), Mikronekton und Zooplankton, in: SAHRHAGE, D. SCHREIBER, W., STEINBERG, R. und HEMPEL, G., Antarktis-Expedition 1975/76 der Bundesrepublik Deutschland Arch. Fischwiss. 29: 31-41

SAHRHAGE, D., SCHREIBER, W., STEINBERG, R. und HEMPEL, G. (1978), Antarktis-Expedition 1975/76 der Bundesrepublik Deutschland Arch. Fischwiss. 29: 1-96

WÖRNER, F.G. und KÜHN, A. (1978), Liste der Mikronekton- und Zooplanktonfänge der Deutschen Antarktis-Expedition 1975/76, Ber. Inst. Meereskd. (48): 55 pp.

6. Data collection: Key to numerical code

1. Station number
2. Haul number
8247 3. Filtered water volume (m^3)
24303 4. Net number
13505 5. Mesh size (μ)
25449 6. Aliquot
18011 7. Upper or lower net
96166 8. Fish
87203 9. Fish larvae
98944 10. Fish eggs
98945 11. Scyphomedusae
98946 12. Euphausia superba (postlarvae + adults)
98947 13. Other Euphausiids (postlarvae + adults)
98948 14. Euphausiid larvae
52210 15. Amphipoda
95325 16. Decapoda (postlarvae + adults)
98949 17. Decapoda larvae
87153 18. Mysidaceae
98950 19. Chaetognatha
52936 20. Appendicularia
98951 21. Salpidae
98952 22. Siphonophora
82763 23. Polychaeta
82836 24. Cephalopoda
418 25. Other Mollusca
26. Copepoda + Ostracoda (presence/absence) 52726 ☒ ✓

W.H. Antarktis 75/76 RMT I hauls

Station Haul vol. / m³ Fish l.

1	2	3	6	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4	2		1/32	124	0	2	0	287	672	1,132	0	0	0	3822	96	501	322	3	1	961	✓
5	3		1/32	364	14	6	0	1115	4,644	840	1	52	2	696	0	3,776	647	93	4	4615	✓
6	4		1/32	52	0	126	0	232	696	773	0	293	0	10,865	32	4,521	615	722	35	197	✓
7	5	3,720	1/32	147	32	4	0	543	2,592	1128	19	0	0	27,639	256	2,583	329	233	6	258	✓
8	8	2,550	1/32	210	0	0	0	925	4,384	1,392	0	0	0	10,212	0	0	193	192	3	160	✓
9	9	3,990	1/32	169	200	1	0	453	16,960	877	0	5	0	13,035	0	99	159	491	4	4,135	✓
10	10	3,360	1/32	126	0	2	0	36	11,712	626	0	160	0	4,488	160	0	0	64	3	623	✓
11	11	4,270	1/32	128	0	0	0	229	18,880	662	0	0	0	2,863	96	3	0	249	1	4	✓
12	12	2,950	1/32	7	0	1	0	19	21,760	464	0	352	0	7,487	416	0	33	544	8	99	✓
20	61	3,270	1/32	369	0	4	0	229	19,232	1,298	0	0	0	1755	256	4	33	226	3	>21	✓
21	53	2,370	1/32	64	0	0	0	24	3008	101	0	96	0	1386	0	0	0	98	0	31	✓
22	55	4,880	1/4	4	0	0	0	28	428	38	0	0	0	58	28	140	0	10	0	283	✓
23	57	4,470	1/8	85	1	0	1	12	5,960	158	1	0	0	575	10	82	103	287	0	126	✓
25	59	2,150	1/4	8	1	0	2,084	1226	104	94	0	20	0	922	0	2127	3	174	0	90	✓
26	61	2,380	1/32	93	0	33	24	79	1648	280	0	4	0	1736	0	1036	126	255	0	345	✓
25	63	1,450	1/16	133	0	0	0	16	11,408	278	0	0	0	1533	0	12	18	808	0	409	✓
25	65	2,910	1/32	2	416	0	0	0	33,040	384	0	0	0	5252	0	13	6	1539	0	3806	✓
25	67	3,000	1/32	1	8	0	0	222	9,408	261	0	0	0	4273	1,152	330	0	178	0	1055	✓
25	69	2,640	1/32	178	0	0	0	157	12,448	148	0	0	0	5641	128	94	0	362	0	1053	✓
25	71	2,320	1/32	20	0	0	0	6	12,992	389	0	0	0	1581	96	123	65	66	4	360	✓
25	43	4,340	1/8.2	10	0	0	0	13	9,200	81	0	0	0	2376	0	0	0	64	1	97	✓
25	75	1,560	1/32	66	0	129	0	70	11,936	568	0	0	0	3,060	128	0	62	186	0	97	✓
26	77	1,340	1/1	18	8	1	0	20	2,576	171	0	0	0	1011	21	4	0	31	2	36	✓