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A Quantitative Comparison of the Bottom Fauna in the Kiel Bay in Summer 1961 and 1953

by

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In June/July 1961 bottom samples were taken at 19 stations distributed over the Kiel Bay at depths of 10-40 m, by means of a Van Veen grab. They were worked up in the usual way as pointed out in the report on "Quantitative Investigations on the Bottom Fauna of the Kiel Bay", presented to the Baltic-Belt Seas Committee at C.M.1961 (Doc. No.22). It is of some interest to compare the new results with those obtained 8 years ago, in June/July 1953.

As an average of all samples in summer 1961, 997 bottom animals weighing 87.2 g were living on 1 m^2: in 1953 the figures were 763 animals, 49.3 g in weight. The mean number had increased by 31%, the mean weight by 66%. The high difference is explained by the different composition of the bottom fauna. In 1961 more than double the number and threefold the weight of molluscs[1] were found than in 1953. This increase was mainly caused by the larger frequency of the mussel Abra alba occurring very numerously on all muddy sediments (up to 1830 ind./m^2).

The mean weight of the polychaets was reduced from 30 to 18 g/m^2, the average number was nearly the same as in 1953 (384 and 362 ind. resp.). Big specimens of the genus Nephthys were less frequent in 1961, and the number of Maldanids (especially Rhodine loveni) was much reduced too. On the other hand, the smaller species Laonome kröyeri was found in larger numbers than in 1953. Also young individuals of Pectinaria koreni and the genus Nephthys were numerous.

The mean number and weight of the crustaceans remained nearly the same (241 and 249 ind., 1.7 and 1.4 g/m^2 resp.). It was surprising to find the distribution of the cumacean Eudorellopsis deformis to be much more extended than 8 years ago. In summer 1953 only some single individuals were found in the range of the current passing the Great Belt and Fehmarn-Belt, whereas in 1961 the distribution of this species extended to the southern and western parts of the Kiel Bay. For instance, 325 ind./m^2 were observed at the station 10 sm NO lightvessel "Kiel".

The average number of echinoderms had decreased from 31 to 19 ind./m^2, the mean weight being unchanged (1.0 and 0.9 g/m^2 resp.). The reduction in number was caused by the nearly complete absence of Echinocyamus pusillus in summer 1961. This species was found numerously in 1953 at all stations with pure sand. Also at the southern and western stations, Ophiura albida was sparse in 1961. In the northern and eastern parts of the Kiel Bay mostly bigger specimens were stated. Obviously, in previous years the breeding conditions were unfavourable for the echinoderms.

The investigations are going to be continued in order to follow the fluctuations in the bottom fauna of the Kiel Bay from year to year.

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1) with exception of Cyprina islandica.

Table 1. Number of bottom animals per m^2, June/July 1961 (1953)
(for positions of stations see paper No. 22, C.M.1961)

Station	Polychaeta	Mollusca (Cypr. excl.)	Cyprina islandica	Crustacea	Echinodermata
sand					
Stoller Grund	1565 (44o)	189o (142o)	1o (1o)	865 (775)	5 (25)
Vejsnäs Flach	165 (165)	145 (14o)	(25)	245 (12o)	(6o)
Westermarkelsdorf	13o (265)	85 (7o)		345 (115)	15 (5)
Flügge-Sand	75 (4o5)	255 (175)	(3o)	95 (6o)	(2o)
Hochwachter Bucht, Tonne 2a	3o5	925	165		
muddy sand					
Kolds Nor	75 (1o45)	5o (5o)	(3o)	23o (28o)	4o (3o)
Winds grav	6o (1o5)	325 (135)		6o (5)	1o (3o)
Hochwachter Bucht, Tonne 1b	35	75			
½ Millionviertel	83o (275)	1215 (2o)	9o (85)	117o (128o)	12o (13o)
Schleimünde-S	67o (255)	31o (8o)	1oo (25)	46o (365)	(5)
sandy mud					
F.S.Flensburg	127o (21o)	72o (7o)	(5)	35 (4o)	
Vejsnäs-Rinne-W	45 (95)	2oo (25)	(5)	5o (15)	1o (15)
" " -E	98o (565)	195 (4o)		565 (3oo)	3o (4o)
Millionviertel	155 (27o)	54o (2o)	1o(45)	45 (22o)	125 (4o)
Hochwachter Bucht, Tonne 2	65	1oo	25	2o	
dark mud					
Boknis Eck	25 (18o)	5 (5o)		5 (5)	(5)
Schleimünde-N	145 (1o7o)	135 (1o)	5(5)	215 (115)	1o (55)
Kleiner Belt	(85)	(5)	(5)	(45)	
Tonne Kiel 1	2o				
Mean number	348 (362)	383 (154)		241 (249)	19 (31)

Table 2. Weight of Bottom Animals per m^2, June/July 1961 (1953)

Station	Polychaeta	Mollusca (Cypr. excl.)	Cyprina islandica	Crustacea	Echinodermata
sand					
Stoller Grund	6o (13,25)	32,5 (24,5)		7,o (2,5)	(1)
Vejsnäs Flach	4,o (11.5)	4 (6.75)		1.o (o.5)	(2.75)
Westermarkelsdorf	3 (13.25)	4 (2)	(625)	2.o	o.5
Flügge-Sand	1.5 (12.25)	2 (6)		o.5	
Hochwachter Bucht, Tonne 2 a	1o	17		1.o	
muddy sand					
Kolds Nor	9 (11o.5)	5.5 (2o)		4.5 (3.5)	4.o (2.o)
Winds grav	5.5 (1o)	335.5 (176)		o.5 (o.75)	1.o (2.o)
Hochw. Bucht Tonne 1 b	2.5	1			
½ Millionviertel	27.5 (39)	344.5	1432.5	5 (5.5)	5.25 (2.5)
Schleimünde-S	48 (41.25)	118.5 (1.25)	17o5 (1o1o)	3.5 (4.o)	
sandy mud					
F.S. Flensburg	1o6 (4o)	157.5 (1.75)	(2o)	o.75 (o.1)	
Vejsnäs Rinne-W	1.75 (15.5)	57 (12.25)	(35)	o.5	1.o (o.1)
Vejsnäs Rinne-E	27 (32.25)	31 (16)		2.25 (1.5)	o.5 (1.o)
Millionviertel	15 (92.5)	1o5.5	167	o.5 (o.75)	5.5 (1.5)
Hochw. Bucht Tonne 2	14	12	975	o.5	
dark mud					
Boknis Eck	1.5 (4.5)	o.25 (2.5)		o.o5 (o.25)	(o.1)
Schleimünde-N	7.5 (14)	37.5 (1.25)		2.5 (1.o)	o.5 (1.o)
Kleiner Belt	(3)		(2oo)	(.25)	
Tonne Kiel 1	6.5				
Mean weight	17.9 (3o.2)	66.6 (18)		1.7 (1.4)	1.o (o.9)