Jber.Biol.Stat.Lunz 2 (1979): 39 - 41

1.4

Studies on "bed-sediments".

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Introduction: According to the discovery of the pronounced vertical distribution of running water zoobenthos (HYNES e.a.1974), main effort is being put on the investigation of that biotop. The study is partly financed by the BMfLF No.41001/12-IV 1/78.

The sampling of animals in the bed-sediments:
The main problem is the development of a depth-defined corer, working in hard substrates as gravel or sands or mixtures of both. So far, insertion and recovery has been solved. Still problematic is the closure of the corer, when inserted in hard substrates. Trials with liquified nitrogen failed. Trials with a closing-mechanism operated by highly pressurized air or with injections of concrete or plastics are in preparation.

Trap-tubes for measuring the relative frequency distribution (BRETSCHKO 1978) have been improved in cooperation with Mr. P. WEICHSELBAUMER (Abt.f.Limnologie, Univ.Innsbruck): a steel-tube with an oak-tip is rammed into the bedsediments down to the desired depth. After the insertion of a plastic-tube with a ring of holes near the lower end into the steel tube, the latter is removed. The oak-tip stays in the bed-sediments. Another plastic-tube is inserted in the first one, having a ring of corresponding holes. This one is the collecting tube. For control the holes of the collecting tube are tightened in situ by means of a pneumatic seal. This system allows for the acquisition of chemical samples beside animal-samples.

Grain size analysis:

To achieve vertically layered samples, tin-frames with a height of 100mm were used. The sediments inside the frames were recovered with a small shovel. This method was successful down to a depth of 300mm, although with considerable limitations: the boundaries of the layers were very inaccurate and sediments with a grainsize smaller than 1mm were not sampled quantitative. A more efficient method is in preparation.

According to a pilot study the following set of sieves is used:

mesh size in mm	
100	4
40	2
20	1
15	0.75
10	0.50
7	

Intermediate mesh sizes between 40 and 100 and 10 and 15mm are in preparation. Because of the limitation of the method, smaller mesh sizes have been discarded. The sediment is sieved wet, the different grain-size fractions are weighted ovendried. Results are set out in table 1. The comparison with the pilot-samples indicates a high overdistribution in grain-size frequency distributions.

The studies mentioned above are carried on and intensified. Additional studies will deal with various chemical and physical parameters as well as with the registration of major sediment movements using a quickmotion apparatus.

	0 - 10 cm			10 - 20 cm			20 - 30 cm		
GRAIN-SIZE (mm)	weight (g)	%	%	weight (g)	%	%	weight (g)	%	%
100	ø	-	-	ø	-	-	ø	-	-
40-100	2709,60	25,2	100,0	1975,70	13,3	100,0	4852,00	40,8	100,0
20-40	482,10	4,5	74,8	2952,10	19,9	86,7	1762,10	14,8	59,2
15-20	562,20	5,2	70,4	1136,70	7,7	66,7	752,60	6,3	44,4
10-15	2495,98	23,2	65,1	1562,80	10,6	59,0	816,20	6,9	38,0
7-10	1932,10	17,9	42,0	1851,62	12,5	48,5	959,70	8,1	31,2
4-7	1230,86	11,4	24,0	2211,62	14,9	36,0	969,60	8,2	23,1
2-4	621,04	5,8	12,6	1559,17	10,5	21,0	851,60	7,2	15,0
1-2	267,97	2,5	6,8	643,61	4,3	10,5	427,90	3,6	7,8
0.75-1	82,72	0.8	4,4	156,05	1,1	6,2	96,90	0.8	4,2
0.50-0.75	111,90	1,0	3,6	215,70	1,5	5,1	117,50	1.0	3.4
500	274,28	2,5	2,5	540,26	3,6	3,6	283,90	2,4	2,4
	10770,75	100	-	14805,33	100	-	11890,10	100	-
So	5,56	-	-	5,87	-	-	7,40	-	-
S_k	1,84	-	-	1,06	-	-	0,63	-	-
Md	12,5	-	-	10,8	-	-	26,3	-	-

table 1: Grain size distribution for three depth-layers. Position: 22A2; Time: 1979-01-23.

Literature:

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