MEMOIRS OF THE FACULTY OF SCIENCE, KYOTO UNIVERSITY, SERIES OF BIOLOGY
Vol. II, No. 1, pp. 92-106, Sept.. 1968

Second Report of the Regular Limnological Survey of Lake Biwa (1967) II. Zooplankton*

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The present paper is the second report on the zooplankton of the regular limnological survey of lake Biwa carried in 1967. The counts of the individual number per cubic metre on various zooplankters are listed on the tables 1 and 2. Both the compositions and the seasonal changes of the important components are fairly similar to those in the last report (1967). The annual changes will be studied in future with more numerous data. However, the author has to add short notes on two plankters.

First, a testacean rhizopod which was described in the last paper, as *Difflugia brevicolla* Cash is identified as *Difflugia* (*Pseudocucurbitella*) *pseudogramen* G. Lievre et Thomas, 1960, based on the later investigation.

Next point is on a species of plankton rotatoria, *Trichocerca chattoni* (de Beauchamp, 1907) (Fig. 1). The present species were collected from many localities in lake Biwa, when the fourth general survey was carried out bet-

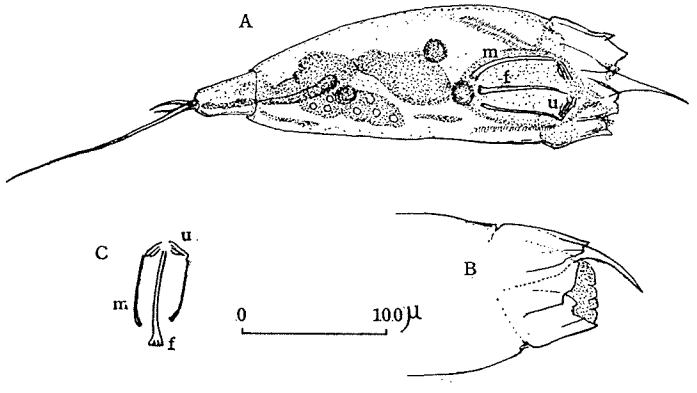

Fig. 1. *Trichocerca chattoni* (de Beauchamp)
A: dorsal view, (foot portion is side view, because the body is twisted.)
B: side view of the head portion.
C: trophi of an affined species *Trichocerca capucina*.
(original)

* Contributions from the Otsu Hydrobiolological Station, Kyoto University, No. 196. IBP-JPF Publication No. 20

ween twentysecond and twentyfifth of July 1963. The status of distribution in the lake at that time is summarized in the table 3. In addition, it occurred in most cases above fifteen meters, especially abundant in the layer less than five meter depth, and was never collected from the neighbouring lagoons. After all, it is apparently an epilimnetic euplankton.

There had been no report of the present species in our country, until the author gave an oral presentation at the twentyninth annual meetings of the Japanese Society of Limnology in 1964. Moreover, it is noteworthy that this species had been seldom reported in the world. That is to say, it was first described as a new variety of *Rattulus cylindricus* by de Beauchamp (1907), and next Hutchinson made it an independent species when he reported some African zooplankton (1911). Hauer (1938) described it when he studied the zooplankton of the German Sunda-Expedition. Hereupon, morphological character is briely given. When compared with an allied specie *Trichocerca cylindrica*, both the toe length and the toe body ratio are smaller and the body is thicker. A head process projects from a triangular plate, bending toward right and downward.

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〔Received July 3, 1968〕

Table 1 Zooplankton of southern basin (n/m³)

	Station	1967 I-14	II-17	III-14	IV-17	V-16	VI-16	VII-15	VIII-15	IX-20	X-21	XI-16	XII-16
Eodiaptomus japonicus	Nb2	550	25	50	5400	393500	33500	42000	5000	1200	3000	1500	19000
	Nb5	550	25	–	1500	5500	3400	14000	1500	4800	11000	–	1500
	Na3	25	–	–	175	–	–	4000	–	33500	–	1600	17500
Mesocyclops leuckarti	Nb2	–	–	200	2200	–	–	1000	1500	1600	1200	4000	2500
	Nb5	–	–	–	100	–	–	1000	500	2000	2500	1000	–
	Na3	–	–	–	25	–	500	–	4000	1500	250	1200	500
Nauplii	Nb2	1650	2850	21150	42000	3000	20500	10500	14500	6800	13000	8500	5500
	Nb5	2100	1300	6700	5230	1000	32200	33000	7000	40800	53000	10500	3000
	Na3	75	5370	925	900	1200	67500	23500	64000	180500	35000	5600	4500
Daphnia longispina	Nb2	100	–	–	–	–	–	–	–	–	–	–	5500
	Nb5	50	–	–	–	–	–	–	–	–	–	500	8500
	Na3	–	–	–	–	–	–	–	–	–	–	–	3000
Diaphanosoma brachyurum	Nb2	–	–	–	–	–	–	–	500	–	200	–	–
	Nb5	–	–	–	–	–	–	1500	1000	400	–	–	–
	Na3	–	–	–	–	–	–	1000	–	2000	–	–	500
Bosmina longirostris	Nb2	–	–	–	–	–	–	–	–	–	–	–	500
	Nb5	–	–	–	100	–	–	–	–	–	–	–	–
	Na3	–	50	–	–	–	–	–	–	1000	–	–	1500
Bosminopsis deitersi	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	–	–	–	–	–	–	–	–	800	–	–	–
	Na3	–	–	–	–	–	–	–	–	–	1000	–	–
Leptodora kindtii	Nb2	–	–	–	–	–	–	–	–	–	–	–	500
	Nb5	–	–	–	–	–	–	–	–	–	–	–	–
	Na3	–	–	–	–	–	–	–	–	–	–	–	–

	Station	1967 I-14	II-17	III-14	IV-17	V-16	VI-16	VII-15	VIII-15	IX-20	X-21	XI-16	XII-16
Chydorus sphericus	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	–	–	100	–	–	–	–	–	–	–	–	–
	Na3	–	–	–	–	–	–	–	–	1500	250	–	500
Alona guttata	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	–	–	100	–	–	–	–	–	–	–	–	–
	Na3	–	–		–	–	+	–	–	–	250	–	–
Keratella cochlearis	Nb2	–	–	–	200	2500	–	1000	2000	2800	1000	250	500
	Nb5	–	–	–	100	–	–	1000	11500	3200	4000	–	–
	Na3	–	–	25	–	6400	2500	–	17000	23000	32500	–	–
Keratella quadrata	Nb2	–	–	250	200	–	–	–	–	–	–	–	–
	Nb5	–	–	–	100	500	–	–	–	–	–	–	–
	Na3	–	–	–	–	–	–	–	–	–	–	–	–
Brachionus angularis	Nb2	50	–	–	400	2000	500	6000	7000	2400	–	–	–
	Nb5	–	–	–	–	–	–	3000	2000	1200	–	–	–
	Na3	–	–	–	–	400	–	–	19000	500	–	–	–
Brachionus calyciflorus	Nb2	300	75	1800	34800	1000	–	1000	–	–	–	–	–
	Nb5	100	25	200	400	–	–	16500	–	–	–	–	–
	Na3	–	50	25	–	–	–	–	–	–	–	–	500
Brachionus quadridentatus	Nb2	–	–	–	–	1000	–	–	–	–	–	–	–
	Nb5	–	–	–	–	–	–	2000	–	–	–	–	–
	Na3	–	–	–	–	–	–	500	–	–	–	500	–
Polyarthra vulgaris	Nb2	200	125	1200	34800	5000	–	–	–	800	–	250	–
	Nb5	250	–	20600	2400	1000	–	500	1500	2000	3000	–	–
	Na3	–	50	5325	625	9200	10000	–	32000	5500	8750	400	–

	Station	I-14	II-17	III-14	IV-17	1967 V-16	VI-16	VII-15	VIII-15	IX-20	X-21	XI-16	XII-16
Conochilus unicornis	Nb2	–	–	–	–	9500	–	500	2000	–	–	–	–
	Nb5	–	–	–	–	2500	–	11000	–	–	–	–	–
	Na3	–	–	–	–	10000	2000	–	14000	–	–	–	–
Pompholyx complanata	Nb2	–	–	–	–	–	–	–	+	–	1000	–	–
	Nb5	–	–	–	–	–	–	–	–	–	–	–	–
	Na3	–	–	–	–	–	42500	–	–	–	–	–	–
Filinia longiseta	Nb2	–	–	–	–	–	500	–	5000	–	–	–	–
	Nb5	–	–	–	100	1000	50	500	4000	400	–	–	–
	Na3	–	–	–	–	–	–	–	16500	500	250	–	–
Hexarthra mira	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	–	–	–	–	–	–	–	–	400	–	–	–
	Na3	–	–	–	–	–	–	–	–	–	–	–	–
Trichocerca chattoni	Nb2	–	–	–	–	–	–	3000	–	–	–	–	–
	Nb5	–	–	–	–	–	–	1500	–	–	500	–	–
	Na3	–	–	–	–	–	–	5000	–	500	–	–	–
Trichocerca capucina	Nb2	–	–	–	–	–	–	–	–	–	500	–	–
	Nb5	–	–	–	–	–	–	–	–	–	1000	2000	–
	Na3	–	–	–	–	–	–	–	2000	3500	1000	800	–
Tricocerca birostris	Nb2	–	–	–	–	–	1500	–	–	–	500	500	1500
	Nb5		+	–	–	–	800	500	–	–	–	–	1000
	Na3	–	75	–	–	–	5000	–	5000	1500	250	1600	3000
Notholca acuminata	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	50	–	–	–	–	–	–	–	–	–	–	–
	Na3	100	50	50	–	–	–	–	–	–	–	–	–

		1967											
	Station	I-14	II-17	III-14	IV-17	V-16	VI-16	VII-15	VIII-15	IX-20	X-21	XI-16	XII-16
Synchaeta oblonga	Nb2	3700	1575	3950	61800	–	–	–	–	–	–	–	–
	Nb5	6150	925	43700	8500	–	–	–	–	–	–	–	–
	Na3	+	775	–	4150	41200	47500	–	–	–	–	–	–
Synchaeta stylata	Nb2	–	–	–	–	14500	1000	+	–	–	+	–	–
	Nb5	–	–	–	–	4000	200	6000	–	+	–	–	–
	Na3	–	–	–	–	–	6500	–	1500	5000	4750	+	3000
Ploesoma truncatum	Nb2	–	–	–	–	500	500	1500	500	–	–	–	–
	Nb5	–	25	–	–	–	–	500	–	–	–	–	–
	Na3	–	–	–	–	92000	4000	1500	–	2500	–	–	–
Asplanchna priodonta	Nb2	300	+	–	1600	2500	–	–	–	–	–	–	–
	Nb5	150	–	–	–	500	–	–	–	–	–	–	–
	Na3	125	150	–	–	79200	–	–	–	–	–	–	500
Euchlanis dilatata	Nb2	–	–	–	–	1000	–	–	–	–	–	–	–
	Nb5	–	–	–	–	–	–	–	–	–	–	–	–
	Na3	–	–	–	–	1000	–	–	–	1000	250	–	–
Difflugia pseudogramen	Nb2	–	–	–	–	–	–	–	–	–	–	–	–
	Nb5	–	–	–	–	–	–	–	–	–	–	–	–
	Na3	–	–	–	–	–	–	–	–	500	–	–	–
Difflugia corona	Nb2	–	100	–	–	–	–	–		14000	–	–	–
	Nb5	–	–	–	–	–	–	–	6000	22000	–	–	–
	Na3	–	–	–	–	–	–	–	7000	7000	–	–	–
Tintinnidium flaviatile	Nb2	–	–	700	–	–	–	–	–	–	–	–	–
	Nb5	–	+	1300	–	–	–	–	–	–	–	–	+
	Na3	–	–	100	–	–	–	–	–	–	–	–	+
Ceratium hirundinella	Nb2	–	25	–	800	500	1500	4500	–	800	–	–	–
	Nb5	–	–	100	500	500	800	7500	1000	1600	–	–	–
	Na3	–	75	–	–	–	2000	2500	–	1000	–	–	–

Table 2 Zooplankton of northern basin (Ie-1) (n/m³)

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
Eodiaptomus japonicus	0- 2	600	-	750	54000	200	1500	——	7000	44000	31000	24500	11500
	2- 5	600	1000	38100	14200	8550	30400	13200	1500	95000	66500	27000	6500
	5-10	1375	375	2625	7700	36800	65200	——	2000	225000	109000	17000	4500
	10-20	3560	2600	3700	4700	9200	11100	1400	600	42000	17000	7100	2600
	20-30	3180	1700	500	1200	220	575	25	200	1450	2400	750	1700
	30-50	2120	1550	450	1575	40	400	-	300	150	75	975	1550
	50-70	1180	2300	50	——	400	150	12	75	50	-	80	75
Mesocyclops leuckarti & *Cyclops vicinus*	0- 2	-	300	-	7800	-	1200	——	3000	8500	1500	4000	3750
	2- 5	-	-	1500	2200	450	-	-	1500	27500	8500	3750	2000
	5-10	-	125	1875	2040	3200	400	——	500	72000	41000	6000	1500
	10-20	190	375	2900	4000	1600	200	1300	700	39000	25500	2600	600
	20-30	180	125	550	1000	200	700	825	600	3600	1500	400	500
	30-50	310	310	425	1475	40	3400	500	400	400	1000	325	500
	50-70	125	250	175	——	75	2000	330	75	300	325	80	40
Nauplii	0- 2	4500	41100	115200	562200	2400	24300	——	66000	44000	207000	80000	23000
	2- 5	2400	21000	148500	76000	26400	7600	4400	13750	112500	62500	39000	10750
	5-10	4000	10750	30750	26800	56400	4800	——	4750	84000	16300	20000	6500
	10-20	1750	19300	44550	11100	5900	500	450	500	26500	48000	2900	1800
	20-30	4800	8500	11450	3400	2150	75	25	50	2200	1500	6600	1600
	30-50	2375	8200	10900	2650	400	-	12	200	1500	275	350	425
	50-70	1560	7000	4370	——	925	200	20	150	1750	50	300	100

	depth \ date	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
Daphnia longispina	0- 2	–	–	–	5400	–	600	——	250	500	–	4000	250
	2- 5	–	–	300	200	–	4000	–	–	8400	–	3750	250
	5-10	–	–	750	360	200	9200	——	–	18000	24000	750	100
	10-20	–	290	150	200	200	4100	–	–	1000	2500	–	100
	20-30	–	60	–	50	–	–	–	–	50	–	–	–
	30-50	–	–	–	50	5	–	–	–	25	50	–	25
	50-70	–	–	–	——	10	175	–	–	–	3	–	——
Diaphanosoma brachyurum	0- 2	–	–	–	–	–	–	——	12500	10000	–	1000	3000
	2- 5	–	–	600	–	–	400	2800	250	36250	55000	1800	1000
	5-10	875	–	–	–	–	800	——	500	66000	114000	5760	1100
	10-20	550	125	–	200	100	100	–	200	10500	20000	700	400
	20-30	560	–	–	–	–	–	–	50	250	500	–	400
	30-50	625	60	–	–	–	–	–	50	25	100	–	50
	50-70	375	60	–	——	–	–	–	–	25	25	–	20
Bosmina longirostris	0- 2	–	–	–	–	–	–	——	–	–	–	–	1500
	2- 5	–	–	600	–	–	–	–	–	–	–	–	500
	5-10	–	–	1000	120	–	–	——	–	1000	–	250	600
	10-20	–	250	350	600	1200	700	50	200	2500	1000	200	–
	20-30	–	–	50	200	–	200	–	–	100	200	–	150
	30-50	–	–	25	–	5	150	–	–	–	25	–	150
	50-70	–	–	–	——	25	100	–	–	–	–	–	–
Anisogammarus annandalei	0- 2	–	–	–	–	–	–	——	–	–	–	–	–
	2- 5	–	–	–	–	–	–	–	–	–	–	–	–
	5-10	–	–	–	–	–	–	——	–	–	–	–	–
	10-20	–	–	–	–	–	–	–	–	–	–	–	–

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	35	13	40	–
	50-70	–	–	–	—	–	–	–	–	9	28	28	6
	0- 2	–	–	–	–	–	–	—	–	–	13000	2500	2000
	2- 5	–	–	–	–	–	–	–	–	1630	5000	–	250
Keratella	5-10	125	–	–	–	–	–	—	–	–	1000	–	100
cochlearis	10-20	–	–	–	–	–	–	–	–	500	1500	200	–
	20-30	60	–	–	–	–	–	–	–	150	200	50	50
	30-50	–	–	–	–	–	–	–	–	150	125	25	50
	50-70	–	–	–	—	10	–	–	–	125	50	15	10
	0- 2	–	–	5700	–	2200	–	—	500	–	5500	500	–
	2- 5	–	200	700	–	300	–	–	–	830	–	–	–
Polyarthra	5-10	–	–	375	120	–	–	—	–	–	–	–	–
vulgaris	10-20	–	60	300	–	–	–	–	–	500	–	100	–
	20-30	–	250	200	–	–	–	–	–	100	300	50	–
	30-50	–	–	225	–	20	–	–	–	–	–	–	–
	50-70	–	60	300	—	100	–	–	50	–	50	–	–
	0- 2	–	–	–	–	–	–	—	3000	–	–	–	–
	2- 5	–	–	300	–	16650	–	400	500	4200	–	–	–
Conochilus	5-10	–	–	–	–	10800	800	—	750	–	–	–	–
unicornis	10-20	–	–	–	–	700	–	–	–	–	–	–	–
	20-30	–	–	–	–	550	–	–	–	–	–	–	–
	30-50	–	–	–	–	30	–	–	–	–	–	–	–
	50-70	–	–	–	–	200	–	–	100	–	–	–	–

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
Pompholyx complanata	0- 2	–	–	–	–	–	–	——	4500	–	–	–	–
	2- 5	200	–	–	–	–	–	–	2500	–	–	–	–
	5-10	–	–	–	–	–	–	——	750	–	–	–	–
	10-20	–	–	200	–	–	–	–	50	–	–	–	–
	20-30	–	–	250	–	100	–	–	–	–	–	–	–
	30-50	–	–	–	–	10	–	–	–	–	–	–	–
	50-70	–	–	–	——	–	–	10	–	–	–	–	–
Filinia longiseta	0- 2	–	–	–	–	–	–	–	750	–	–	–	–
	2- 5	–	–	–	200	–	–	–	250	–	–	–	–
	5-10	–	–	–	–	200	–	–	–	–	–	–	–
	10-20	–	–	–	–	100	–	–	–	–	–	–	–
	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	–	–	–	–	–	–	–	–	–	–	–
Trichocerca birostris	0- 2	–	–	–	–	–	–	——	500	–	–	–	
	2- 5	–	–	–	200	150	–	–	250	–	–	375	
	5-10	–	–	–	–	200	–	——	250	–	–	–	
	10-20	–	–	–	–	–	–	–	–	–	500	100	
	20-30	–	–	–	–	–	–	–	50	–	–	–	
	30-50	–	–	–	–	–	–	–	75	–	–	25	
	50-70	–	–	–	–	–	–	–	–	–	–	–	
Trichocerca chattoni	0- 2	–	–	–	–	–	300	——	–	500	–	–	–
	2- 5	–	–	–	–	–	800	800	–	–	–	–	–
	5-10	–	–	–	–	–	–	——	–	–	–	–	–
	10-20	–	–	–	–	–	–	200	–	–	–	–	–

	date	1967											
	depth	I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
	20-30	–	–	–	–	–	–	25	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	–	–	–	–	25	–	–	–	–	–	–
	0- 2	–	–	–	–	–	–	——	–	–	–	–	–
	2- 5	–	–	–	–	–	–	400	–	–	–	–	–
Trichocerca	5-10	–	–	–	–	–	–	——	–	–	1000	–	–
	10-20	–	–	–	–	–	–	–	–	–	500	–	–
capucina	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	25	–	–
	50-70	–	–	–	–	–	–	–	–	–	–	5	–
	0- 2	–	6900	9750	–	800	–	–	–	–	–	–	–
	2- 5	–	6800	600	–	300	–	–	–	–	–	–	–
Synchaeta	5-10	375	750	800	–	–	–	–	–	–	–	–	–
	10-20	125	1250	350	–	–	–	–	–	–	–	–	–
oblonga	20-30	–	2400	100	–	–	–	–	–	–	–	–	–
	30-50	–	750	–	–	–	–	–	–	–	–	–	–
	50-70	–	680	140	–	35	–	–	–	–	–	–	6
	0- 2	–	900	1200	600	–	20700	——	–	–	–	–	5750
	2- 5	200	400	900	–	–	1600	–	–	–	–	–	750
Asplanchna	5-10	125	–	125	–	200	–	——	–	–	–	–	1000
	10-20	250	625	250	–	600	500	200	1400	–	–	–	800
priodonta	20-30	60	300	–	–	100	75	–	750	200	–	–	400
	30-50	00	300	–	–	–	50	–	550	–	–	–	175
	50-70	–	125	–	–	10	50	–	–	–	–	–	7

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
Ceratium hirundinella	0- 2	600	3000	1800	7200	–	–	——	6250	13500	–	–	–
	2- 5	600	1800	1800	2000	–	–	5600	500	90000	–	–	–
	5-10	750	375	125	360	600	–	——	2250	10000	1000	–	–
	10-20	300	125	100	400	500	200	300	300	5000	–	–	–
	20-30	190	125	150	150	150	125	125	300	6150	100	–	–
	30-50	550	250	50	150	35	200	20	350	2875	–	–	–
	50-70	–	–	30	——	60	150	25	125	2200	–	–	–
Difflugia corona	0- 2	–	–	–	–	–	–	–	–	–	–	–	250
	2- 5	–	–	–	–	–	–	–	250	–	–	–	–
	5-10	–	–	–	–	–	–	–	–	–	–	–	–
	10-20	–	–	–	–	–	–	–	–	–	–	–	–
	20-30	–	–	–	–	–	–	–	–	–	–	–	50
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	–	–	–	–	–	–	–	–	–	–	–
Difflugia pseudogramen	0- 2	–	–	–	–	–	2700	——	–	500	–	–	–
	2- 5	–	–	–	–	–	1200	–	250	3750	–	–	–
	5-10	–	–	–	–	–	–	——	500	4000	–	–	–
	10-20	–	–	–	–	–	–	50	–	–	500	–	–
	20-30	–	–	–	–	–	–	50	250	200	–	50	–
	30-50	–	–	–	–	–	–	–	350	25	–	–	–
	50-70	190	–	–	–	–	–	20	100	25	25	–	–
Leptodora kindti	0- 2	–	–	–	–	–	–	–	–	–	–	–	–
	2- 5	–	–	–	–	–	–	–	–	–	–	–	–
	5-10	–	–	–	–	–	–	–	–	–	–	–	–
	10-20	–	–	–	–	–	100	–	–	–	–	–	–

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	–	–	–	–	–	–	–	–	–	–	–
	0- 2	–	–	–	–	–	–	–	–	–	–	–	–
	2- 5	–	–	–	–	–	–	–	–	–	–	–	–
Keratella	5-10	–	–	–	–	–	–	–	–	–	–	–	–
	10-20	–	–	–	–	–	–	–	–	–	–	–	–
quadrata	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	60	–	–	–	–	–	–	–	–	–	–
	0- 2	–	–	–	–	–	–	–	–	–	–	–	–
	2- 5	–	–	–	–	–	–	–	–	–	–	–	–
Brachionus	5-10	–	125	–	–	–	–	–	–	–	–	–	–
	10-20	–	–	–	–	–	–	–	–	–	–	–	–
calyciflorus	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	–	–	–	–	–	–	–	–	–	–
	50-70	–	–	–	–	–	–	–	–	–	–	–	–
	0- 2	–	–	1500	–	–	–	–	–	–	–	–	–
	2- 5	–	–	300	–	–	–	–	–	–	–	–	–
Synchaeta	5-10	–	–	–	–	–	–	–	–	–	–	–	–
	10-20	–	–	–	–	–	–	–	–	–	–	–	–
tremula	20-30	–	–	–	–	–	–	–	–	–	–	–	–
	30-50	–	–	25	–	–	–	–	–	–	–	–	–
	50-70	–	–	10	–	–	–	–	–	–	–	–	–

	date / depth	1967 I-15	II-13	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
Hexarthra mira	0- 2	-	-	-	-	-	-	-	-	1500	-	-	-
	2- 5	-	-	-	-	-	-	-	-	3750	-	-	-
	5-10	-	-	-	-	-	-	-	-	1000	-	-	-
	10-20	-	-	-	-	-	-	-	-	-	-	-	-
	20-30	-	-	-	-	-	-	-	-	-	-	-	-
	30-50	-	-	-	-	-	-	-	-	-	-	-	-
	50-70	-	-	-	-	-	-	-	-	-	-	-	-
Ploesoma truncatum	0- 2	-	-	-	-	-	-	-	-	-	500	-	-
	2- 5	-	-	-	-	-	-	-	-	-	-	-	-
	5-10	-	-	-	-	-	-	-	-	-	-	-	-
	10-20	-	-	-	-	-	-	-	-	-	-	-	-
	20-30	-	-	-	-	-	-	-	-	-	100	-	-
	30-50	-	-	-	-	-	-	-	-	50	-	-	-
	50-70	-	-	-	-	-	-	-	-	-	-	-	-
Tintinnopsis cratera	0- 2	-	-	600	-	-	-	-	-	-	-	-	-
	2- 5	-	-	-	-	-	-	-	-	-	-	-	-
	5-10	-	-	-	-	-	-	-	-	-	-	-	-
	10-20	-	-	-	-	-	-	-	-	-	-	-	-
	20-30	-	-	-	-	-	-	-	-	-	-	-	-
	30-50	-	-	-	-	-	-	-	-	-	-	-	-
	50-70	-	-	-	-	-	-	-	-	-	-	-	-
Tintinnidium fluviatile	0- 2	-	300	-	-	-	-	-	-	-	-	-	-
	2- 5	-	-	-	-	-	-	-	-	-	-	-	-
	5-10	-	-	125	-	-	-	-	-	-	-	-	-
	10-20	-	-	50	-	-	-	-	-	-	-	-	-

date / depth	1967 I-13	II-15	III-13	IV-14	V-16	VI-15	VII-17	VIII-16	IX-19	X-20	XI-15	XII-15
20-30	-	-	50	-	-	-	-	-	-	-	-	-
30-50	-	-	05	-	-	-	-	-	-	-	-	-
50-70	-	-	10	-	-	-	-	-	-	-	-	-

Table 3 *Trichocerca chattoni* in lake Biwa (July, 1963)

Regions		depth in m.	mean individual number/m³ 0 - 2	2 - 5	mean water temp. 0	1	5
Main basin	littoral zone	pelagial zone	1410± 990	2800±1900	30°6	30°2	29°4C
		eastern coast	1510±1300	990± 950	30°5	30°0	28°5
		northern coast	1980±1140	1340± 920	28°4	28°3	27°8
		western coast	4060±2000	1380± 960	28°8	27°3	26°8
Southern basin			6720±3400	2090±1140	29°7	29°5	29°0 (2m)