ZOOPLANKTON DISTRIBUTION IN LAKE MANZALAH

Sh. K. GUERGUESS

Institute of Oceanography and Fisheries, Alexandria, A.R.E.

Lake Manzalah is the largest and most productive of the Nile Delta lakes. It is a shallow rectangular depression, connected to the Mediterranean and Suez Canal (See Map, G, K, R, S) directly and indirectly and to the Nile (E). But the bulk of its waters derives from the continuous inflow of agriculture drainage water along the southern margin.

Chlorosity ranges from 1.06 to 7.20 g/l around the lake-Sea connection G, from 0.38 to 1.25 g/l in the south western lake (Basin IV) and from 0.25 to 1.84 g/l in the south eastern (Basin I). The seasonal fluctuations in temperature reflect on the abundance, the size, the morphology and the fertility of zooplankton. As a rule rotifers are winter forms. Brachionus calyciflorus (31600 org./ Cu.m., 45%) and to a lesser extent Keratella quadrata (17300 org./Cu.m., 20%) dominate in February. Cladocera dominate during the warm season, Moina micrura (50400 org./cu.m., 54%) in July and Diaphanosoma excisum (61300 org./cu. m., 45.5%) in August. The copepod Acanthocyclops americanus is dominant in May-June. (25400 and 34900 org./Cu. m., 31.7 and 30.4% respectively) .

There is an inverse relationship between body length and water temperature.

The number of eggs or embryos carried by the female is higher in winter (average 1.5-2.1) for B. calyciflorus than in summer (av.1-1.35) and for M. micrura, respectively 1-10 in autumn and 1-4 in summer . D. excisum is unaffected .

Long term changes in the planktonic communities have taken place over the last 50 years, as a result of the decrease in salinity of the lake water. The marine Acartia latisetosa, Labidocera brunescens , Canuella perplexa and the mysid Mesopodopsis slabberi were dominant, especially the former species (Gurney, 1926, 1927; El-Maghraby et al 1963). Some have disappeared, others became very rare or restricted to the vicinity of connection G. The cyclopoida constituted the major part of the copepoda in the present observations. Acanthocyclops americanus alone contributed 11.2% to the total zooplankton. A typical limnoplanktonic species, it disappeared when chlorosity exceeded 6.9 g/l . Rotifers are of fresh water origin. Most of the species recorded in Lake Manzalah, were also recorded in the Lake sources of the White Nile (Green, 1967), but their distribution was governed by their preference for organically rich waters rather than by chlorosity. The cladocerans Moina micrura (35%)

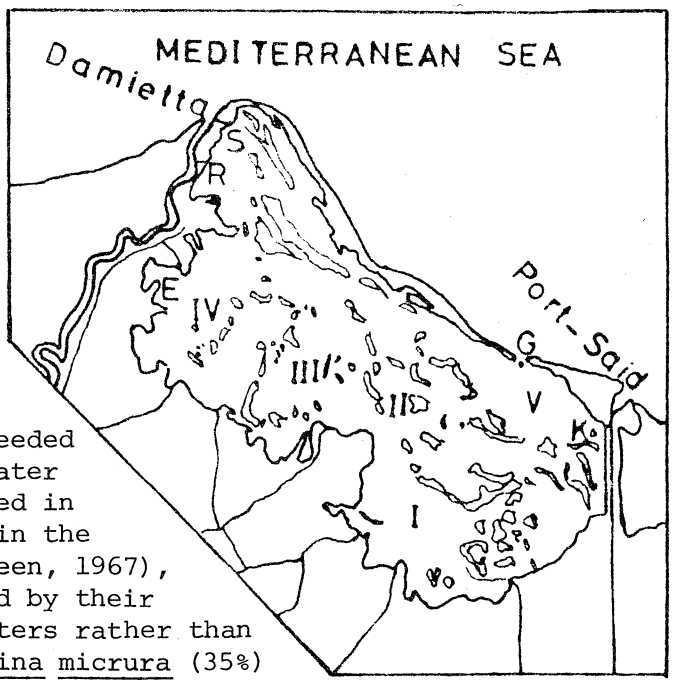

Table : Average body length and water temperature for 4 Species .

Species	S u m m e r		W i n t e r	
	body length	water temp	body length	water temp.
	mm.		mm.	
B.calciflorus	0.175-0.224	28.-30.8°C	0.232-0.248	13-14.8°C
M. micrura	0.52 -0.72	28.4-20.2	0.72 -1.02	15.5-19.7
D. excisum	0.55 -1.05	28.4-29.2	0.75 -1.25	15.5-19.7
A. americanus	1.05 -1.25	28.4-29.2	1.25 -1.75	15.5-19.7

and Diaphanosoma excisum (20%) were recorded together, distributed in all localities. Their dominance during summer is also related to increased drain water input and the decrease in chlorosity. Chlorosity higher than 6.9 g/l. causes their disappearance .

R E F E R E N C E S

El-Maghraby, A.M., S.D. Wahby & A.H. Shaheen, 1963, The ecology of zooplankton in Lake Manzalah. Notes Mem., Alex. Inst. Hydrobiol. 70: 1-43 .

Green, J., 1967. Associations of Rotifera in the zooplankton of the lake sources of the white Nile. Proc. Jour. Zool. Soc. Lond. 151 :343-378.

Gurney, R. 1926. Report on the crustacea, copepoda and cladocera of the plankton. Trans. Zool. Soc. Lond. 22 : 139-172 .

Gurney, R., 1927. Report on the crustacea (Littoral and semiparasitic) Trans. Zool. Soc. Lond. 22: 451-577 .