SUMMARY

A study of zooplankton composition, density, distribution and variation in both diurnal and seasonal was conducted in the Kalawewa system over a period of two years from 27th April 1979 to 28th November 1980. Environmental factors such as rainfall, temperature, conductance, pH, oxygen and water budget of the reservoir were studied over the same period. Sampling was done once monthly.

Rainfall was the key factor which directly or indirectly influenced the zooplankton populations. The flushing rates of the reservoir too involved in variation of the above. It was found that the temperature of the water body does not depend only on the ambient temperature but also on the humidity of the environment (evaporation rate). The entire water body was alkaline except one occasion where drainage water showed a pH of 6.9. The conductance values at the reservoir, irrigation canals and the field were within the range 155μmho.cm^{-1} to 451μmho.cm^{-1} but that of drainge water was much higher and was within the range 350μmho.cm^{-1} - 1220μmho.cm^{-1}. The peak periods for drainge water corrosponds with the harvesting seasons.

The zooplankton included 4 genera and 4 species of Copepoda, 7 genera and 7 species of Cladocera and 14 genera, 26 species of Rotifera and 2 genera of Protozoa. It is of interest to note that while no tropical water body has been reported on having more than 5 Brachionus species 10 species of this genus were recorded at Kalawewa.

Zooplankton populations showed a clear pattern of seasonal variation with relatively high populations during the northeast and 1st intermonsoonal periods and relatively low populations during the southwest and 2nd intermonsoonal periods. This pattern was more marked in 1980 than in 1979. The rotifer densities fluctuated within a broader range than the crustaceans During the periods of high population density, rotifers dominated the zooplankton while during periods of low population density, crustaceans dominated.

A pronounced peak in zooplankton population was found in April 1980. It appears that the best combination of environmental factors was prevalent at that time.

Of the rotifer genera found during the sampling period only Brachionus was found throughout. The density of different genera of rotifers except Lecane was generally higher in the reservoir and L.B. canal than other parts of the system. But Lecane was found in very low numbers in the reservoir, building up in the Field. In the drainge canal Lecane numbers were higher than in the reservoir and L.B . canal but lower than in the field.

It was noted that the copepod populations are less affected by the changes in environmental conditions than the other zooplanktons.

During the diurnal survey a variation in density with depth during the period of day light was found with rotifers and it is suggested that this is not due to vertical migration but due to predation. No variation in density was found with crustaceans.

However it is suggested that though both rotifers and crustaceans show diurnal variation in population no vertical migration occured.