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SUMMARY

The Ajwa reservoir is a large shallow tropical lake situated in a windy region of low humidity.

The colour of water was greenish from October to June and greyish for the rest of the year.

Transparency of water as measured by Secchi disc varied from 47 cm in monsoon to 250 cm or more at the end of monsoon (July-October).

The level of water is found to decrease gradually from January to June and it increased in monsoon until the maximum is reached in September or October and thereafter the level decreased gradually.

The reservoir does not develope any persistant thermal stratification. Heating occurs by day followed by loess of heat and complete nocturnal cooling. There is, thus, diurnal stratification in afternoon and homothermal

conditions in early morning hours as shown by temperature records in Stations A and B.

The reservoir is slightly alkaline and there is a slight increase in pH everyday in the afternoon hours along with the changes in the photosynthesis and respiration.

The reservoir water is slightly hard to moderately hard.The hardness is mainly due to bicarbonates and to some extent to carbonates of calcium and Magnesium. The chlorides were never less than 40 mg/l in the surface samples.

Free carbon dioxide was never found in the reservoir water.

The dissolved oxygen was adequately present in all the depths; bottom layer also was never devoid of dissolved oxygen. Persistant oxygen stratification was not found but the daily values of oxygen showed the development of stratification in the afternoon and more or less uniform values in the early morning.The seasonal

variations were not profound.The oxygen values were close to or more than 100 % saturation in the afternoon.

The inorganic forms of Nitrogen were in traces or mostly absent. The orthophosphates also were not dectected.The silica content varied from 0.1 to 0.2 mg/l in surface samples. Calcium content varied from 6.48 to 13.80 mg/l, sodium content, between 46 to 59 mg/l, and Potassium content between 1.42 to 3.9 mg/l.

Chlorophyta was a major group (43%) found in the plankton catches. While Bacillariophyceae formed 28% of the total plankton crysophyta and cyanophyta were also common.

The most dominant hydrophytes were Vallisneria Spiralis which contributed nearly 63% of the total mass. Najas flexilis, Hydrilla verticellafa and Potamogeton indicus were also common.

Periphyton, as recored from artificial substrates from surface and from 2.5m depths was highest in June or July. Removal of periphyton was found in the monsoon months.

4 The primary productivity of the three major producers in the Ajwa Reservoir was estimated from March 1969 through October 1970. The growth of periphyton was determined by suspending the glass slides as artificial substrates; and the productivity was estimated from the changes in biomass and was expressed as grams dry weight per square meter per day.

The productivity measurements of the phytoplankton and the macrophytes was determined by the oxygen method. Dark and clear bottle experiments were tried but were never successful under the Ajwa conditions.

The primary production at both the Stations A and B showed the well defined rhythm. The midmorning production rates were always highest; noon values of production were lower and the afternoon values were lowest.

There was no marked seasonal periodicity in the average rates of production like that of the temperate water bodies. The average net production at Station A was 1.14 $gO_2/m^2/day$ (0.342 g $/m^2/day$) in 1969 and 1.31 $gO_2/m^2/day$ (0.393 g $C/m^2/day$), in 1970. The average net production at Station B was 1.52 $gO_2/m^2/day$ (0.456

gC/m^2/day) in 1969 and 1.42 gO_2/m^2/day (0.426 gO/m^2/day) in 1970. The average production rates of periphytic group in 1970 was 0.569 g/m^2/day of dry weight (0.29 C/m^2/day) at surface and 1.060 g/m^2/day of dry weight (0.477 gC/m^2/day), and the photosynthetic efficiency in the reservoir varied between 0.28 to 0.8 %.