

TROPHIC STATUS OF AMBADI DAM IN RELATION TO PHYSICO-CHEMICAL CHARACTERISTICS OF ITS WATER

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ABSTRACT:

Dams and rivers are the lifeline of the rural peoples, for their drinking purpose, irrigation, fisheries and other agricultural activities. In the present study, an attempt has been made to record the trophic status of the Ambadi Dam. During the study period various correlations were recorded for different parameters. The dam shows average gross primary production of 396.08 gC/1/day and net primary production of 119.90 gC/1/day. The values of dissolved oxygen ranged from 5.30 to 6.60 mg/l, while Carbon dioxide in the dam water ranged from 1.00 to 8.00 mg/l. organic matter present in the sediments originated from the runoff matter and in associated with anthropogenic activities is the source of nutrients of dam water. Average concentration of nitrates and phosphates were recorded 0.13 mg/l and 14.72 mg/l respectively. Dam water shows well alkaline pH. Total dissolved solids in water of dam showed peak value of 1040.00 mg/l. microbial population in the soil sediments and in water, with abundance of phytoplankton showed the mesotrophic nature of Ambadi dam.

Key words: *Trophic status of Dam, Phosphates, Nitrates, Microbes,*

INTRODUCTION

The total environment is a complex entity, of which water is an essential component for the survival of living beings. In aquatic environment life is largely governed by physicochemical characteristics and their stability, which intern have enabled biota to develop many adaptations that improve sustained productivity and regulate the metabolism in water body. Trophic status of an ecosystem depends upon rate of energy flow which may be assessed by estimating primary production. The most characteristic criterion to assess the trophic structure of a water body still remains to be primary productivity as the planktons form basic link of food chain for all aquatic animals, thus playing a key role in its stability, (Zafar, 1964 and Hart and Zabbey, 2005).

Productivity means living substance producing capacity of a water body, lake and ponds are having self sustaining ecosystems. Living components of any ecosystem consists of producers and consumers, phytoplankton and zooplanktons depend on each other and they form a link of a food chain. The productivity of a ecosystem depends upon the available standing crops, rate of removal and rate of production. The gross

primary productivity (GPP) is a rate of photosynthesis and includes the organic matter in the respiration during ;the measurement period. The net primary productivity (NPP) is the rate of storage of organic matter in plant tissues in excess of the respiratory utilization by the producers during the period of measurement, (Hart and Zabbey, 2005).
Meena *et al.*, 2007).

MATERIALS AND METHODS

Ambadi irrigation dam is located at 770 – 05' – 45" North and 210 – 12' – 15" East, 14 Kms, away from the Akot, district Akola (M.S.), in central India. The dam is situated in Satpuda hill ranges and 246 meters above the sea level. The dam is mostly utilized by the locality for irrigation, fisheries, water consumption by cattle's and some human activities are also observed on the bank of dam, such as bathing, swimming, cattle washing, cloth washing, vehicle washing etc. During rainy season the surface runoff water carries decaying organic matter with eroded soil from the catchments area, in to the dam water. The frequency of visiting the cattle's and human activities on the bank of dam increases during the summer days.