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Water is the most vital resource for the survival and sustenance of man on this planet. However, the deterioration in the quality of freshwaters due to a number of human activities has taken a serious proportion in the modern times. The freshwater resources are now increasingly used for the disposal of sewage and farm wastes, industrial effluents, urban run-off, recreation, fishing, cattle wading, mass bathing and cloth washing besides a number of sundry uses.

While in the developed countries there are extensive treatment facilities and advanced treatment methods are continuly developed, in developing countries, generally and in India in particular, even the primary and secondary treatment facilities are not well developed (Shipman 1976). In most cases, the sewage is directly disposed off in nearby waterbodies. The wide spread pollution is further accentuated by industrial effluents, run-off from heavily fertilized agricultural lands etc. no lesser magnitude is the pollution caused by direct utilization of surface water resources as bathing and washing by man, and by wading cattle. The situation of water pollution is already very grave in this

country. Two thirds of all illnesses in India are related to water-borne diseases, such as Junudice, typhoid, cholera, diarrohoea; dysentry etc. Many times they take epidemic proportion. Every city of India one time or the other has undergone through an epidemic in the recent past. It is also estimated that 73 million work days are lost every year due to water related diseases. The cost of treating them and the loss in production amount to Rs.600 crores per year (Agarwal et al. 1982). Water Pollution has also affected aquatic life and fish death have become quite frequent besides effects on industries.

Most of the pollutional activities mentioned above lead to nutrient enrichment of a water body. This phenomenon is termed as 'eutrophication'. Eutrophication brings about a serious change in the physico-chemical properties of water and consiquently the changes in the flora and fauna. These changes impair a waterbody for various uses. Considerable work to show these general findings has been done. (Naumann 1919, Hasler 1947, sawyer 1947, 1954, Ludwig et al. 1964, Rodhe 1969, Edmondson 1969, 1970)

There have been numerous limnological investigations on different kinds of waterbodies. In India (Rao 1955, zafar 1956, Ganpati 1960, Hussainy 1967, Kaul 1977, Trivedy 1980, Garud 1983, Trivedy et al. 1983, Trivedy et al. 1985, Gopal et al. 1988). However, only a few studies deal with the effect of pollution, on phytoplankton flora, Munawar (1970) compared the phytoplankton communities of two water bodies in Hyderabad. Gopal et al. (1988) have compared, the phyto-plankton flora of a non-polluted and a sewage receiving fresh-water reservoir.

The phytoplankton are the most important constituents of a freshwaterbody. They contribute significantly to the oxygen and organic matter production and are an important part of the food chain which sustain the life in water. Recent evidences have shown that the phytoplanktonic communi-ties in water are not haphazard assemblages in water but are organized communities whose response to various environ-mental perturbations is quite definite (Cairns 1974, Davis

1954, James and Evison 1979, Trivedy 1986).

A number of authors have used phytoplankton as indicator of organic and other kinds of pollution (Nygaard 1949, Palmer 1969, Gunale 1981, Trivedy 1986). The phytoplankton work as an excellent indicator of Pollution as they show definite responses, integrate the effects of various pollutants and can preserve the effects even after the pollutents have gone from the system. They have many advantages over physico-chemicals indicators.

Present work is undertaken to study the phytoplankton ecology of two reservoirs in South-Western Maharashtra. One of the reservoirs, is apparently unpolluted-situated in a secluded area and does not receive any pollutants, while the other one is situated in the heart of Sangli city and receives sewage as well as polluted grossly by the cultural activities.

The data on physico-chemical characteristics, phyto-plankton composition, density, diversity, has been collected for both the waterbodies for a period of June 1986 to May 1987. Primary production, community respiration and chlorophylls have been studied in three seasons during the year. Various phytoplankton pollution indices have been calculated and compared with the chemical indices.

The data is discussed in the light of latest literature, the effect of water pollution on phytoplanktons is evaluated and the use of various indices is tested.