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# **INTRODUCTION**

Life on the earth depends on water, a unique chemical and universal solvent for all its activities. Water resources have been the most precious and widely exploited gift of nature. "Water is the elixir of life, and the source of energy which governs the evolution and functions of the universe."

Approximately 1.4 billion cubic kilometers, of water is fresh and suitable for human uses (World Resources, 1986).

Water is an essential component of an ecosystem. It sustains life on earth and required for all living organisms for all anthropogenic activities (Khatri, 1985; Dagaonkar and Saksena, 1992). A community depends on the water for its domestic, agricultural and industrial needs. Availability of water has been a factor in the development of various civilisations near lakes and rivers.

India is blessed with an extensive wealth of water resources, consisting of numerous lakes and reservoirs. The total water spread area in India is about 4.5 million hectares. Inland aquaculture resources covers about 3 million hectares. These include about 0.72 million hectares of natural lakes and 2.0 million hectares of constructed reservoirs (Benjamin *et al.*, 1996).

The aquatic ecosystems has been a topic of great interest for ecologist since long. These are considered as ideal systems for

studying various ecological functions. The study of these systems is not only fascinating but highly important for human welfare sustenance. It exists in the form of lentic and lotic habitats.

All lentic habitats such as reservoirs, ponds and lakes are extremely important because they are endowed with abundance of natural resources. The pollutants reaching the lentic system instead of being diffused through flowing nature of water accumulate and hence the recycling capacity of them is low. Therefore the threat of pollution is more in lentic water bodies. Outside India Yadava *et al.* (1987), Kumar (1989) have made studies on lotic environments.

Recently man is facing one of the most horrible ecological crisis the "pollution". Over exploitation of these natural resources result into water pollution, mainly due to over population. Pollution is an undesirable change in physical, chemical and biological characteristics of land, air and water, that will waste or deteriorate raw material resources (Odum, 1971). Fresh water is thus a scare commodity and is getting scares every day as communities, industries and agriculturist discharges their flith, muck and harmful waste into nearest sink.

Today the problem is not only one of water availability but environmental quality and degradation of ecological balance with increasing industrialisation, urbanization, and technological advance

in all fields. Population explosion has created innumerable ecological problems including environmental pollution (Phillips, 1964). Thus the increasing pace of developmental activities and extensive use of water resources are affecting the quality and hydrobiology of these fresh water resources (Trivedi, 1993).

A common practice of waste discharge from industries of various kinds, agricultural sources and domestic sewage into water bodies has become the major cause of the deterioration of water quality. Industrial effluents after released into the aquatic systems jeopardize the entire ecosystem (Raj *et al.*, 2003). Thus man has polluted much of this limited quantity of fresh water with sewage, industrial wastes and wide array of synthetic chemicals. The poor quality of water in our country is more due to contamination than due to the natural inferiority of the source (Gibbons, 1984; Hari Haran, 2002).

In view of importance of water several acts have been passed by Government of India and State Government. Among most comprehensible legislations in India for prevention and control of water pollution are following:

- The Water (Prevention and Control of Pollution) Act, 1974.
- The Water (Prevention and Control of Pollution) Cess Act, 1977.

For implementation of Water Act, 1974, the Board has taken the following steps :

1. Monitoring of water quality.
2. Declaration of water pollution, prevention areas and
3. Classification of water (Sharma, 1999).

No doubt environmental measures have been initiated in the past, but the needs of the future give a new dimension to all activity in this field.

The studies on aquatic ecosystems are truly vast and encompass various disciplines like hydrology, geology, limnology, botany and ecology, extensive studies from all these angles is difficult for an individual or an organisation. The lakes, which are located in Kolhapur city are Rajaram, Rankala and Kotitirth. To know the present status of these waterbodies physicochemical examination is found to be the basic.

By considering all these facts, it is thought worthwhile to carry out present study into i) Surveying, ii) Socio-economic aspects and iii) Physicochemical properties.

On the basis of comparative data of every season, these water reservoirs have been predicted. This will fill up the lacunae and will add adequate information on the present status of lentic water bodies from Kolhapur city.