ABSTRACT

This is the case Dynamic Study of aquatic insects impacts on the hydrobiology of a Lake, which is commercially exploited over a hundred years and is integral to a wild life sanctuary. A comprehensive and systematic analysis of the physico-chemical parameters, nutrient and pollution status, plankton density and community structure are critically examined in the thesis. Pertinent literature related to all the aspects of the problem are reviewed in the beginning. Regular monthly investigations from four permanent sampling stations for twenty four months were carried out to collect baseline data on the seasonal changes in climate, hydrology, physico-chemical water quality parameters, nutrient content, primary productivity, pollution status and hydrobiology in relation to the Lakes of Pathardi. Yearwise and seasonwise variations in total density and also density of different species of insects were observed. The significance of such variations of each particular parameter were carried out and yearly calculated. The observations regarding all parameters studied were discussed with each other. The results revealed that the present water bodies safe for human use.

Zooplankton organisms occupy a present position in the food webs of aquatic ecosystem. It is in the form of an integral part of the lentic community of the fresh water ecosystem. The Zooplankton is well recognized as these have vital part in food chain and play a key role in recycling of organic matter in an aquatic ecosystem. In the present study the total Zooplankton density sudden increase in the settling of rain water return of favourable conditions in post monsoon period. In the present study total Zooplankton comprises of 4 groups: Protozoa, Rotifera, Cladocera, Copepode.

As part of general survey of fresh water aquatic insects of lakes from Pathardi shows some similarities with other water bodies of Maharashtra. Water bodies of Pathardi show presence of insect like stone fly, Cadishfly, Mosquito larvae, Water scater, Lacamus, Damsfly larvae, Hydrophilus beetle, Notonecta, Belostoma water, Cybisterfimbriolatus specimen were collected and sorted and identified as per Tonapi (1966 -1970). The collection of specimen was made almost regularly once in a month most of collection was made by handnets. One of the interesting features that emerges from this study is uneven.
Fish production and natural water resources and there is great scope for developing fisheries in this region. The present investigation was undertaken. The fish species were studied for biochemical constituents to locate their food status as they are the commercial fishes used as a food material by the local people. The fish fauna recorded in the present study of the study area Manikdaundi, Shirsathwadi, Mohari, and Kutterwadi dams confirm the occurrence of 23 fishes belonging to 15 genera, 10 families, and 8 orders. In the present investigation, various species were observed. Total 32 species were identified initially under eleven families in seven orders at Manikdaundi Dam. Family Cyprinidae is most dominant species in Manikdaundi Dam.

The birds were observed by seasonal frequent visit to study. The majority of birds from the list are resident of the area studied. The maximum species were recorded in winter month. They were recorded at Manikdaundi, Shirsathwadi, Mohari, and Kutterwadi reservoir respectively during the study period. This study demonstrates the ornithological importance of this region.

Water is most precious natural resource; it is the soul of living things. When water is polluted by various ways that affects flora and fauna of that area. The villagers mainly used it for irrigation and pisciculture. We have selected four stagnant water bodies from Pathardi Tahasil. The water samples were collected from the stagnant water bodies namely Manikdaundi, Shirsatwadi, Mohari, and Kutterwadi lake. The parameters like Atmospheric Temperature (AT), Water Temperature (WT), Electrical Conductivity (EC), Total Dissolve Solid (TDS), Acidity (Acid), Alkalinity (Alk), Carbon dioxide (CO₂), Dissolve Oxygen (DO), Total Hardness (TH), were mentioned on monthly basis for period annual cycle i.e. Jan 2011 to Dec 2011 and Jan 2012 to Dec 2012. The result revealed that the reservoir water is safe for human use.

**KEYWORDS**

Fresh water bodies, physico-chemical parameters, productivity, hydrobiology, density, Atmospheric Temperature (AT), Water Temperature (WT), Electrical Conductivity (EC), Total Dissolve Solid (TDS), Acidity (Acid), Alkalinity (Alk), Carbon dioxide (CO₂), Dissolve Oxygen (DO), and Total Hardness (TH),