

Diversity of copepods in Kudla Dam near Umri at Nanded district (Maharashtra)

¹Bhoyar VV, ²Surve PR

¹Department of Zoology, L. B. D. G. College, Umri, Dist. Nanded, Maharashtra India

²Department of Zoology, A. C. S. College Gangakhed Dist. Parbhani, Maharashtra, India

Abstract

All freshwater ecosystems (lakes, rivers, ponds, streams) are home to various life forms, often collectively referred to as the food chain or food web. The numbers and variety of living organisms in a freshwater food web is dependent on the productivity of the ecosystem. This productivity depends on the availability of energy (usually solar) and raw materials (nutrients, minerals) within the ecosystem. Of course, the available energy is constantly changing with daily and seasonal cycles, and the raw materials are continuously cycling (water cycle, carbon cycle, nitrogen Cycle, phosphorus cycle) through and within the ecosystem. These fluctuations also help to determine the short-term productivity of the system. In aquatic ecosystems, as on land, the basis of life and the resulting food web is photosynthesis. The present study was carried out on kudla dam for a period of one year from Jan to Dec 2016. The samples were collected and identified using standard keys ^[1]. In the present study 7 species of copepods were found.

Keywords: zooplanktons, dam, water, quality

1. Introduction

Zooplanktons play an important role in a lake's ecosystem and food chain. Unlike algae, or phytoplankton, zooplanktons are microscopic animals that do not produce their own food. They are responsible for eating millions of little algae. Zooplankton is also a valuable food source for planktivorous fish and other organisms. The presence or absence of healthy zooplankton populations can determine some commercial fisheries success in both fresh and salt water bodies. By ensuring that the lower parts of the food chain are healthy, we can protect the higher ordered organisms, like fish, humans etc. Cyclopoida copepods are aquatic crustaceans that are very diverse and often regarded as the most numerous metazoans in the aquatic community.

2. Materials and Methods

The samples were collected from four sampling stations of the dams. The present study was conducted in Kudla dam for period of one year i.e. - from Jan 2016 to dec 2016. Planktons were collected using plankton net made up of bolting silk cloth. Filtered samples were fixed and preserved by adding 4% formalin. The zooplankton can be identified using identification keys, by taking notice of their morphological characteristics. For counting planktons a Sedgwick Raftor Plankton Counting Cell was used and Identification of planktons was done with the help of standard methods^[3-4].

3. Results and Discussion

Copepoda was the dominant group found within the study period. Copepoda as the zooplankton community occupy second position in Masundra Lake, Thane District Maharashtra ^[5]. The minimum population was recorded in the month of July and September while the maximum population was recorded in the month of January. The waters with copepoda abundance are regarded to be at a lower trophic stage than those with rotifer abundance ^[6]. Low copepod population was reported in summer season ^[7]. Present findings are consistent with this. The quantitative dominance of Copepoda is also reported ^[7]. Copepoda were present in highest diversity and density of copepoda among zooplankton in Masunda Lake, Thane, Maharashtra ^[8]. Copepoda are high in stable environmental conditions and they disappear as pollution level increased ^[9]. The seasonal variations of copepods were studied in Indian water bodies by several workers. The maximum abundance of copepods in winter season, while low density was in monsoon season ^[10]. Present observations were similar with this.

4. Zooplanktons-Copepods

Nauplius stage, Mesocyclops, Calanoid copepod, Thermocyclops, Diacyclops, Macrocyclus, Encyclopes

Table 1: Zooplanktons (copepods) during Year jan2016-dec 2016

Zooplankton	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Nauplius stage	+	-	+	+	+	+	+	+	+	+	+	-
Mesocyclops	-	+	-	-	+	+	+	+	+	+	+	+
Calanoid copepod	+	+	+	+	+	+	+	+	+	+	-	-
Thermocyclops	+	+	+	-	+	+	-	+	+	+	+	+
Diacyclops	+	+	-	-	+	-	+	+	+	+	+	-
Macrocyclus	+	-	+	-	+	+	+	+	+	+	-	+
Encyclopes	+	+	-	+	-	+	+	+	+	+	+	+

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