

Original Article

Identification of Copepoda Zooplankton in River Girna

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Manuscript ID:
IJERSD-2026-020404

ISSN: 3067-2325

Volume 2

Issue 4

Pp. 20-22

August 2026

Submitted: 08 July 2026

Revised: 19 July 2026

Accepted: 12 Aug. 2026

Published: 31 Aug. 2026

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Quick Response Code:



Web: <https://rlgjaar.com>

DOI: 10.5281/zenodo.23101178

DOI Link:
<https://doi.org/10.5281/zenodo.23101178>



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Abstract

In the present investigation zooplankton group Copepoda was studied from river Girna from North Maharashtra Region. Zooplanktons are microscopic animals floating in water bodies. Copepoda are important ant planktonic group, part of aquatic food chain. Copepods are microscopic arthropods abundantly found in all types of aquatic habitat. Copepods diversely found in various shapes and size. Total 9 genera of Copepoda were observed from river Girna. These are commonly found in all seasons. Abundance of any type of zooplanktons indicates the ecosystem is providing favorable environment to living organisms.

Key Words: Zooplankton, Copepoda, Ecosystem

Objective

To develop a low-cost AI-enabled smart farming system for rainfall risk prediction using local sensor data and online weather forecast information.

Introduction

Aquatic ecosystem is the major habitat for all kinds of aquatic animals comprising microscopic to large animals, microscopic biota found in water bodies is called planktons, two types Planktonic population found is phytoplankton and zooplanktons. These are fundamental component of aquatic ecosystem. Zooplanktons are dependent on phytoplankton for food and both are getting affected by physical surroundings. Zooplankton community are typically diverse and occur in all types of aquatic habitat as lakes, streams, ponds and river. Water quality affects the biodiversity and can be assessed by studying the plankton population. Phytoplankton and zooplanktons are playing important role in indication of pollution. Various types of studies carried out on planktonic group (Miller and Maloney, 1971). and (Gaikwad and Thorat, 2007) reported Zooplankton abundantly at Tapi and Girna river.

Zooplanktons are the floating and drifting microscopic animals found in aquatic habitat. Studies showed that zooplankton prefer low flow areas such as backwater, pools and in the benthic boundary. (Gaikwad and Thorat, 2004). The main planktonic groups found abundantly are Protozoa, Cladocera, Copepoda, Ostracod and Rotifera. Very few studies available on the plankton in Khandesh region. In the present study main focus on only Copepoda, one of the type of zooplankton. Copepoda is the prominent group of zooplankton found at all aquatic habitat. The body of the copepods ranges from 0.3mm to 3.5mm. In the ecosystem majority of the fishes feed on zooplanktons and Copepoda, serve as excellent food for zooplanktonivorous fish. The copepods are intermediate hosts of some tapeworms and nematodes such as nematode in man. The Copepods utilize varieties of food items from detritus; bacteria to a wider array of unicellular and multicellular phytoplankton.

Materials and Methods

In the present investigation river Giran was selected the and seasonal samplings was carried out. From the four sampling sites seasonal samples were collected thrice in a year as a rainy, winter and summer. For estimation of physico – chemical parameters samples were collected five litres and estimation was carried out as per guidelines (APHA, 1989, BIS, 1991, WHO, 1985) while for the study of zooplankton Copepoda, 100 litres of subsurface water was sieved through a plankton net to get 30 ml samples, these samples were preserved in 5% formalin. Slides were prepared and identification of Copepoda zooplankton done according to methods followed by Tonapy (1980) and Wetzel (1974).

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How to cite this article:

Gaikwad, S. R. (2026). Identification of Copepoda Zooplankton in River Girna. *International Journal of Engineering Research for Sustainable Development*, 2(4), 20–22.
<https://doi.org/10.5281/zenodo.23101178>

Results

Copepods found abundantly in river Girna, only few copepods were identified upto genus level, total 9 genera of Copepods were recorded at this site. List of the Copepoda found has shown in Table 1 which comprises different copepods are Nauplius, *Cyclops*, *Diaptomis* sp, *Mesocyclop*, *Rhinediaptomus*, *Spicodiaptomus*, *Limnocalanus*, *Cletocamptus* and, *Heliodiaptomus*, and figures are shown in Plate 1. Not much seasonal variation was found; these are common genera of Copepoda which is abundantly present at all seasons in river Girna.

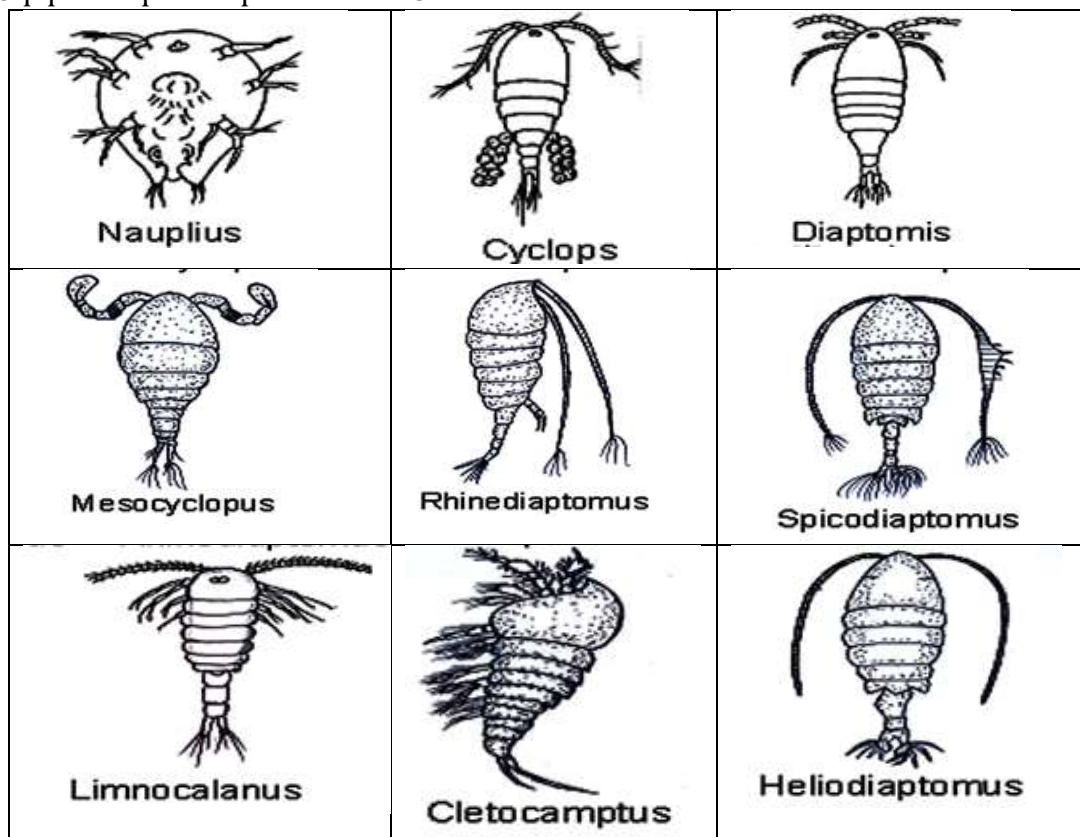
Results and Discussions

Various studies have been carried out on zooplanktons. The zooplanktonic diversity get affected by the changes in water quality in river Girna, was recorded in the lab, (Gaikwad and Thorat 2004). In our findings, 9 genus of Copepoda were recorded. Several workers reported same results. (Govind, 1969) reported four peaks of zooplankton populations in the shallow zone of Tungabhadra reservoir, out of which copepods were reported as second dominant group. Within the Copepoda, *Nauplius* larvae were observed abundantly in all the seasons (Gaikwad and Thorat, 2007) reporting the highest population of copepods in the rainy season from Tapi river, which was recorded at this site was widely found in all the seasons. The abundance of this group is found in various environmental conditions and it forms the group of zooplankton which plays a vital role in food chain. More diversity can be suggestive in different water bodies.

Table 1: Qualitative list of Copepoda zooplankton present in river Girna

Sr. No.	Copepoda Sp.
1	<i>Nauplius</i>
2	<i>Cyclops</i>
3	<i>Diaptomis</i>
4	<i>Mesocyclop</i>
5	<i>Rhinediaptomus</i>
6	<i>Spicodiaptomus</i>
7	<i>Limnocalanus</i>
8	1) <i>Cletocamptus</i>
9	<i>Heliodiaptomus</i>

Plate 1: Copepoda zooplankton present in river Girna



Acknowledgment

The author expresses sincere gratitude to the Principal, Dr. Annasaheb G. D. Bendale Mahila Mahavidyalaya, Jalgaon, for providing the necessary facilities and encouragement to carry out this research work. Heartfelt thanks are extended to the Head of the Department of Zoology for continuous guidance, valuable suggestions, and academic support throughout the study.

Financial support and sponsorship

Nil.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper

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