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DIVERSITY OF ZOOPLANKTON AT BARUL DAM, NANDED. MAHARASHTRA.

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Abstract:

Barul dam was mainly for irrigation and pisciculture. The present investigation was made to know the productivity of a reservoir in terms of biological community such as zooplanktons. This community constitute the food of most fry & adult fishes. In all 15 species of 12 genera belonging to 3 different groups were found in Barul reservoir.

Key words: Zooplankton, Diversity, Fish production, Barul reservoir.

Introduction:

Barul reservoir is medium size reservoir constructed on Manar river, near village Barul, Taluka Kandhar, District Nanded. Maharashtra State. Dam is located at alatitude 180-50'ft North and longitude 770-19'ft East. Dam is constructed under the major irrigation project by Government of Maharashtra. The water spread area of dam is 612 sq.m and the catchment area is 1560 hectare. The dam was made multipurpose use such as irrigation , agriculture, conservation of water, industrial pisciculture etc.

Zooplanktons are important component of aquatic ecosystem. They act as primary consumer. Zooplanktons feeds upon the phytoplankton which in turn forms suitable food for fish and the other aquatic animals. Zooplanktons are delectable food item. It is observed that zooplankton constitute main food of fry & adult fish. Like other biotic components the diversity and population dynamics of zooplanktons is influenced by various factors like physic-chemical envoirnment, tropical status, pollution influence and all types of interaction among biotic communities.

Material and Methods:

Planktonic samples were collected using plankton net of mesh size 30mm from 4 different places of the reservoir every month for 2 years. Samples were preserved in 100ml capacity plastic bottles in 5% formalin. Preserved samples were brought to the lab and studied using phase contrast microscopeic photography with computer aided techniques. Zooplanktons were identified using the methods described by Sehgal(1983), Battish (1992) , Dhanapathi (2000) and Tonapi (1980).

Table No. 01: Monthly Frequency occurrence of Zooplankton for the year 2004 in Barul Reservoir Nanded (M.S)

Months Planktons	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Occurrence	Annual Percentage of occurrence	Category
A.Rotifera															
Brachionus Species	+	+	+	+	+	+	+	+	+	+	+	+	12	100	D
Keratella Species	-	+	-	-	-	-	+	-	+	+	+	+	06	50	C
Filinia Species	-	-	+	-	-	-	-	-	+	+	+	+	05	41	C
B.Cladocera															
Chydorus Species	+	+	+	-	-	+	+	-	-	-	+	+	07	58.33	D
Daphnia Species	-	+	+	-	-	-	-	+	+	+	+	-	06	50	C
Bosmina Species	-	-	-	+	-	-	-	+	+	+	+	+	05	41.66	C
Moina Species	+	+	+	-	-	-	-	-	+	+	-	-	05	41.66	C
C. Copepoda															
Mesocyclop species	+	+	+	+	-	-	-	-	-	+	+	+	07	58.3	D
Spicodiaptomus	+	+	-	-	-	-	-	-	-	+	+	+	05	41.66	C
Cyclops															

D: (Dominent) = 60 - 100% ; C(Common) = 25 - 59% ; R (Rare) = below 25%

Table No. 02 : Monthly Frequency occurrence of Zooplankton for the year 2005 in Barul Reservoir Nanded (M.S)

Months Planktons	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total Occurrence	Annual Percentage of occurrence	Category
A.Rotifera															
Brachionus Species	+	+	+	+	+	+	+	+	+	+	+	+	12	100	D
Keratella Species	+	+	+	+	-	-	-	-	-	+	+	+	07	58.33	C
Filinia Species	-	-	+	+	+	-	-	-	-	-	+	+	05	41.66	C
B.Cladocera															
Chydorus Species	+	+	+	+	+	+	+	+	+	+	+	+	12	100	D
Daphnia Species	+	-	+	+	-	-	+	+	+	+	+	08	66.6	D
Bosmina Species	+	+	+	-	-	-	+	+	+	-	+	07	58.33	C
Moina Species	-	+	+	-	-	-	-	+	+	+	+	+	07	58.33	C
C. Copepoda															
Mesocyclop species	-	-	+	+	+	+	+	+	+	+	+	+	10	83.33	D
Spicodiaptomus	-	-	-	+	-	+	-	+	+	+	+	+	07	58.33	C
Cyclops															

D: (Dominent) = 60 - 100% ; C(Common) = 25 - 59% ; R (Rare) = below 25%

Result and Discussion:

In all 15 species of zooplanktons were identified at Barul reservoir. These 15 species belongs to various class such as Rotifera , Cladoceran and Copepods.

Monthly data of 2 years reveal that there was some pattern of occurrence at all 4 stations throughout the year.

Among Rotifera, species such as Brachionus, Keatella and Filinia were occurred in all 24 samples. Accounting 100% of occurrence in 2 years of study period.(table 1 & 2) In both years of study, Brachionus species were recorded as dominant. B.falcatus, B.calyciforus, Plationus patulus, Keatella edmondsoni and Filinia longiseta etc were found in the reservoir.

Maximum density of rotifer is recorded during post monsoon months and minimum during rainy season. Same observation was made by Uma Sharma.

Among Cladocerans, Chydorous, Daphnia,Bosmina and Moina were observed in almost 19 samples out of 24 samples. Accounting 60 – 100% of occurrence during study period. Chydorous were dominant followed by Daphnia. Sugnan and Yadava(1992). Cladocerans include species as C.latus, C. ovalis, C.sphricus, Alona quadrangularis, Cereo daphnia, Cornuta, daphnia pulex, Bosminopsis, longirostris and monia were recorded in reservoir.

Maximum population of Cladocera recorded in post monsoon period and minimum in the pre monsoon period.

Among Copepods Cyclops, Mesocyclops and Spicodiatomus were recorded in 12 collections out of 24 samples. Accounting 59%-83% during study period. Copepods were represented by Mesocyclops halinus, Spicodiatomus chilospinus and cyclop.

Maximum density of copepods were recorded during post monsoon and minimum in pre monsoon.

Conclusion:

During the study period of two years it is observed that Cladocerans were dominant followed by Rotifers and Copepods. From this observation it can be concluded that the reservoir is rich in providing nutrient food for both young and adult fish. The significance of Cladoceran in aquatic food chain as food for fish is emphasized much earlier by Pennak (1978), Sharma (1991).

The maximum population of Rotifers indicates that the reservoir is also rich in (food of Rotifers) phytoplankton, detritus element and bacteria & few raptorial predators. Rotifers again constitute nutritious food item to fish.

Hence it can be concluded that the reservoir provides the suitable conditions and enhance the growth of zooplanktons and zooplanktons constituting the nutritious food for fish.

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