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Seasonal Ichthyological Diversity in the Bembla Reservoir of Yavatmal District, Maharashtra.

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Abstract

Bembala is a freshwater reservoir (dam) constructed in Godavari basin, across river Bembala near Khadak - Sawanga in Babhulgaon Taluka of Yavatmal District Maharashtra state. It is 29 km away from Yavatmal, and is situated at longitude $78^0$13' and latitude $20^0$59'. Diversity of fish fauna has been studied from the period June, 2021 to September, 2021. Primary investigation reports reveal that the ichthyofauna belong to 06 order and 7 families. Total 10 species were observed from which 2 species belong to order Siluriformes, 4-Cypriniformes, 1 - Anabantiformes, 1 - Anguliniformes, 1 and 1- Osteoglossiformes . Among these, Cypriniformes order is dominant. study was carried out for lilmted period still the search is continue and hope in future the diversity number will goes on increasing. in coming days we are mainly focus on other seasonal variation relation to diversity, infection and the most important thing in their nutritive count.

Keywords: Fish Diversity, Fresh Water, Bembala, Yavatmal, Maharashtra.

Introduction:

India is one of the mega biodiversity countries in the world and occupying ninth position in terms of freshwater biodiversity. There are about 450 families of freshwater fishes globally. Roughly 40 are represented in India (warm freshwater). The aquatic ecosystem is important and it has large number of economically important animals. (Thakare, JUNE 2016). Fishes plays an important role in fighting hunger and malnutrition. Fish is not only a source of high-quality proteins and healthy fats but also a unique source of essential nutrients, fatty acids, minerals, vitamins etc.

Fishes are cultured because of its high nutritious values and huge demand in the markets. Fish culture gives better income to human population. Central and state government gives subsidy for fish farming which reduces the investment cost. It acts as side income for farmers besides other farming and cultivation. Generally major carps (Rohu, Catala, Mrigal, Tilapia), prawns etc are cultured as they are economically important.

At state level Maharashtra is rich in freshwater reservoirs and its fish diversity. Therefore, Maharashtra is one of the important states for fish (Kamdi, 2018) Maharashtra water harbour about 289 species of freshwater fishes with 194 species of primary freshwater fishes and 95 species of diadromous fishes. Out of 289 fishes, 96 species are recorded as cultivable freshwater fishes, which constitute 44.4 % to the total freshwater fish diversity of Maharashtra.73 freshwater fish species are endemic to Maharashtra. (M P Bhendarkar*, 2020) Diversity of fish has been observed in various reservoirs in Yavatmal district of Maharashtra. Such as Isapur dam from Pusad, Arunavati reservoir of Digras, Saikheda Dam of Kelapur, Nwargaon Lake of Maregaon, etc.

In Yavatmal district Bembala reservior, still there is no study found on fish diversity. Therefore, the present investigation was undertaken to study fish diversity in Bembala reservoir in the months of June 2021 to September 2021. The objective of the study was to assess the fish diversity during this period along with which fish species majorly found. From this we can study which fish species play an important role in economies of pisciculture in Yavatmal district and adjoining areas.

Materials and Methods:

The present study is carried out during monsoon in the month of June to September in the year. Four sampling spots (collecting centres) were selected mainly viz. (Pahur, Khadaksawanga, Kolhi, Panas). Thrice in a week the collecting centres were visited to study fish diversity during morning hours from 8 am to 11am generally.

Fishes were collected personally and with the help of local fishermen from the Bembala Reservior from different collecting centres mentioned above. To take photographs, Nikon Cooplix P520 Point and Shoot Camera was used. Then the fishes were transferred to an ice box for further identification in the laboratory at the research centre. The fishes were identified and scientifically classified at five levels i.e.Phylum, Class, Order, Family, to Species level by referring to standard literature of Talwar and Jhingran (1991), fish base database and Google like identification keys etc.

Result and Discussion:

The Bembala reservoir is 29 km away from Yavatmal district and spread widely, 7650 metres long and 29.15 metres high with a capacity of 322,068,000 cubic metres, over Bembala river at Khadak-sawanga. In the present investigation, 10 species of fishes belonging to 6 different orders and 7 families were observed. Out of 6 orders the Cypriniformes was observed dominant. At Bembala reservoir during multiple visits found that major carps Cirrhinusmrigala, Labeorohita, Catalacatala and other fish like Tilapia were found dominant. Generally, 90 to 100 fishes were collected and observed during every visit from different collecting centres (Pahur, Khadaksawanga, Kolhi, Panas) with the help of fishermen. When percentage count of every observed fish during every catch from collected fishes was roughly calculated, then it is observed that 48% to 50% were Tilapia, 18% to 20% were Labeorohita, 9% to12% were Cirrhinusmrigala ,10% to14% were Catalacatala and 7% to 10% were other fishes generally.

Major carps were dominating due to regular seed stocking and the similar results were also obtained by Kamble and Mudkhede in Loni reservoir of Maharashtra. The other fish groups which increase the species diversity of the reservoir are Potis, Bhadar, Tilapi, Singat, Murrel, Silver carp, Eel (Vam), Padin. The major carps, Murrel, Silver carp, Eel etc. have great food value. Out of 10 species 7 are commercially important and according to reservoir lease about 90% of its catches are directly marketed in distant markets.

Figure 1. Percentage Count of Fish Species at Bembala Reservoir

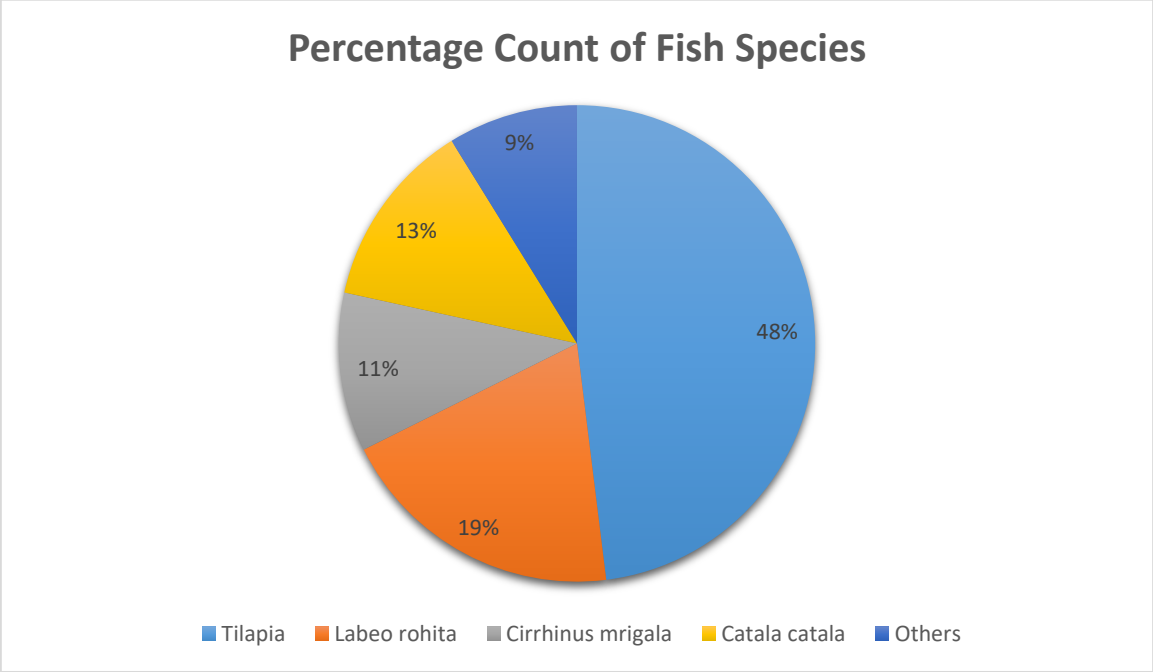

Table 1. Species composition at BembalaReservior Yavatmal with their scientific classification

S.N.	Scientific Name	Class	Order	Family	Local Name
1	*Catla catla*	Actinopterygii	Cypriniformes	Cyprinidae	Catla
2	*Labeo rohita*	Actinopterygii	Cypriniformes	Cyprinidae	Rohu
3	*Cirrhinus mrigala*	Actinopterygii	Cypriniformes	Cyprinidae	Mrigal
4	*Channa striata.*	Actinopterygii	Anabantiformes	Channidae	Murrel
5	*A.bengalensis*	Actinopterygii	Angulliformes	Angullidae	Eel (Vam)
6	Tilapia	Actinopterygii	Cichliformes	Cichlidae	Tilapi
7	N.notopterus	Osteichthyes	Osteoglossiformes	Notopteridae	Bhadar
8	S.seenghala	Actinopterygii	Siluriformes	Bagridae	Singat
9	P. sarana	Actinopterygii	Cypriniformes	Cyprinidae	Potis
10	W.attu	Actinopterygii	Siluriformes	Siluridae	Padin

Bembala reservoir comes under large reservoir category and is major irrigation project and the species diversity in reservoir is good like other reservoirs, Nath Sagar Dam, Maharashtra. 43 fish species reported by Hiware and Pawar, Govindsagar reservoir, Himachal Pradesh 51 fish species reported by Kumar13, Rawanwadi Lake, Maharashtra 29 fish species reported by Kalbande*et al.*15, Rana Pratap Sagar Lake, Rajasthan 39 fish species reported by Verma *et al.*16, Gandhi Sagar Reservoir, Madhya Pradesh 72 species of fishes belonging to 9 orders, 20 families and 43 genera reported by Ridhi17 etc.

The 2 species belonging to orderSiluriformes ,4 species belonging to order Cypriniformes, 1 species belonging to order Anabantiformes, 1 species belonging to order Anguliniformes, 1 species belonging to order Cichliformes and 1 species belonging to Osteoglossiformes are observed during investigation process.Amongthese Cypriniformes order is observed to be dominant.

Figure 2. Catla catla

Figure 3. Labeorohita

Figure 4. Cirrhinusmrigala

Figure 5. Channa spp.

Figure 6. A. bengalensis

Figure 7. Tilapia

Figure 8. N. notopterus

Figure 9. S. seenghala

Figure 10. P sarana

Figure 11. W. attu

Conclusion:

The Bembala reservoir exhibits a good ichthyofaunal diversity represented by 10 species of fishes belonging to, 7 families and 6 orders. The diversity and abundance of fishes in Bembala reservoir represents the suitability of water of Bembala reservoir for aquaculture practices. To maintain the richness of aquatic ecosystems continuous monitoring of reservoirs is needed.

The present study states that the Bembala reservoir hosts a number of freshwater fish species. But the fish fauna of this lake is being threatened due to several anthropogenic activities including introduction of exotic fish species, habitat degradation, pollution, irrational fishing as there is extraction of fishes occurring from different 8 collecting centres. From 4 main collecting centres Pahur, Khadak-sawanga, Kolhi and Panas the fishes are extracted in huge amounts in tons.

To conserve this inherent treasure of Bembala reservoir strict management measures with large public awareness would be essential to save the fish germplasm and it is time to make proper policies and take necessary actions to improve conservation measures so that the future generations get the fish live on the earth rather than the photographs in the literature. This study would serve as a frame of reference for future initiatives in studying fish biodiversity and conservation management.

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