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Qualitative analysis of Cyprinidae fisheries of Govindgarh reservoir of Madhya Pradesh

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Abstract
Although ichthyofaunas of a reservoir basically represent the fauna of the parent river system, fish species diversity usually suffers a setback on impoundment. Indian reservoirs, however, preserve a relatively rich variety of fish species. Indian major carps occupy a prominent place among the commercially important fishes. More recently, numbers of exotic species have contributed substantially to commercial fisheries. However, the information of fish diversity of Govindgarh reservoir of Madhya Pradehs is scarce, and as the Cyprinidae family consists of the very important commercial fishes of the reservoirs of India. This paper focus on the qualitative analysis of Cyprinidae fisheries of Govindgarh reservoir of Madhya Pradesh and represents the data as recorded during the study period so that readily available fisheries data should be made available for further research and improvement of the reservoir. For this, sampling were done early in the morning on fortnight basis by local fishing methods and examined for color pattern and preserved in 5-10% formaldehyde solution for further study in the lab. The fish catch statistics of Govindgarh reservoir during the study period revealed sharp fluctuations in yield rates, and varied from 0.4 to 26.4 kg ha^{-1} at an average of 15.92kg ha^{-1}. Indian major carps, *Catla catla, Labeo rohita, Cirrhinus mrigala* constitute 80% of the catch during the study period. Carps, especially catla, register impressive growth, specimens weighing 13 kg being a very common size in the reservoir. Average sizes of rohu and mrigal in the catch are 3.5 and 5.5 kg respectively. There were 14 species of 14 genus from the Cyprinidae were recorded during the study period, which were dominant of the total catch per effort.

Keywords: Ichthyofauna, diversity, reservoir, Cyprinidae, catch statistics

Introduction
A large number of reservoirs have been constructed in India during the last few decades, with the primary objective of storing river water for irrigation and power generation. Although these water bodies hold tremendous fisheries development potential, they are not contributing to the inland fish production of the country to the extent they should. A reservoir is an impoundment obstructing the surface flow of a river, stream or any water course (Sugunan 1980) [1].

Govindgarh is one of the oldest reservoirs of Madhya Pradesh, construction of which was started in 1856 and completed in 1916. It is a typical small irrigation reservoir of the State, created by blocking the small streams in the upper catchment of a tributary of the Ganga river system called the river Bichia. This is the type of water body, usually designated as *tank* in South India. The 307 ha Govindgarh reservoir has a small local catchment of 25.12 km^3 from the adjoining hills of Kaimur ranges, receiving 111 cm yr^{-1} of rain. It is situated 22 km south of Rewa on Rewa shahdol highway (National highway –7), (geographical ordinates, 24° 23' -24° 38' N and 81°18' - 81°3'E), the reservoir has a live storage capacity of 8.69 million m^3.

Although ichthyofaunas of a reservoir basically represent the fauna of the parent river system, fish species diversity usually suffers a setback on impoundment. Indian reservoirs, however, preserve a relatively rich variety of fish species. Indian major carps occupy a prominent place among the commercially important fishes. More recently, numbers of exotic species have contributed substantially to commercial fisheries. Ramanujan (2005) [2] and several other researchers worked on the ichthyofaunal diversity of different water bodies of India. However, the information of fish diversity of Govindgarh reservoir of Madhya Pradesh is scarce, and as the Cyprinidae family consists of the very important commercial fishes of the reservoirs of India. Therefore, this paper focus on the qualitative analysis of Cyprinidae fisheries of Govindgarh reservoir of Madhya Pradesh and represents the data as recorded during the study period.

Materials and Methods

Govindgarh is a town and a nagar panchayat in the district Rewa (M.P). The reservoir Govindgarh was constructed by Maharaaja Raghuraj Pratap Singh and Maharaaja Gulab Singh.

Five sampling sites were decided on the basic of maximum probability of catch per effort viz.:

Site 1. 50 meter far from the shore of the reservoir near Anandgarh village. Maximum depth of this site was 15 feet.

Site 2- 50 meter far from the shore of the reservoir near Amingarh village. Maximum depth of this site was 18-20 feet.

Site 3 - 50 meter far from the shore of the reservoir near Govindgarh village. Maximum depth of this site was 25 feet.

Site 4 - 50 meter far from the shore of the reservoir near Southern side of the reservoir. Maximum depth of this site was 35 feet.

Site 5 – Center of the reservoir. The Maximum depth of this site was 65 feet.

Sampling were done early in the morning on fortnight basis. The fishes for the present studies were collected by local fishing methods used by the local fishermen .After collection, different fish species were examined for color pattern and preserved in 5-10% formaldehyde solution according to their size with small abdominal incision. The fishery were studied and identified with the help of standard keys as proposed by various authors (Mishra 1959[4]; Jayaram 1987[5] and Talwar and Jhingran (1991) [6].

Results & Discussion

The fish catch statistics of Govindgarh reservoir during the study period revealed sharp fluctuations in yield rates, and varied from 0.4 to 26.4 kg ha^{-1} at an average of 15.92kg ha^{-1}. Indian major carps, *Catla catla, Labeo rohita, Cirrhinus mrigala* constitute 80% of the catch during the study period with similarity of the study made by Mathew, 1975[3]. It is not known whether Indian major carps constitute a part of the indigenous ichthyofauna of the reservoir by virtue of its connection with Ganga river system, since they are also stocked regularly. They are reported to be breeding in the reservoir. Carps, especially catla, register impressive growth, specimens weighing 13 kg being a very common size in the reservoir. Average sizes of rohu and mrigal in the catch are 3.5 and 5.5 kg respectively. Fishes of the Cyprinidae family as recorded during the study period are tabulated below in the Table 1.

Table 1: Fishes of the Cyprinidae family recorded from Govindgarh reservoir of Madhya Pradesh

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Hypopthalamichthys*	*molitrix*
		Ctenopharyngodon	*idella*
		Chela	*laubuca*
		Rasbora	*daniconius*
		Rasbora	*rosbora*
		Puntius	*sarana sarana*
		Puntius	*sophore*
		Puntius	*ticto*
		Catla	*catla*
		Cirrhinus	*mrigala*
		Labeo	*rohita*
		Labeo	*calbasu*
		Garra	*gotyla gotyla*
		Garra	*lamta*

There were 14 species of 14 genus from the Cyprinidae were recorded during the study period, which were dominant of the total catch per effort.

Conclusion

Although ichthyofaunas of a reservoir basically represent the fauna of the parent river system, fish species diversity usually suffers a setback on impoundment. Indian reservoirs, however, preserve a relatively rich variety of fish species. Indian major carps occupy a prominent place among the commercially important fishes. More recently, numbers of exotic species have contributed substantially to commercial fisheries. However, the information of fish diversity of Govindgarh reservoir of Madhya Pradesh is scarce, and as the Cyprinidae family consists of the very important commercial fishes of the reservoirs of India. This paper focus on the qualitative analysis of Cyprinidae fisheries of Govindgarh reservoir of Madhya Pradesh and represents the data as recorded during the study period so that readily available fisheries data should be made available for further research and improvement of the reservoir. For this, sampling were done early in the morning on fortnight basis by local fishing methods and examined for color pattern and preserved in 5-10% formaldehyde solution for further study in the lab. The fish catch statistics of Govindgarh reservoir during the study period revealed sharp fluctuations in yield rates, and varied from 0.4 to 26.4 kg ha^{-1} at an average of 15.92kg ha^{-1}. Indian major carps, *Catla catla, Labeo rohita, Cirrhinus mrigala* constitute 80% of the catch during the study period. Carps, especially catla, register impressive growth, specimens weighing 13 kg being a very common size in the reservoir. Average sizes of rohu and mrigal in the catch are 3.5 and 5.5 kg respectively. There were 14 species of 14 genus from the Cyprinidae were recorded during the study period, which were dominant of the total catch per effort.

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References

1. Sugunan VV. Seasonal fluctuations of plankton of Nagarjunasagar reservoir, A. P., India, J Inland Fish. Soc. India, 1980; 12(1):79-91.
2. Ramanujam SN. Biodiversity of aquatic fauna of Mizoram the present scenario. Aquatic Biodiversity in India; Daya publishing house, New Delhi, 2005, 61-80.
3. Mathew PM. Limnology and productivity of Govindgarh

Lake, Rewa, Madhya Pradesh. J Inland Fish. Soc. India. 1975; **7**:16-24.
4. Mishra KS. An aid to the identification of common commercial fishes of India and Pakistan, Rec. Indian mus. 1959; 57(1, 4):1-320
5. Jayaram KC. The fresh water fishes of India, Pakishtan, Bangladesh, Burma and Sri Lanka zoological survey of India, Colcutta, 1987, 480.
6. Talwar PK, Jhingron AG. Inland fishes of India and adjacent contries. oxford and IBH Pub. Co. Pvt. Ltd. New Delhi, 1991, 1-2.