ICHTHYOFAUNAL DIVERSITY OF GANGULPARA DAM OF BALAGHAT (M.P.)

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ABSTRACT: The present study is aimed to investigate fish fauna of the Gangulpara dam Balaghat. There are several types of fresh water fishes present in the dam. In the present ichthyofaunal study, a total of 19 species of fishes were recorded from 9 families, and 6 order were recorded during Jan., 2018 to Dec., 2018 from the Gangulpara dam at Balaghat of Madhya Pradesh. Among them, Cyprinidae was the most dominant with 09 (47.37%), Bagridae 2 (10.53%), Channidae 1(5.26%), Siluridae 1 (5.26%), Nandidae 1 (5.26%), Clariidae 1 (5.26%), Heteropneustidae 1(5.26%), respectively. Cyprinidae was the most dominant species on sampling site of Gangulpara dam. There is rich fish diversity in Balaghat region of Madhya Pradesh. Fishes maintain aquatic ecosystem hence there is need for conservation strategies.

KEYWORDS:-Ichthyofaunal, Richness, Cypriniformes, Gangulpara dam.

INTRODUCTION:-
Fish enjoys very important consideration and role in human civilization from ancient periods immemorial. Fish food materials, gastronomic, culinary and nutritional value. Fish food product beneficial, for gastronomic, kitchen and nutritional value, bring it to the fore; most species of fish rank in the category of "gourmet par excellence". Several others are sought as Luxurious food in expensive restaurants. The one general goal of these all is "the fish as food materials for the human being."

The word fish is concerned to a heterogeneous gathering of aquatic chordates animals comprised of hagfish and lampreys, sharks, rays and chimaeras, and the finned bony fishes. The latter is by far the main diverse group and is well shown in fresh water system, while the others are prevalently marine gatherings. Freshwater fishes have a tendency to be more-or-less confined drainage system, provide relatively a conservative system for examining patterns of distribution that may reflect the imprint of past continental and climate changes. The main role of fish in river food chain and food webs has been hotly debated.

Economically fishes are very important used as food. For successful fish forming in dams and reservoirs, it is essential to make a detailed hydrological study of the water body. Suitable species that are stocked in dams are the major carps. These are capable of adjusting successfully to ecological condition of the reservoir. The exotic carps also Thrives in manmade lakes or dam are suitable species for culture.

Distribution of Icthyofaunal diversity in the ecosystem, their composition and seasonal variation are essential prerequisite for any successful resources management. Species diversity is a property of the population level while the functional diversity concept is more strongly related to ecosystem stability and stresses, physical and chemical factors for determining population dynamic in the lentic ecosystem (Kar and Barbhuiya, 2004). Fishes have a range of physiological tolerances that are dependent upon which species they belong to. They have different lethal temperature, dissolved oxygen requirements and spawning needs that are based on their activity levels and behaviors. Because fishes are highly mobile, they are able to deal with unsuitable abiotic factors in one zone by simply moving to another. Fishes exhibit enormous diversity in their morphology, in the habitats they occupy and in their biology. Unlike the other commonly recognized vertebrates, fishes are heterogeneous assemblage (Forese and Pauly, 1998). They can be used for ecological assessment (Harris, 1995). Besides, they are considered as important protein rich food source. Therefore, it is need of the hour to study fish diversity in order to conserve water bodies and

increase our national economy by culturing them on scientific basis.

Many workers have studied Taxonomy, Biodiversity and Distribution of fishes found in freshwater bodies of various parts of India. David (1963) recorded fish fauna of Godavari and Krishna river. Very less information is available about ichthyofuana, present in lotic and lentic habitats of this tribal district Balaghat.

A large number of dams and reservoir are constructing during the recent year to provide water for irrigation and power production. These bodies of water offer immense scope for fish culture for successful fish farming in dam and reservoir. Gangulpara dam reservoir is very productive more work has been carried out of fish fauna. The distribution of fish species is quite variable because of geographical and geological condition.

Hence the present work is an attempt to accumulate information pertaining to various aspect of fish diversity of standing water bodies from this part of peninsular India. The present investigation has been carried out on Gangulpara dam is located in the Balaghat district of the central Indian state of Madhya Pradesh. It is at a distance of 14 kilometers away from Balaghat. It is a part of Godavari basin and was completed as reservoir in the year 1960. It is situated 21°53'00" longitude and 80°17'00" latitude. The height of dam is 19.51 m and length 3009m. The catchment area is 28.5 sq.km. The water of this dam is used for irrigation and fish culture. It is a marvelous mixture of natural beauty and splendor, feasting the eyes of the onlooker! An ideal picnic spot for the locals, it is frequently visited by them for their weekend getaways. Nature lovers appreciate this water body, which also serves as a storage tank for the waters of Ghysri Nala. This water reserve fulfills the irrigation needs of the farmers of the local village nearby, Tekadi.

MATERIAL AND METHODS:-
Different kind of fishes were collected from the selected sites with the help of fisherman of the work on the dam by using different types of craft, gears and nets and after noting down color and other external feature were preserved in 4% formalin, seasonal collection were made from January 2018 December 2018. Standard identification key were used for identification of specimen up to species level, using standard key and literature (Day Francis. 1971; Agarwal SC. 1994 and Jhingran VG 1982). The classifications of fishes on economic importance were done by following the proforma given by Jhingran, VG (1982) and Lagler, KF (1956).

RESULTS AND DISCUSSION:-
Gangulpara dam at Balaghat provides a habitat for fresh water fishes of diverse type. During the present investigation 19 fish species were recorded as *Notopterus notopteru, Nandus nandus, Catla catla, Cirrhinus mrigala, C. reba, Cyprinus carpio, Labeo. Rohita, L. calbasu, L. bata, Puntius ticto, Puntius amphibious, Mastacembus armatus, Channa marulius, Anabas testudineus, Mystus. Vitatus, Mystus seenghala, Clarias batrachus, Heteropnees fossillis, Wallago attu etc*. The classification and systematic position of fish fauna is given below in Table 1.

Among them, Cyprinidae was the most dominant with 09 (47.37%), Bagridae 2 (10.53%), Channidae 1 (5.26%), Siluridae 1 (5.26%), Nandidae 1 (5.26%), Clariidae 1 (5.26%), Heteropneustidae 1 (5.26%), respectively. Cyprinidae was the most dominant species on sampling site of Gangulpara dam.

The work will provide future strategies for development and fish fauna conservation Gangulpara dam. To maintain Fish diversity has immense importance as it is not always possible to identify individual species critical to sustain aquatic ecosystem.
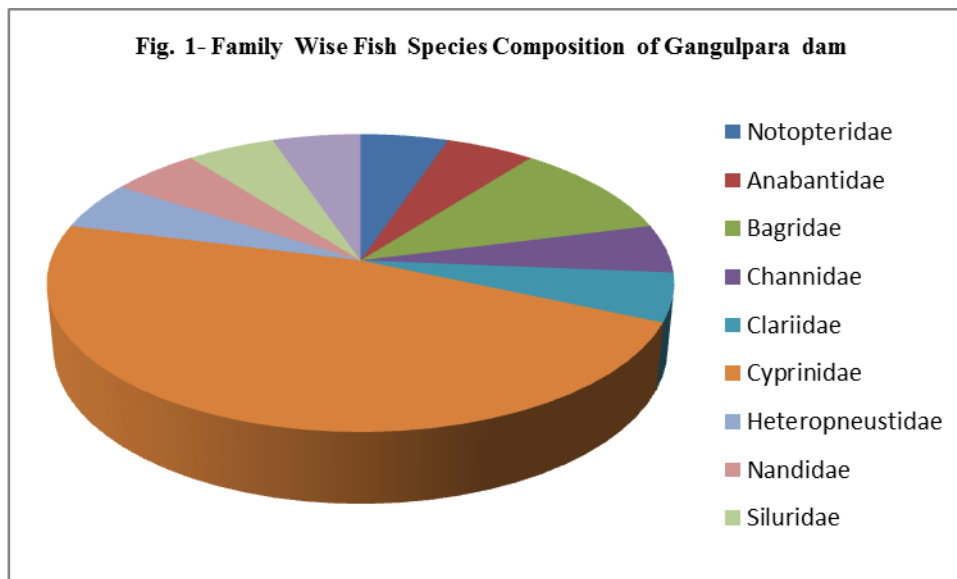
Table 1: Systematic Position of Fish Fauna of Gangulpara dam reservoir at Balaghat of Madhya Pradesh

Order	Family	Genus Species	Local name	IUCN Category	
				CAMP (1998)	CAMP (1998)
Osteoglosmes	Notopteridae	*Notopterus notopterus*	Patola	LR-nt	EN
Perciforme	Nandidae	*Nandus nandus*	Dhebari	LR-nt	LR-nt
Cypriniformes	Cyprinidae	*Catla catla*	Catla	VU	LR-nt
		Cirrhinus mrigala	Mrigal	LR-nt	LR-nt
		C. reba	Naren	VU	VU
		Cyprinus carpio	Common carp	LR-nt	LR -lc
		Labeo. rohita	Rohu	LR-nt	LR-nt
		L. calbasu	Kriya	LR-nt	LR-nt
		L. bata	*Bata*	LR-nt	LR-nt
		Puntius ticto	Khadia	NE	DD
		Puntius amphibious	*Khadia*	NE	DD
Synbranrmes	Mastacemdae	*Mastacembus armatus*	Baam	NE	VU
Peraciformes	Channidae	*Channa marulius*	Padam Sauri	LR-nt	VU
	Anabantidae	*Anabas testudineus*	Kabai	LR-nt	LR-nt
Siluriformes	Bagridae	*Mystus. Vitatus*	Katuwa	VU	VU
		Mystus seenghala	Tengara	NE	LR-nt
	Clariidae	*Clarias batrachus*	Mangur	VU	VU
	Heteropnidae	*Heteropnees fossillis*	Singhi	VU	VU
	Siluridae	*Wallago attu*	Padin	LR-nt	LR-nt

EN=Endangered, Vu (Vulnerable), LR-nt= Lower risk near threatened, LR-lc (Lower risk least concern), NE (Not evaluate), DD (Data deficient), *Exotic fish.

Table: 2. Overall Family Wise Fish Species Composition of Gangulpara dam reservoir at Balaghat of Madhya Pradesh

S. No.	Fish Family	No of species	Percentage
1	Notopteridae	01	05.26
2	Anabantidae	01	05.26
3	Bagridae	02	10.53
4	Channidae	01	05.26
5	Clariidae	01	05.26
6	Cyprinidae	09	47.37
7	Heteropneustidae	01	05.26
8	Nandidae	01	05.26
9	Siluridae	01	05.26
10	Mastacemdae	01	05.26
10	**Total**	**19**	**100**

Fig. 1- Family Wise Fish Species Composition of Gangulpara dam

Legend:
- Notopteridae
- Anabantidae
- Bagridae
- Channidae
- Clariidae
- Cyprinidae
- Heteropneustidae
- Nandidae
- Siluridae

CONCLUSION:-

Productivity of reservoir is depending on physicochemical parameters & biological aspect. Maintain socio-economic condition and Management of reservoir etc. Fishes maintain aquatic ecosystem hence there is need for conservation strategies. Over fishing and immature fishing are main causes of loss of many fish species. Seasonal fluctuation, anthropogenic activities, climate change (extreme heat and cold), invasion of exotic species, dry drought, and water pollution are some causes for complete and partial loss of many fresh water fishes. Many fish species are already become extinct while some of them are endangered. To maintain fish diversity in Balaghat region there is need for conservation. Total number of fresh water fish species recorded during the present study indicates rich fish diversity in Gangulpara dam Balaghat.

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