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Research Article

BIODIVERSITY OF FISHES OF NANDURMADHAMESHWAR DAM, DISTRICT NASHIK (M.S.), INDIA

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ABSTRACT

Fish biodiversity studies were undertaken during June 2015 to May 2017 to census and commercially important fishes in Godavari River at Nandurmadhameshwar Dam, in district Nashik, Maharashtra, India. The results of present investigation reveal the occurrence of 24 fish species belonging to 7 orders, 12 families and 21 genera. The order Cypriniforms was dominant followed by order Siluriformes; order Channiformes and order Perciformes; order Clupeiformes, order Mugiliformis and order Synnbranchiformes. This reservoir is rich in fish biodiversity; inhabited by economically important and cultivable fishes as well as the ornamental fishes.

INTRODUCTION

Biodiversity means the variability among the living organisms from all source including terrestrial, marine and other aquatic ecosystem and ecological complex of which they are part [1]. India is one of the mega biodiversity countries in the world and occupying ninth position in terms of freshwater biodiversity [2]. Fishes are the most important group of vertebrates. They live in all conceivable aquatic habitats. Near about 21,723 living species of fish have been recorded out of 39,900 species of vertebrates. In which 8,411 are fresh water species and 11,650 are marine [3]. The fishes are important item in the diet of many people [4]. Freshwater fishes comprise almost 45% of all fishes. An estimated 15,000 fish is depends on freshwater habitats [5]. Freshwater fishes are the poorly studied group since information available is from a few well studied locations only [6].

The Nandurmadhmewashwar dam is constructed on the river Godavari, 35 Km away from Nashik city. An ancient temple – Madhmeshwar is situated on the bank of Godavari River below the dam and hence the name Nandurmadhmeshwar dam is given. The Nandurmadhmeshwar dam is situated 20° 01′ North latitude and 74° 07′ East longitude. It has an area of 4219 sq. km. (1648 sq. miles). The people of Nashik and Ahmednagar district in the past were facing continuous scarcity of water to overcome this situation the British government has constructed the Nandurmadhmeshwar dam a confluence of river Godavari. The construction of the project was started in 1907 and completed in 1913. Now a day it is also used for fishing purpose.

No Proper inventories, documentation and monitoring of fish diversity of Godavari River has been done till date. Therefore, present investigation was carried out to study the fish biodiversity from Godavari River at Nandurmadhmeshwar dam and a tool for conservation planning of aquatic ecosystem in this region.

MATERIALS AND METHODS

Fishes were collected from the local fisherman for every month of two consecutive years June 2015 to May 2017. Different types of fishing gear like Gill nets, Cast nets, Drag nets, Wadap nets and fishing crafts like thermocol rafts and small boats or tyre wheel tubes were used by fisherman for catching the fishes. Initially fishes were identified by local name and common name given by the local fisherman. Photographs of the fishes were taken by using NICON DAT camera on spot.
Fishes are brought to laboratory and preserved in 4% formaldehyde solution in separate specimen jars according to

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the size of species. Small fishes were placed in the 4% formaldehyde solution. While large fishes were giving an incision in their abdomen and preserved. The meristic and morphometric characters were measured and identified up to the species level, with the help of standard keys and books [7].

RESULTS AND DISCUSSION

During the study period different fish varieties can be observed in the Nandurmadhmeshwar dam. The result can be seen the area is rich in fish diversity. In the present study, 24 fish species were recorded. Among 24 fish species 21 genera and 12 families were grouped under 7 orders (Table-1).

Table 1 Fish diversity of Nandurmadhameshwar Dam

Order	Family	Genus and Species
Clupeiformes	Notopteridae	*Notopterus notopterus*
Cypriniformes	Balitoridae	*Nemacheilus moreh*
	Cyprinidae	*Labeo rohita*
		Labeo boggut
		Cyprinus carpio
		Rasbora daniconias
		Puntius stigma
		Puntius sarana sarana
		Cirrhinus mirgala
		Garra mullya
		Catla catla
Siluriformes	Bagridae	*Mystus aor*
		Rita rita
	Siluridae	*Wallago attu*
		Ompak bimaculatus
	Heteropneustidae	*Heteropneusters fossilis*
Mugiliformis	Mugilidae	*Rhinomugil carsula*
Synnbranchiformes	Mastacembelus	*Mastacembelus armatus*
Channiformes	Channidae	*Clarius batrachus*
		Channa gachua
		Channa punctatus
Perciformes	Cichlidae	*Oriochromis mossambicus*
	Gobidae	*Glossogobius giuris giuris*
	Belonidae	*Xenetodon cancilla*

The only species recorded namely *Notopterus notopterus* in family Notopteridae under order Clupeiformes. Total 10 species were recorded under the order Cypriniformes and are grouped in two families. Balitoridae family contained only species namely *Nemacheilus moreh*. The other family Cyprinidae was found to be dominant consisted 9 species viz., *Labeo rohita, Labeo boggut, Cyprinus carpio, Rasbora daniconius, Puntius stigma*, *Puntius sarana sarana, Cirrhina mirgala, Catla catla* and *Garra mullya*. Order Siluriformes contained five species and grouped in three families Bagridae, Siluridae and Heteropneustidae. Family Bagridae consisted *Mystus aor* and *Rita rita* species. *Wallago attu* and *Ompak bimaculatus* species consisted under siluridae and the only species observed under Hetropnustidae namely *Heteropneusters fossilis*. The order Mugiliformis consist the only Species *Rhinomugily carsula* placed under family mugilidae. The order Synnbranchiformes contained a single species in family Mastacembelus namely *Mastacemubelus armatus*. Three species namely *Clarias batrachus, Channa gachua* and *Channa punctatus* are grouped in the order Channiformes in Channidae Family. The order Perciformes contained a three species *Oreochromis mossambicus, Glossogobius giuris giuris* and *Xenetodon cancilla* placed in three families Cichlidae, Gobidae and Belonidae respectively.

The results and observations indicated that Cyprinidae family occupied highest percent (39%) amongst the species documented in 12 families during the two years of study. The second largest family was Channidae 13%, Bagridae and Siluridae contributed 8% of the total and remaining family with 4% each. (Fig. 1)

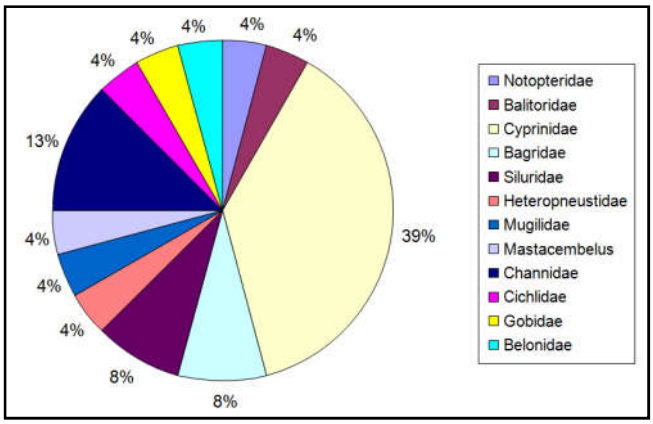

Figure 1 Family wise fish composition at Nandurmadhmeshwar dam from Nashik district


Notopterus notopterus


Nemacheilus moreh


Labeo rohita


Labeo boggut


Cyprinus carpio


Rasbora daniconias


Puntius stigma


Puntius sarana


Cirrhinus mirgala


Garra mullya


Catla catla


Mystus aor


Rita rita


Wallago attu


Ompak bimaculatus


Heteropneusters fossilis


Rhinomugil carsula


Mastacembelus armatus


Clarius batrachus


Channa gachua


Channa punctatus


Oriochromis mossambicus


Glossogobius giuris giuris


Xenetodon cancilla

Fishing operations throughout the year with so many different fish species catches in mansoon as compared to post mansoon and summer seasons. The fish fauna in Himayat Sagar Lake in Hyderabad and recorded 32 fish species belonging to 6 orders with 11 families [8]. 26 fish species belonging to 7 orders, 13 families and 22 genera [9]. Also 35 fish species from Shirsathwadi reservoir, Mohari reservoir and Manikdaundi reservoir of Nagar District Maharashtra State [10]. They further illustrated 18 species from order Cypriniforms five species in order Siluriformes, four species in preciformes, one species each for order clupeiformes, Channiformes and Mastacemboeliformes and one species each for order Mugiliformes and Beloniformes.

CONCLUSION

From the survey of our study, it was observed that the fish fauna of the Godavari River at Nandurmadhmeshwar dam was rich but facing the illegal activities of humans. So awareness through seminars and social media is required for to save the fish fauna of Nandurmadhmeshwar dam / Godavari River and to preserve it for the next generation.

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