

FISH FAUNAL DIVERSITY OF BHIMA RIVER AT PEDGAON, SHRIGONDA (AHMEDNAGAR DISTRICT)

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ABSTRACT

Fish are the gill-bearing aquatic craniates that lack limbs with digits. They form a sister group to the tunicates, together forming the olfactores. Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. The present study was conducted in the months of October 2017 to January 2018. With weekly visit at the Bhima river, pedgaon site having geographical co-ordinates $18^{\circ} 30' 48.6''$ N and $74^{\circ} 42' 53.8''$ E. In the present investigation, 26 fish species belonging to 07 families were reported from Bhima River. The family Cyprinidae was dominant with 12 species followed by Siluridae with 06 species, Percidae with 04 species and Notopteridae, Ambassidae, Clariidae and Loricariidae with 01 species each. One exotic species that have been reported by us during our study is *Pteryoplichthys pardalis* commonly known as Amazon sailfin catfish.

Keywords: Fish Diversity, Bhima River, *Pteryoplichthys pardalis*

I) INTRODUCTION:

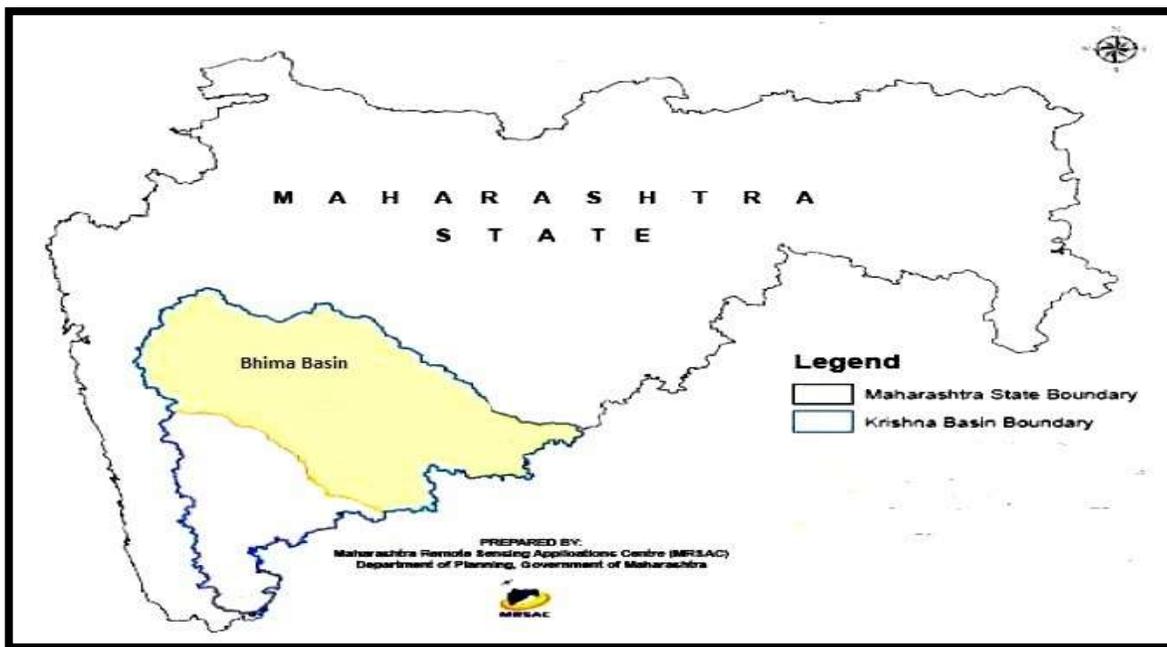
Fish are the gill-bearing aquatic craniates that lack limbs with digits. They form a sister group to the tunicates, together forming the olfactores. Included in this definition are the living hagfish, lampreys, and cartilaginous and bony fish as well as various extinct related groups. Tetrapods emerged within lobe-finned fishes, so cladistically they are fish as well. However, traditionally fish are rendered paraphyletic by excluding the tetrapods (i.e., the amphibians, reptiles, birds and mammals which all descended from within the same ancestry). Most fish are ectothermic ("cold-blooded"), allowing their body temperatures to vary as ambient temperatures change, though some of the large active swimmers like white shark and tuna can hold a higher core temperature.

Fish are abundant in most bodies of water. They can be found in nearly all aquatic environments, from high mountain streams (e.g., char and gudgeon) to the abyssal and even hadal depths of the deepest oceans

(e.g., gulpers and anglerfish). With 33,600 described species, fish exhibit greater species diversity than any other group of vertebrates. Freshwater Fishes. Though the fish are having multiple values, there are so many threats regarding fish diversity. Major threats to freshwater fishes and other freshwater biodiversity, include: habitat modification, fragmentation, and destruction; invasive species; overfishing; environmental pollution; forestry practice; and climate change. Often species, or biodiversity, declines in response to more than one category of threat, and the real "threat" is the combined or synergistic impact of changes brought about by human activities.

The Bhima River is a major river in South India. It flows southeast for a long journey of 861 kilometres (535 mi), with many smaller rivers as tributaries. It originates near Bhimashankar Temple in the Bhimashankar hills in Khed Taluka on the western side of the Western Ghats, known as Sahyadri, in Pune District, Maharashtra state, at 19°04'03"N 073°33'00"E. It flows through Bhimashankar Wildlife Sanctuary where it enters Khed Taluka and is soon joined by its tributary, the Aria River from the right (west) which flows into the Chas Kaman Reservoir. Upstream on the Aria is the Rajgurunagar-Kalmodi Dam impounding the Kalmodi Reservoir. The Chas Kaman Reservoir is impounded by the Chas Kaman Dam, the most upstream dam on the Bhima River proper. The village of Chas is on the left bank some 16 km below the dam. Some 5 km along the river below the bridge on the Bhirma at Chas, the Kumandala River enters from the right. From there it is 8 km along the river to the railroad bridge at the town of Rajgurunagar (Khed) on the left bank. In 18 km further along the river, the Bhima River enters from the right just above the village of Pimpalgaon on the left bank. From there to Siddhegavhan along the river is 10 km. Siddhegavhan is the last village in Khed Taluka on the left.

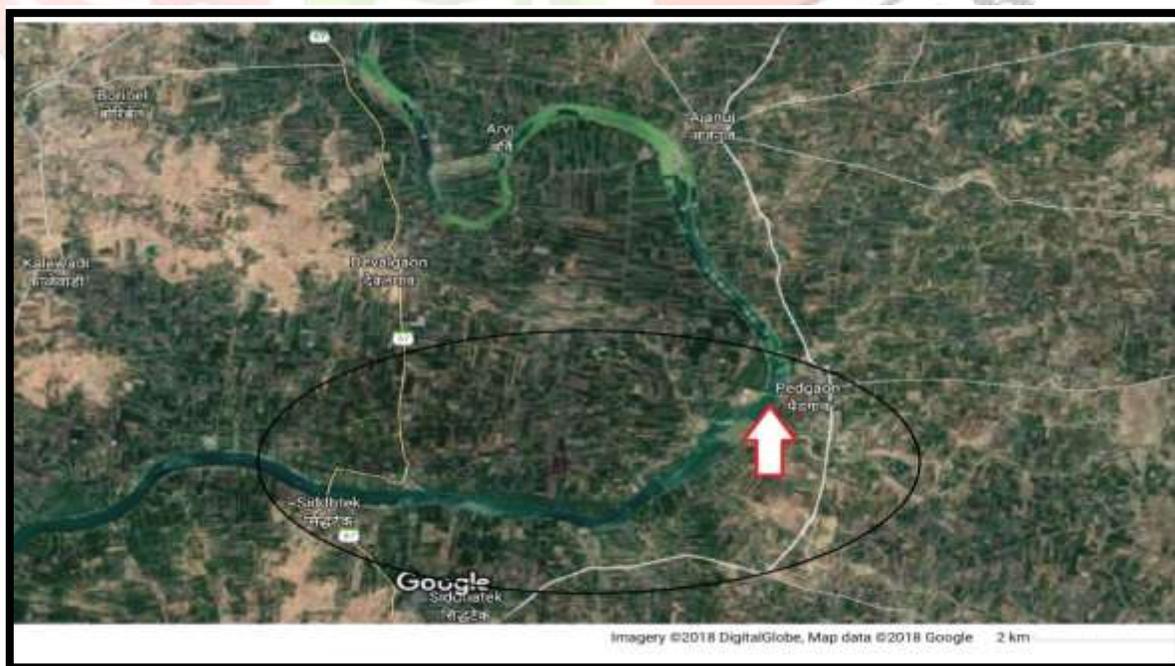
In recent years Bhima basin has been subjected to excessive pressure of anthropogenic activities such as religious festivals attracting millions of pilgrims through the year, growing pollution by urban centres, growing sugarcane cultivation and over extraction of the river water to feed the water guzzling crop. These activities are taking toll in the river's health and its water availability. Maharashtra state's haste of building more and more dams in Krishna basin is most prominently visible in Bhima basin.



Map. 01: Bhima Basin

STUDY AREA:

The Bhima River is one of the prime river of Ujani Reservoir and it meets to reservoir at Bhigwan backwater by Siddhatek. The site selected for the study i.e. Pedgaon having large number of Fishermans fishing throughout the year by using different fishing methods. The nets are left in the water current overnight and collected early in the morning. Some of the small scales fishing methods were also applied at the study area.



Map. 02: Location of Study area.

II) METHODOLOGY:

The study was conducted in the months of October 2017 to January 2018 with weekly visit at the sampling site of Bhima river, Pedgaon having geographical co-ordinates 18° 30' 48.6" N and 74° 42' 53.8" E.

The stream was surveyed by walking from banks of river. The fishes were collected from local fishermans and photography was done by using Canon 700D, 18-55 mm and 55-250 mm lens.

Fish identification was done using keys developed by Koumans (1953), Masuda et.al (1984), Talwar and Jhingran (1991), Pethiyagoda (1991), Kottelat et.al. (1993) and Jayram (1999).

III) RESULTS & DISCUSSION:

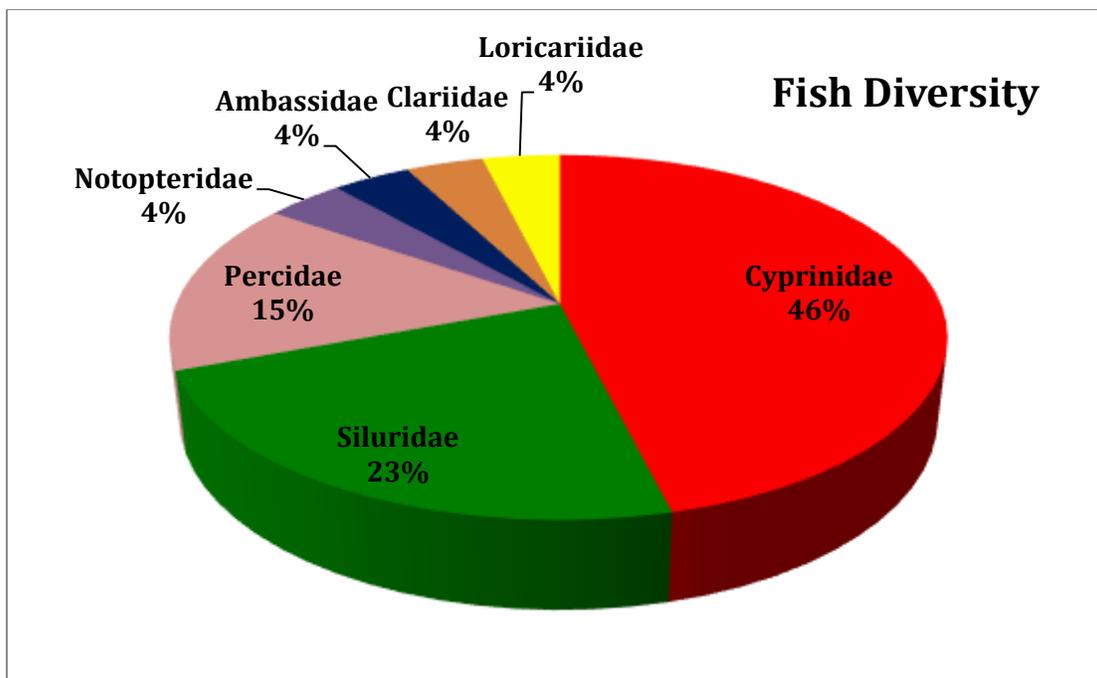
The fish fauna is an important aspect of fishery potential of a water body. It was observed that the distribution of fish species is quite variable because of geographical and geological conditions. In the present investigation, 26 fish species belonging to 07 families were reported from Bhima River (**Table :1**). The order Cypriniformes was dominant with ten species. Among the 07 families, the family Cyprinidae was dominant with 12 species followed by Siluridae with 06 species, Percidae with 04 species and Notopteridae, Ambassidae, Clariidae and Loricariidae with 01 species each. The dominance of fish species belonging to the family Cyprinidae was also reported by Ahirrao and Mane (2000), Meshram and Meshram (2005), and Khedkar (2005) from other freshwater bodies.

Table 1: List of Fishes reported at Bhima River near Pedgaon site

Sr. No.	Local Name	Common Name	Family	Scientific Name
01	Ghogrya	Cat Fish	Siluridae	<i>Eutropiichthys vacha</i>
02	Wanz	Cat Fish	Siluridae	<i>Ompok binotatus</i>
03	Valshivada	----	Siluridae	<i>Wallago attu</i>
04	Shingtya	Cat Fish	Siluridae	<i>Mystus seengtee</i>
05	Fossil Cat	Asian Stinging Catfish	Siluridae	<i>Heteropneustes fossilis</i>
06	Chalat	---	Siluridae	<i>Ompok pabo</i>
07	Khavalchor	----	Cyprinidae	<i>Puntius dorsalis</i>
08	Cyprinus	Cyprinus	Cyprinidae	<i>Cyprinus Carpio</i>
09	Rav	Rohu	Cyprinidae	<i>Labeo rohita</i>
10	Gavtya	Grass Carp	Cyprinidae	<i>Ctenopharyngodon idella</i>
11	Kanashi	Kalbasu	Cyprinidae	<i>Labeo Kalbasu</i>

12	Mrigal	Mrigal	Cyprinidae	<i>Cirrhinus mrigala</i>
13	Catla	Catla	Cyprinidae	<i>Catla catla</i>
14	Chandera	Silver carp	Cyprinidae	<i>Hypophthalmichthys molitrix</i>
15	Kolashi	Kolashi	Cyprinidae	<i>Puntius kolus</i>
16	Rohu	Rohu	Cyprinidae	<i>Labeo rohita</i>
17	Ray fin	---	Cyprinidae	<i>Osteobrama alfredianus</i>
18	Pool barb	Spotfin barb	Cyprinidae	<i>Puntius sophore</i>
19	Maral	Murrel	Percidae	<i>Channa marulius</i>
20	Tilap	Tilapia	Percidae	<i>Oreochromis mossambicus</i>
21	Dokarya	Dwarf murrel	Percidae	<i>Channa orientalis</i>
22	Kala masa	Murrel	Percidae	<i>Channa punctatus</i>
23	Knife fish	----	Notopteridae	<i>Notopterus</i>
24	X-Ray Fish	Indian Glassy Fish	Ambassidae	<i>Parambassis ranga</i>
25	Mangur	Mangur	Clariidae	<i>Clarias batrachus</i>
26	Amazon Sailfin Catfish	----	Loricariidae	<i>Pterygoplichthys pardalis</i>

The diversity of the fishes mainly depends upon the biotic and abiotic factors and type of the ecosystem, age of the water body, mean depth, water level fluctuations, morph-metric features and bottom have great implications. The hydro-biological features of the collection centers also play an effective role in fisheries output to a greater extent. Among 26 species of fishes, the family Cyprinidae was the most dominant in the assemblage composition with 46.00 % followed Siluridae with 23.00 % , Percidae with 15.00% and Notopteridae, Ambassidae, Clariidae and Loricariidae with 4 .00% each. (**Graph 1**).



Graph 1: Pie graph showing fish diversity w.r.t. families in Bhima River at Pedgaon Site

THREATS:

Many factors contribute to the loss of fish species and the degradation of their habitat. These include: Dams and impoundments, Water pollution, especially spills of toxic wastes (i.e. industrial acids, pesticides, and fertilizers), Sedimentation from agriculture, construction, and logging and mining, Overfishing and Introduction of exotic species

One **exotic species** that have been reported by us during our study is *Pteryoplichthys pardalis* commonly known as Amazon sailfin catfish.



Pterygoplichthys pardalis, the **Amazon sailfin catfish**, is a freshwater tropical fish in the armored catfish family (Loricariidae). It is one of a number of species commonly referred to as the common pleco or "leopard pleco" by aquarists.

IV) **CONCLUSION:**

The present study suggests that Bhima River has a rich and diverse fish fauna. The availability of a good number of fish species and their production in Bhima River may be related to the suitable ecology of the water body, which provides proper breeding ground for fish. It also indicates that the water parameters of the river are within the favourable limits for fish and fisheries practices. The species diversity reported in the present study shows marked similarity with the earlier studies on fish diversity from the same geo-climatic region of the state. India has to develop baseline data on the natural population potential of the indigenous species. Extreme risk areas should be identified for effective monitoring and conservation programs. The water bodies harbouring endangered fishes must be declared as fish sanctuaries or aquatic diversity management areas.

V) **ACKNOWLEDGEMENT:**

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