



## STUDIES ON ICHTHYOFAUNAL DIVERSITY OF RIVER WARDHA NEAR BALLARSHAH, MAHARASHTRA, INDIA

**N. R. Dahegaonkar**

Department of Zoology,  
Dr. Khatri Mahavidyalaya, Tukum, Chandrapur (M.S.) India.  
Corresponding Email :- [nrdahegaonkar@gmail.com](mailto:nrdahegaonkar@gmail.com)

Communicated :09.10.2023

Revision: 26.10.2023 & 13.11.2023

Accepted: 22.11.2023

Published: 30.01.2024

### ABSTRACT:

The importance of lotic ecosystems as an environmental resource that can be used for the benefit of mankind cannot be overemphasized. It is used for fisheries, domestic and industrial water supply, recreation, transportation, irrigation, communication, tourism as well as for receiving waste water effluents. Their value derives, to some degree, from their biological diversity including genetic, species and community diversity.

The present investigation deals with the ichthyofaunal diversity of river Wardha near Ballarshah. The result of present investigation reveals the occurrence of 59 fish species belonging to 08 orders, 16 families and 34 genera among which order Cypriniformes was dominant with 29 species, followed by Order Siluriformes with 12 species, Order Ophiocephaliformes with 05 species and Synbranchiformes each with 05 species.

**Keywords :-** Cypriniformes, Ichthyofauna, Wardha river, Chandrapur.

### INTRODUCTION :

Species diversity varies dramatically among regions and among localities within regions. The lotic ecosystems often support high regional diversity because they are geologically persistent and encompass a wide variety of habitat types. Further, natural environmental variation, which occurs over a range of spatiotemporal scales, maintains this regional habitat diversity (Poff *et al.*, 1997). The spatial and temporal distribution of surface runoff regulates the availability of suitable habitat and influences species diversity. In combination temperature, hydrology, geomorphology and associated riparian vegetation form a habitat (Southwood, 1977) that controls the persistence and diversity of species at local and regional scales (Poff and Ward, 1990).

Land cover in the catchment and riparian forests are vital ecological elements supporting diverse flora and fauna and perform a major role in nutrient cycling and maintaining pristine ecosystem (Girardi *et al.* 2016; Magdaleno and

Martinez 2014).The natural connectivity of river corridors has been interrupted, preventing migration and dispersal of many species and blocking much access to regional refugia when local conditions deteriorate (Benke, 1990). Further, the widespread, intentional introduction of non native species into sites outside their historical biogeographic ranges has disrupted relationships among native riverine species and threatens native species diversity in many lotic ecosystems (Moyle 1986, Minckley and Deacon 1991).

The fish fauna is an important aspect of fishery potential of any water body. The knowledge of fish diversity is essential not only for their rational management but also for conservation strategies. The present study aims to contribute a better knowledge of the ichthyofaunal diversity of the area.

### MATERIALS AND METHODS :

The climate of the region varies from semi-arid climate in the north to tropical in most of the region with distinct wet and dry seasons. The

studies were carried out during June 2016 to May 2017. Fishes were collected from fishermen on the landing sites nearer the sampling sites along the stretch of river under study. The fishes were identified up to species by referring standard literature, Day (1985), Srivastava (1985), Talwar and Jhingran (1991), Jayaram (1994) and Menon (1999).

### RESULT AND DISCUSSION :

Biodiversity is essential for stabilization of ecosystems and protection of overall environmental quality (Ehrlich and Wilson, 1991). The concern for biological diversity is however a concern for man himself. The endangered species signify degradations in the environment, which may threaten mans existence on earth. Fish constitute almost half of the total number of vertebrates of world. Among 39,900 identified vertebrates, fish constitute 54.44% of which 38.72% are fresh water species (Jayaram, 1999).

In the present investigation, 59 fish species recorded belonging to 08 orders, 16 families and 34 genera. Omprakash *et al.*, (2007) reported 50 species of fishes from river Kharun and Jonk of the Mahanadi river system. Bagra and Das (2010) recorded 43 species of fishes including 4 orders and 9 families from Siyom river of Arunachal Pradesh. Jadhav *et al.*, (2011) recorded 58 species belonging to 16 families and 35 genera.

The dominance of Order Cypriniformes was recorded with 29 species of 17 genera contributing 50% of total fish species recorded. It is followed by Order Siluriformes with 12 species of 06 genera, Order Ophiocephaliformes with 05 species, Order Synbranchiformes with 05 species, Order Perciformes with 03 species, order Ostioglossiformes and order Synbranchiformes each with two species and order Anguiliiformes with one species. Rankhamb (2011) recorded 26 species of 15 different genera belonging to 5 Orders and 7

families from the Godavari river at Mudgal. He observed the dominance of Order Cypriniformes with 15 species, which is similar with the present observations. Jayaram (1995) recorded 195 species of fishes under 93 genera and 46 families from river Krishna and its tributaries.

The family wise interpretation revealed Cyprinidae as the largest family accommodating 17 genera and 29 species. It constituted most of the major carps like *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala* and *Cyprinus carpio*. The occurrence of *Garra gotylya*, *Garra mullya* near rocky substratum was common while *Rasbora daniconius* in the shallow region. Various species of genus *Labeo* recorded but with fewer occurrences except *rohita*. Family Cyprinidae followed by Family Bagridae with 06 species maximally dominated by genus *Mystus*. Among different species, *Mystus cavasius* shows its abundance. It is very popular food fish in the local area during monsoon season. The other dominant families in diversity were Mastacembalidae and Ophiocephalidae with 3 and 4 species respectively. In family Ophiocephalidae, *Ophiocephalus marulius* and *Ophiocephalus orientalis* were dominated the genera with their abundance. In family Mastacembalidae, *Macrogathus acculeatus* commonly called lesser spiny eel was abundant. Abundance of species *Oreochromis mossambica* member of Family Chichilidae can become a problematic invasive species and may disrupt relationships among native riverine species and threatens native species diversity. Moyle, (1976) observed that introduction of *O. mossambicus* and *Tilapia zilli* in Callifornia reservoir has affect the native ichthyofauna. The invasion of alien fishes is potentially serious threat to the indigenous fish fauna (Singh and Lakra, 2011) The occurrence of species like *Glossogobius gyrus*, *Xenontodon cancella* (Indian garfish), *Anguilla bengalensis* (river eel), *Gadusia chapra*,

*Nandus nandus, chanda ranga (Indian glass fish)* was rare in the vicinity.

#### CONCLUSION :

In the present investigation, it is observed that anthropogenic activity altering the fine tune of the river ecosystem and causes habitat alteration and fish stock depletion. It is inferred that, river is sustaining the present pollution load. However, logarithmic growth of human population and habitat expansion in near future is likely to influence the water quality and fish diversity of the river system.

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**Table 1.1: Ichthyofaunal Diversity in River Wardha near Ballarshah (M.S.)**

S.N.	Order	Family	Scientific Name	Common Name
1	Cypriniformes	Cyprinidae	<i>Rasbora rasbora</i> (Hamilton, 1822)	Scissortail rasbora
			<i>Rasbora daniconius</i> (Hamilton, 1822)	Slender rasbora
			<i>Oxygaster bacaila</i> (Hamilton, 1822)	Large razorbelly minnow
			<i>Catla catla</i> (Hamilton, 1822)	Catla
			<i>Labeo rohita</i> (Hamilton, 1822)	Rohu
			<i>Labeo calbasu</i> (Hamilton, 1822)	Orange fin labeo
			<i>Labeo bata</i> (Hamilton, 1822)	Bata
			<i>Labeo boggut</i> (Sykes,1839)	Boggut labeo
			<i>Labeo fimbriatus</i> (Bloch,1795)	Fringed-lipped peninsula carp
			<i>Ctenopharyngodon idella</i> (Valenciennes,1844)	Grass carp
			<i>Cyprinus carpio</i> (Linnaeus, 1758)	Common carp
			<i>Salmostoma phulo</i> (Hamilton, 1822)	Finescale razor belly minnow
			<i>Chela cachius</i> (Hamilton, 1822)	Chela
			<i>Garra lamta</i> (Hamilton, 1822)	Garra
			<i>Garra mullya</i> (Sykes,1839)	Sucker fish
			<i>Garra gotyla</i> (Gray, 1830)	Sucker head
			<i>Amblypharyngodon mola</i> (Hamilton, 1822)	Mola carplet
			<i>Hypophthalmichthys molitrix</i> (Valenciennes,1844)	Silver Carp
			<i>Lepidocephalus guntea</i> (Hamilton, 1822)	Guntea loach
			<i>Puntius ticto</i> (Hamilton, 1822)	Ticto barb
			<i>Puntius sophore</i> (Hamilton, 1822)	Pool barb
			<i>Puntius sarana</i> (Hamilton, 1822)	Olive barb
			<i>Puntius chola</i> (Hamilton, 1822)	Swamp barb
<i>Nemacheilus botia</i> (Hamilton, 1822)	Mottled loach			
<i>Osteobrama cotio</i> (Hamilton, 1822)	Cotio			
<i>Osteobrama belangeri</i> (Valenciennes,1844)	Osteobrama			
<i>Danio devario</i> (Hamilton, 1822)	Devario danio			
<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Mrigal carp			
<i>Cirrhinus reba</i> (Hamilton, 1822)	Reba carp			
2	Siluriformes	Bagridae	<i>Sperata seenghala</i> (Sykes,1839)	Giant river catfish
			<i>Sperata aor</i> (Hamilton, 1822)	Long Whiskered catfish
			<i>Mystus vittatus</i> (Bloch,1794)	Striped dwarf catfish
			<i>Mystus bleekeri</i> (Day, 1877)	Day's mystus
			<i>Mystus cavasius</i> (Hamilton, 1822)	Gangetic mystus
		<i>Rita rita</i> (Hamilton, 1822)	rita	
		Siluridae	<i>Ompok pabda</i> (Hamilton, 1822)	Pabdah catfish
			<i>Ompok bimaculatus</i> (Bloch,1794)	Butter catfish
			<i>Wallago attu</i> (Bloch& Schneider,1801)	Wallago
		Clariidae	<i>Clarias batrachus</i> (Linnaeus, 1758)	Phillippine catfish
<i>Clarias gariepinus</i> (Burchell 1822)	North African catfish			
Heteropneustidae	<i>Heteropneustes fossilis</i> (Bloch,1794)	Stinging catfish		
3	OstioGLOSSIFORMES	Notopteridae	<i>Chitala chitala</i> (Hamilton, 1822)	Clown knifefish
			<i>Notopterus notopterus</i> (Pallas, 1769)	Bronze featherback
4	Ophiocephaliformes	Ophiocephalidae	<i>Ophiocephalus marulius</i> (Hamilton, 1822)	Great snakehead
			<i>Ophiocephalus punctatus</i> (Bloch,1793)	Spotted snakehead
			<i>Ophiocephalus striatus</i> (Bloch,1793)	Striped snakehead
		Gobiidae	<i>Glossogobius giuris</i> (Hamilton, 1822)	Tank goby
<i>Gobiopsis macrostoma</i> (Steindachner,1861)	Longjaw goby			
5	Perciformes	Nandidae	<i>Nandus nandus</i> (Hamilton, 1822)	Gangetic leaffish
		Ambassidae	<i>Chanda nama</i> (Hamilton, 1822)	Elongate glass perchlet
			<i>Parabassia ranga</i> (Hamilton, 1822)	Indian glassy fish
6	Synbranchiformes	Mastacembelidae	<i>Macragnathus pancalus</i> (Hamilton, 1822)	Barred spiny eel
			<i>Macragnathus aculeatus</i> (Bloch,1786)	Lesser spiny eel
			<i>Mastacembelus armatus</i> (Lacepede,1800)	Zig Zag eel
		Cichlidae	<i>Oreochromis mossambica</i> (Peters, 1852)	Mozambique tilapia
Anabantidae	<i>Anabas testudineus</i> (Bloch,1792)	Climbing perch		
7	Cyprinodontiformes	Belontiidae	<i>Xenentodon cancila</i> (Hamilton, 1822)	Freshwater garfish
		Clupeidae	<i>Gadusia chapra</i> (Hamilton, 1822)	Indian river shad
8	Anguilliformes	Anguillidae	<i>Anguilla bengalensis</i> (Gray, 1831)	Indian mottled eel