

Fish Biodiversity in The River Sheonath of Chhattisgarh State in India

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ABSTRACT

The river Sheonath is one of the major tributaries of the Mahanadi river system. It originates from the Panbaras hills at Ambagarh Chowki in Rajnandgaon district, Chhattisgarh. Further there are a number of tributaries in the catchments of the Sheonath, which are Tandula, Kharun, Hamf, Pairynadi, Baghnadi, Kotri, Aamer, Shurhi, Chando and numerous seasonal streams. River Sheonath flows through 100 k.m. in Rajnandgaon district and later it joins the river Mahanadi near Seorinarayan of Janjgir-champa district. During the study period recorded a total of 59 species belonging to 36 genera, 20 families and 7 orders, like wise nine species were assessed for threat as per NBFGR criteria, they are one endangered species and eight vulnerable species from the catchments area of river Sheonath.

Key words: Fish biodiversity, River Sheonath, Catchments.

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INTRODUCTION

The river Sheonath is one of the major tributaries of the Mahanadi River. It originates from the Penbaras hills at Ambagarh Chowki in Rajnandgaon district (Chhattisgarh). Further there are a number of tributaries in the catchments of the Sheonath, which are Tandula, Kharun, Hamf, Pairynadi, Baghnadi, Kotri, Aamer, Shurhi, Chando and numerous seasonal streams. River Sheonath flows through 100 k.m. in Rajnandgaon district and later it joins the river Mahanadi near Seorinarayan of Janjgir-champa district. The present study looked into the fish biodiversity in the catchments of river sheonath of Rajnandgaon district. Fish diversity studies were done in this area to know the variations in the ichthyofauna. Although, fish diversity of the river Mahanadi along with their tributaries have been earlier studied by Hora [7], Desai and Shrivastava [5], Om prakash [11], Dev [6]. The present study has been carried out with physicochemical conditions of both water and soil in relation to fish and biotic communities

Study Sites

The present study was done on the basis of catchments of river Sheonath along with connected reservoirs/anicuts or landing sites and their approachability to the fish markets in these area. They are Mongara Reservoir, Chowki anicut both are constructed on the river Sheonath and Rajnandgaon fish market. Mongara Reservoir is a small reservoir of 677.8 ha and used mainly for irrigation purpose and situated in the catchments of the river Sheonath proper, near Mongara village. Chowki anicut is an anicut and main fish landing centre of the river Sheonath at Am. Chowki, this anicut is mainly used for water storage and irrigation while Rajnandgaon fish market is the main fish market of Rajnandgaon

district. The fish come from the catches of the river Sheonath, the Baghnadi and many village tanks in the catchments of these rivers.

MATERIAL AND METHODS

Fish samples were collected from catchments of river Sheonath with the help of local fishermen using different crafts and gears including dugout boats locally known as Donga and Nav, Inflated rubber tube, Hooks, Traps, Cast net, Drag net, Gill net, Scoop net, Bag net etc. in the study area for fishing activity and also collected from Rajnandgaon fish market and haats. Photographs were taken with the help of digital camera. The collected fish specimen was preserved in 6-8% formaldehyde solution at the sampling site itself. Samples were brought to the laboratory and Meristic and morphometric characters were measured and identified up to the species level, with the help of standard keys and books [1-3, 6-14]. few samples were submitted to the Zoological Survey of India which was identified by Dr. S. Kar (ZSI, Freshwater fish section).

RESULT AND DISCUSSION

Fish diversity

The result shows that the river is rich in fish fauna due to vast and varied microhabitats and niches. A systematic account of 59 fish species belonging to 36 genera, 20 families and 7 orders were recorded from the catchments of river sheonath (Table 1). Out of these, species *Crossocheilus latius*, *Colisa lalia*, *Labeo dero*, *Labeo dyocheilus*, *Pseudambassis lala* and *Ompok pabda* were newly recorded in the Mahanadi river system.

Table 1. Systematic position, Local name, English name and distribution of fish fauna of the river Sheonath.

S. N.	Scientific name	Local Name	English Name	Distribution
Order - Cypriniformes,				
Family - Cyprinidae				
1	<i>Amblypharyngodon mola</i> (Ham.)	Mohroli	Mola carplet	Fresh water of all the Indian states except the Malabar coast Pakistan, Nepal, Bangladesh & Burma
2	<i>catla catla</i> (Ham.)	Katla	Catla	Northern India, Pakistan and Burma
3	<i>Cirrhinus mrigala</i> (Ham.)	Mrigal	Mrigal	Northern part of India, Pakistan, Nepal, Burma
4	<i>Cirrhinus reba</i> (Ham)	Lohi	Reba carp	India, Pakistan, Nepal, Bangladesh
5	<i>Ctenopharyngodon idella</i> (Val.)	Grass carp	Grass carp	India, Pakistan, Burma
6	<i>Cyprinus carpio</i> (Linn)	Common carp	Common carp	India, Pakistan, Burma
7	<i>Crossocheilus latius</i> (Ham.)	Kalbhata	Latius latius	India, Pakistan, Nepal, Bangladesh
8	<i>Garra mullya</i> (Sykes)	Gadela	Mullya	India, Pakistan, Nepal, Bangladesh, Burma
9	<i>Garra gotyla</i> (Gray)	Gadela	Gotyla	India, Pakistan, Nepal, Bangladesh
10	<i>Hypophthalmichthys molitrix</i> (Val.)	Silver carp	Silver carp	India, Pakistan, Burma
11	<i>Hypophthalmichthys nobilis</i> (Bloch)	Bighead	Big head	India, Pakistan, Nepal
12	<i>Labeo dero</i> (Ham.)	-	Dero	India, Afghanistan, Pakistan, Nepal and Burma
13	<i>Labeo dyocheilus</i> (Mc Clelland)	Roha	Dyocheilus	India, Bangladesh, Nepal and Burma
14	<i>Labeo rohita</i> (Ham-Buch)	Rohu	Rohu	India, Pakistan and Burma
15	<i>Labeo calbasu</i> (Ham-Buch)	Kalbaz	Calbasu	India, Pakistan and Burma
16	<i>Labeo bata</i> (Ham.)	Bata	Bata Labeo	India, Bangladesh, Nepal and Pakistan

17	<i>Labeo boga</i> (Bloch)	Lohia	Boga Labeo	Madras, Rivers of Gangetic provinces South Kathiawar
18	<i>Osteobrama cotio</i> (Ham.-Buch)	Chilati	Cotio	Fresh waters, throughout India excepted Malabar and South of Kistna, Pakistan, Burma, Nepal, Bangladesh and China
19	<i>Parluciosoma daniconius</i> (Ham-Buch)	Dandai	Blackine Rasbora	India, Pakistan, Nepal, Burma, Thailand, South, China and Malayasia
20	<i>Puntius sarana</i> (Ham-Buch)	Kotra	Olive barb	India, Pakistan, Burma, Nepal, Bangladesh, Thailand, Sri-Lanka and China
21	<i>Puntius sophore</i> (Ham.)	Kotri	Stigma barb	India, Pakistan, Nepal, Bangladesh, Burma, China and Yunnan
22	<i>Puntius ticto</i> (Ham)	Kotri	Ticto barb	India, Nepal, Pakistan, Sri Lanka, Bangladesh, Burma, Thailand and Siam
23	<i>Salmostoma bacaila</i> (Ham.)	Sarangi	Large razorbelly minnow	India except Malabar, Mysore and Madras
Family – Cobitidae				
24	<i>Lepidocephalichthys guntea</i> (Ham.)	Rudni	Loach	India, Nepal, Bangladesh, Pakistan and Burma
Family – Balitoridae				
25	<i>Noemacheilus botia</i> (Ham.)	Rudwa	Loach	Northern India, Nepal, Burma, Pakistan, Bangladesh and Sri Lanka.
Order - Siluriformes,				
Family – Siluridae				
26	<i>Ompok bimaculatus</i> (Bloch)	Bolia	Butter cat fish	Freshwater of India, Nepal, Sri lanka, Burma, Bangladesh, Thailand, Pakistan
27	<i>Ompok pabda</i> (Ham.)	Bolia	Butter cat fish	Freshwater of India, Nepal, Sri lanka, Burma, Bangladesh and Pakistan
28	<i>Wallago attu</i> (Schneider)	Padhina	Fresh water shark	West Bengal, Manipur, Assam, Orissa, Burma.
Family – Bagridae				
29	<i>Mystus bleekeri</i> (Day)	Tengna	Day,s Mystus	Northern India, Pakistan, Burma and Sumatra
30	<i>Mystus cavasius</i> (Ham.)	Jaliya tegna	Dwarf Cat fish	Northern India, Pakistan and Burma
31	<i>Mystus tengara</i> (Ham.)	Tegna	Tengara mystus	North India and Pakistan
32	<i>Sperata aor</i> (Ham.)	Singhar	Long whiskered cat fish	South India, Pakistan Bangladesh, Burma and China
33	<i>Mystus vittatus</i> (Bloch)	Tengra	Striped dwarf cat fish	India, Pakistan, Bangladesh, Burma
34	<i>Sperata seenghala</i> (Sykes)	Tengra	Gaint river cat fish	India, Pakistan and Burma
35	<i>Pseudeutropius atherinoides</i> (Bloch)	Tengna	Ketia kuli	India, Pakistan, Bangladesh, Burma
Family – Pangasiidae				
36	<i>Pangasius pangasius</i> (Ham.)	Pangas	Pangash	India, Pakistan, Burma, Malaya and Siam
Family - Heteropneustidae (Old name – Saccobranchidae)				
37	<i>Heteropneutes fossilis</i> (Bloch)	Singhi	Stinging cat fish	India, Pakistan, Ceylon, Burma and China
Family – Clariidae				
38	<i>Clarias batrachas</i> (Linn.)	Magur	Air breathing cat fish	India, Pakistan, Ceylon, Burma and Malaya
39	<i>Clarias gariepinus</i>	Thai Magur	North Africa Catfish	Africa, Asia, Jordan, Isrnel, Syria
Order - Perciformes,				
Family – Channidae				
40	<i>Channa orientalis</i> (Ham.)	Khokshi	Asiatic snake-head fish	India, Afghanistan, Bangladesh, Iran, Pakistan, Nepal and Ceylon

41	<i>Channa punctatus</i> (Bloch)	Ghunda	Green snake-head fish	Northern India, Pakistan and Ceylon
42	<i>Channa striatus</i> (Bloch)	Khokshi	Stipped snake-head murrel	India, Pakistan and Ceylon
Family – Ambassidae (Old name – Centropomidae)				
43	<i>Chanda nama</i> (Ham.)	Chan-deni	Glassy perchlet	India, Pakistan and Burma
44	<i>Pseudambassis ranga</i> (Ham.)	Chan-dena	Glassy perchlet	India, Pakistan, Burma, Malaya, Siam Nepal
45	<i>Pseudambassis lala</i> (Ham.)	Lal chan-deni	Red perchlet	India, Pakistan and Ceylon
Family – Nandidae				
46	<i>Nandus nandus</i> (Ham.-Buch)	Bhedav	Nandus	India, Pakistan and Burma
Family – Cichlidae				
47	<i>Oreochromis mossambicus</i> (Peters)	Tilapia	Mozambique tilapia	India, Pakistan and Burma
48	<i>Oreochromis niloticus</i> (Linnaeus)	Tilapia	Nile tilapia	India, Pakistan and Burma
Family – Anabantidae				
49	<i>Anabas testudineus</i> (Bloch)	Kevai	Climbing perch	India, Pakistan and Burma, Bangladesh
Family – Belontiidae				
50	<i>Colisa fasciatus</i> (Bl. & Schm).	Gourami	Bandel colisa	Northern India, Nepal, Pakistan, Sind Bangladesh, Burma.
51	<i>Colisa lalia</i> (Ham.-Buch)	Gourami	-	Northern India, Nepal, Pakistan, Burma and Bangladesh
Family – Gobiidae				
52	<i>Glossogobius giuris</i> (Ham)	Dheshra	Bareyed goby	India, Pakistan, Ceylon, China, Burma, Japan and Philippines
Order - Clupeiformes,				
Family – Clupeidae				
53	<i>Gudusia chapra</i> (Hamilton)	Chhuria	Ganger shed	India, Pakistan, Nepal, Bangladesh and Malaya
Family – Engraulididae				
54	<i>Gonialosa manmina</i> (Ham.)	Chhuria	Manmina	India, Pakistan, Nepal, Bangladesh and Malaya
Order - Osteoglossiformes,				
Family – Notopteridae				
55	<i>Notopterus notopterus</i> (Ham.)	Patola	Feather back	Fresh water and brackish waters of India, Pakistan, Burma, Siam and Philippines
56	<i>Notopterus Chitala</i> (Ham.)	Patola	Humped feather	Fresh water and brackish waters of India, Pakistan, Burma, Siam & Philippines
Order – Cyprinodontiformes (Old name – Atheriniformes),				
Family –Belonidae				
57	<i>Xenentodon cancila</i> (Hamilton)	Gara	Fresh water gar fish	India, Pakistan, Ceylon and Burma
Order - Synbranchiformes (Old name – Mastacembeliformes),				
Family – Mastacembelidae				
58	<i>Mastacembelus armatus</i> (Lacepede)	Bamb	Spiny eel	India, Pakistan, Ceylon, Nepal, Burma and Malaya
59	<i>Mastacembelus pancalus</i> (Ham.)	Bambi	Spiny eel	India, Pakistan, Ceylon, Nepal and Burma

Status of Fish diversity

In the present study nine fish species inhabiting the river Sheonath were assessed for threat as per NBFGR criteria [10], they are one endangered species *Notopterus Chitala* and eight vulnerable species, which include *Crossocheilus latius*, *Garra gotyla*, *Puntius sarana*, *Ompok pabda*, *Sperata aor*, *Pangasius pangasius*, *Heteropneutes fossilis* and *Gonialosa manmina*. On the basis of frequency distribution followed by Biradar [2], the fish fauna of the region may be categorized into:

1. Dominant species
2. Abundant species
3. Less abundant species
4. Rare species

Fifty nine species were recorded from Sheonath river basin of which 5 species are dominant, 22 species are abundant, 19 species are less abundant and 13 species are rare based on frequency distribution. Recent data regarding Fish diversity in Sheonath river system and their basin, aiming to contribute to a better knowledge of the fish diversity in the water resources of Rajnandgaon district and a tool for conservation planning of aquatic environments in this region.

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