

Diversity of fishes in Sadhoo Pond Reservoir of Raipur District, Chhattisgarh, India

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Abstract: Pond reservoir near Raipur is one of the average productive small pond in Chhattisgarh. It is located near Daldal-Seoni and 15 kms from the block Dharsiwa in Raipur district. The small pond, Sadhoo is situated between 210 27' – 210 29' N latitude and 810 70' – 810 92' E longitude. Agricultural lands surround this pond with an average water spread area of 14.73 acres. The depth is 12-18 meters. However, as it has good water storage capacity, the pond is also used for stocking of cultivable fishes. Several native fishes also thrive in this pond along with stocked composite carp. The diversity of fish can be grouped into two categories, such as assorted Indian carp and other native fish. Fish represent families like Cyprinidae, Channidae, Cichlidae, Siluridae, Percidae, Gobiidae, etc. The detailed taxonomic description of these fish is documented in this document.

Index Terms - Fish Diversity, Pond, Reservoir, Sadhoo, Raipur, Chhattisgarh.

I. INTRODUCTION

Reservoir is a low line area of a river with surrounding earthen depression with constructed dam to develop surface water sheet. To provide irrigation to the croplands several such earthen depressions are converted in to major or minor irrigation tanks. With such an effort of water harvesting and storage the water scarcity problem has been solved to certain extent. The fresh water reservoirs made with this purpose are underutilized and except water utility management no further use of such water sheets is done. In India, there are 19,370 reservoirs spread over 15 states, covering 3.15 million ha. The area is expected to grow further to 6 million ha in due course of 25 years (Anon., 1976). Average fish yields of small, medium and large reservoirs in the country are found to be 50, 12, and 11 kg respectively. Thus the overall fish yield from the reservoirs is only 20 kg per ha which is very low. State of Chhattisgarh has 1.707 million ha water area. Out of the total water spread area in Chhattisgarh 54 percent is in the form of reservoirs. Total number of reservoirs in the state are 1,690 (85,188 ha), out of which 1,657 (37,432 ha) are small, 21 (25,610 ha) medium and 12 (22,146 ha) are large ones covering an area of 56.72 percent, 20.83 percent and 22.45 percent respectively (Annon,2008). Fish production from these resources in India is currently very low (average about 20 kg / ha /yr) against their potential. This is due to lack of understanding of reservoir ecology, proper management and exploitation policies. (Natrajan et.al., 1976).

Reservoirs and lakes could be the main resources exploited for inland fisheries. The understanding of fish faunal diversity is a major aspect for the exploitation of fresh water reservoirs and the sustainable as well as economical management (Battul et.al., 2007). Lakes in India support rich variety of fish species, which, in turn, support the commercial exploitation of the fisheries potential (Krishna et.al., 2006). Sadhoo Pond fresh water reservoir is located in Raipur district of Chhattisgarh State. Its catchment area is 14.73 acres. In this paper the diversity of inhabiting fishes of this fresh water reservoir is discussed.

II. MATERIALS AND METHODS

The sampling of fishes would be made from March to September 2019 twice in a week. Fishes would be collected through landing site. The cast net and gill nets would be operated with local crafts. Fishes would be identified with the help of keys of Day (1986), Datta munshi and Shrivastava (1988), Talwar and Jhingran (1991) and Jayaram (1994). Fishes would be collected fresh and identification would be done at the site itself. For taxonomic study and identification confirmation photographs would be snapped and characters would be noted along with fish formula and their morphometry. The samples would be preserved in formalin.



Figure 1: Satellite view of Saddu Pond , Raipur [via Google Map]



Figure 2: View of Pond in Summer



Figure 3: Labio Rohita



Figure 4: Catla Catla



Figure 5: Cyprinus Carpio



Figure 6: Cirrhinus Mrigala



Figure 7: Hypophthalmichthys Moltrix



Figure 8: Ctenopharyngodon Idella

Figure 1 shows the satellite view of Sadhoo Pond taken from Google Map. Figure 2 shows the summer view of the pond and transparency of water checked in summer season. Figure 3 to Figure 8 some of the species found in the pond reservoir like Labio Rohila, Catla Catla, Cyprinus Carpio, Cirrhinus Mrigala, Hypophthalmichthys Moltrix, Ctenopharyngodon Idella, Notopterus Notopterus, Channa Gachua etc.

Table 1: - Taxonomic details of fish fauna in Sadhoo Pond reservoir

<i>Phylum</i>	Vertebrata
<i>Sub-phylum</i>	Craniata
<i>Super class</i>	Gnathostomata
<i>Series</i>	Pisces
<i>Class</i>	Teleostomi
<i>Sub-class</i>	Actinopterygii

S. No.	Scientific name	Local name	English name
1	<i>Notopterus notopterus</i> (Ham.)	Patola	Feather back
2	<i>Notopterus Chitala</i> (Hamilton)	Patola	Humped feather
3	<i>Labeo rohita</i> (Ham- Buch)	Rohu	Rohu
4	<i>Labeo calbasu</i> (Ham-Buch)	Kalbaz	Calbasu
5	<i>Labeo boga</i> (Bloch)	Lohi	Boga Labeo
6	<i>Hypophthalmichthys molitrix</i>	Silvar carp	Silvar carp
7	<i>Arichtisthys nobilis</i> (Bloch)	Bighead	Big head
8	<i>Ctenopharyngodon idella</i>	Grass carp	Grass carp
9	<i>Cyprinus carpio</i> (Linn)	Carpio	Common carp
10	<i>Puntius sarana</i> (Ham-Buch)	Kotra	Olive barb
11	<i>Puntius sophore</i> (Ham.)	Kotri	Stigma barb
12	<i>Puntius ticto</i> (Ham)	Kotri	Ticto barb
13	<i>Amblypharyngodon mola</i> (Ham)	Mohroli	Mola carplet
14	<i>Catla catla</i> (Ham.)	Katla	Catla
15	<i>Cirrhinus mrigala</i> (Ham.)	Mrigal	Mrigal
16	<i>Cirrhinus reba</i> (Ham)	Borai	Reba carp
17	<i>Parluciosoma daniconius</i> (Ham-Buch)	Dandai	Blackine Rasbora
18	<i>Danio devario</i> (Ham.-Buch.)	Amac-haini or Kotri	Devario danio
19	<i>Ompok bimaculatus</i> (Bloch)	Bolia	Butter cat fish
20	<i>Wallago attu</i> (Schneider)	Padhin	Fresh water shark
21	<i>Mystus bleekeri</i> (Day)	Tengna	Day,s Mystus
22	<i>Mystus cavasius</i> (Ham.)	Jaliya tenga	Dwarf Cat fish
23	<i>Mystus tengara</i> (Ham.)	Tengra	Tengara mystus
24	<i>Mystus aor</i> (Ham.)	Singhar	Long whiskered cat fish
25	<i>Mystus vittatus</i> (Bloch)	Tengra	Striped dwarf cat fish
26	<i>Mystus seenghala</i> (Sykes)	Tengra	Gaint river cat fish
27	<i>Eutropiichthys vacha</i> (Ham-Buch)	Bachra	Vacha
28	<i>Pangasius pangasius</i> (Ham.)	Pagaj	Pangash
29	<i>Heteropneutes fossilis</i> (Bloch)	Singhi	Stinging cat fish
30	<i>Clarias batrachas</i> (Linn.)	Mangur	Air breathing cat fish
31	<i>Clarias gariepinus</i>	Thailand magur	North Africa Catfish
32	<i>Chanda nama</i> (Ham.)	Chan-deni	Glassy perchlet
33	<i>Chanda ranga</i> (Ham.)	Chan-deni	Glassy perchlet
34	<i>Oreochromis mossambicus</i> (Peters)	Tilapia	Mozambi-que tilapia
35	<i>Oreochromis niloticus</i> (Linnaeus)	Tilapia	Nile tilapia
36	<i>Anabas testudineus</i> (Bloch)	Kimi	Climbing perch
37	<i>Anabas oligolepis</i> (Bleeker)	Kinni	Gangetic koi
38	<i>Colisa fasciatus</i> (Bl. & Schm).	Gourami	Bandel colisa
39	<i>Glossogobius giuris</i> (Ham)	Dheshra	Bareyed goby

Table 2: Comparison of Ichthyofauna of Mahanadi Basin with Sadhoo Pond Reservoir

S. No	Fish Species	Hora (1940)	Jayaram and Majumdar (1976)	Singh S (2004)	Ompraksh (2004)	Dev (2008)	Present Study
							Sadhoo Pond Reservoir
1	<i>Anabas testudineus</i> (Bloch)	-	-	+	+	+	+
2	<i>Anabas oligolepis</i> (Bleeker)	-	-	+	+	+	+
3	<i>Amblypharyngodon mola</i> (Ham.)	+	+	+	+	+	+
4	<i>Amblyceps mangois</i> (Ham.)	+	-	-	-	-	-
5	<i>Aspidoparia morar</i> (Ham.)	-	+	-	-	-	-
6	<i>Ailia coila</i> (Ham.-Buch)	-	+	-	-	-	-
7	<i>Badis badis</i> (Ham.)	+	+	-	-	-	-
8	<i>Bagarius bagarius</i>	+	+	-	+	-	-
9	<i>Barilius bendelesis</i> (Ham.)	+	+	+	+	+	+
10	<i>Barilius barna</i> (Ham.)	+	+	-	-	-	-
11	<i>Barilius barila</i> (Ham.- Bush.)	-	+	-	-	-	-
12	<i>Barilius vagra</i> (Ham.)	-	+	-	-	-	-
13	<i>Catla catla</i> (Ham.)	-	+	+	+	-	-
14	<i>Cirrhinus mrigala</i> (Ham.)	-	-	+	+	-	-
15	<i>Cirrhinus reba</i> (Ham.)	-	-	+	+	+	+
16	<i>Chela (Laubuca) laubuca</i> (Ham.)	-	-	-	-	-	-
17	<i>Ctenopharyngodon idella</i> (Val.)	-	-	+	+	+	+
18	<i>Channa gachua</i> (Ham.)	+	-	+	+	+	+
19	<i>Channa marulius</i> (Ham.)	-	-	+	+	+	+
20	<i>Channa orientalis</i> (Bloch and Schn.)	-	-	-	-	-	-
21	<i>Channa punctatus</i> (Bloch)	+	+	+	+	+	+
22	<i>Channa striatus</i> (Bloch)	-	+	+	+	+	+
23	<i>Chanda nama</i> (Ham.)	-	+	+	+	+	+
24	<i>Chanda ranga</i> (Ham.)	+	+	+	+	+	+
25	<i>Clarias batrachus</i> (Linn)	+	-	+	+	+	+
26	<i>Clarias gariepinus</i> (Bloch)	-	-	+	-	+	+
27	<i>Clupisoma bastari</i> (Datta and Karma kar)	-	-	-	-	-	-
28	<i>Clupisoma garua</i> (Ham.-Buch)	-	+	-	-	-	-
29	<i>Colisa faciatus</i> (Bl. & Schn.)	-	-	+	+	+	+
30	<i>Cyprinus carpio</i> (Linn.)	-	-	+	+	+	+
31	<i>Denio devario</i> (Ham.)	-	-	+	+	+	+
32	<i>Danio aequipinnatus</i> (Ham.)	+	-	-	-	-	-
33	<i>Denio (Brachydenio) rerio</i> (Ham.)	+	+	-	-	-	-
34	<i>Garra annandalei</i>	-	-	+	+	-	-
35	<i>Esomos danricus</i> (Ham.)	+	+	-	-	-	-
36	<i>Eriethistes hara</i> (Ham.)	+	-	-	-	-	-
37	<i>Eutropiichthys vacha</i> (Ham.-Buch)	-	+	+	+	+	+
38	<i>Gagata cenia</i> (Ham)	-	+	+	-	-	+
39	<i>Garra gotyla gotyla</i> (Gray)	-	-	-	-	-	-
40	<i>Garra mullya</i> (Sykes)	+	-	-	-	-	-
41	<i>Glossogobius giuris</i> (Ham.)	+	+	+	+	+	+
42	<i>Gonialossa manmina</i> (Ham.)	-	+	-	-	-	-
43	<i>Gudusia chapra</i> (Ham.)	-	-	+	+	+	+
44	<i>Gonoproktopterus kolus</i> (Sykes)	-	-	+	+	+	-
45	<i>Heteropneustes fossilis</i> (Bloch)	+	-	+	+	+	-
46	<i>Hypophthalmichthys molitrix</i> (Val.)	-	-	+	+	+	+
47	<i>Arichtisthys nobilis</i> (Rich.)	-	-	+	+	+	+
48	<i>Labeo angra</i> (Ham.)	-	-	+	+	+	-
49	<i>Labeo bata</i> (Ham.)	-	+	+	+	+	+
50	<i>Labeo boga</i> (Bloch)	-	-	+	+	+	-
51	<i>Labeo boggut</i> (Sykes)	+	-	+	+	+	-
52	<i>Labeo calbasu</i> (Ham.)	-	-	+	+	-	-
53	<i>Labeo fimbriatus</i> (Bloch)	-	-	-	-	-	-
54	<i>Labeo gonius</i> (Ham.)	-	-	+	+	-	-
55	<i>Labeo rohita</i> (Ham.)	-	+	+	+	+	-
56	<i>Lepidocephalichthys guntea</i> (Ham.)	+	+	+	+	-	-

57	<i>Macrogathus aculeatus</i> (Bloch)	+	+	+	+	-	-
58	<i>Mastacembelus pancalus</i> (Ham.)	+	+	+	+	-	-
59	<i>Mastacembelus armatus</i> (Lacepede)	+	+	+	+	-	-
60	<i>Mystus aor</i> (Ham.)	+	-	+	+	-	-
61	<i>Mystus seenghala</i> (Sykes)	-	+	+	+	-	-
62	<i>Mystus bleekeri</i> (Day)	-	-	+	+	+	+
63	<i>Mystus tengara</i> (Ham.)	+	+	+	+	-	-
64	<i>Mystus vittatus</i> (Bloch)	+	+	+	+	-	-
65	<i>Mystus cavassius</i> (Ham.)	+	+	+	+	-	-
66	<i>Nandus nandus</i> (Ham.)	+	-	+	+	+	+
67	<i>Noemacheilus botia</i> (Ham.)	+	-	+	+	-	-
68	<i>Noemacheilus denisonnii</i> (Day)	+	-	-	-	+	+
69	<i>Notopterus chitala</i> (Ham.)	-	-	+	-	+	-
70	<i>Notopterus notopterus</i> (Pallas)	-	+	+	+	+	-
71	<i>Ompok bimaculatus</i> (Bloch)	-	+	+	+	+	+
72	<i>Oreochromis mossambica</i> (Peters)	-	-	+	+	+	+
73	<i>Oreochromis niloticus</i> (Linn.)	-	-	+	+	+	+
74	<i>Orichthys cosuatus</i> (Ham.)	+	-	-	-	-	-
75	<i>Osteobrama cotio</i> (Ham.)	-	+	+	+	+	+
76	<i>Osteobrama vigorsii</i> (Sykes)	-	-	-	-	-	-
77	<i>Pangasius pangasius</i> (Ham.)	-	-	+	+	+	+
78	<i>Pseudeotropius atherinoides</i> (Bloch)	+	-	+	+	+	-
79	<i>Parluciosoma daniconius</i> (Ham.- Buch.)	+	+	+	+	+	-
80	<i>Puntius chola</i> (Ham.)	-	-	+	+	+	-
81	<i>Puntius dorsalis</i> (Jerdon)	+	-	+	+	+	-
82	<i>Puntius gelius</i> (Ham.)	+	+	-	-	-	-
83	<i>Puntius guganio</i> (Ham.)	+	-	-	-	-	-
84	<i>Puntius phutunio</i> (Ham.-Buch.)	-	-	-	-	-	-
85	<i>Puntius sarana</i> (Ham.)	+	+	+	+	+	+
86	<i>Puntius sophore</i> (Ham.)	+	+	+	+	+	+
87	<i>Puntius tetrapogon</i> (McClelland)	+	-	-	-	-	-
88	<i>Puntius ticto</i> (Ham.)	+	+	+	+	+	-
89	<i>Rita rita</i> (Ham.)	-	-	+	+	+	-
90	<i>Rita chrysea</i> (Day)	-	+	-	-	-	-
91	<i>Rhinomugil corsula</i> (Ham.)	-	+	+	+	-	-
92	<i>Salmostoma bacaila</i> (Ham.)	+	+	+	+	+	+
93	<i>Salmostoma phulo</i> (Ham.- Bush)	-	-	-	-	-	-
94	<i>Tor tor</i> (Ham.- Bush)	-	-	-	-	+	+
95	<i>Wallago attu</i> (Bl. And Schn.)	-	+	+	+	+	+
96	<i>Xenentoden cancila</i> (Ham.)	+	+	+	+	+	+

III. RESULTS AND DISCUSSION

Thus in the present study an attempt has been made to limnologically study the Sadhoo Pond Reservoir of Raipur District with special reference to fish production. After completing six month study from March 2019 to September 2019 the author found that the water quality is satisfactory and the fish production is directly related with water quality. If the local fisher men use new technology of fishing and analyzed and treat water quality from time to time, they can find good result in fish production. So the present study can be useful in developing the knowledge of local fishermen. Hence they can improve their economic status by adopting this method in their own fields such developing paddy-cum- fisheries.

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