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ICHTHYOFAUNAL DIVERSITY, FISHERIES AND ITS CONSERVATION IN ITIADOH DAM RESERVOIR DISTRICT GONDIA MAHARASHTRA

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ABSTRACT

The study has been conducted to assess the fish biodiversity profile in one of the largest reservoir in Gondia district; literally there is no report on the fish biodiversity in this reservoir. Authors have tried to document fish biodiversity. The population of fishes is found in abundance and majority of the fishes are exploited for human consumption. About 35 fish species belonging to 6 order and 16 families were recorded during study. The major carps, common carps, cat fishes and eel fishes are abundant. The sustainable management and utilization of this water resource is discussed for diversity, fisheries and its conservation

KEYWORDS

Itiadoh Reservoir, Fish diversity, Fisheries, Conservation

INTRODUCTION

Natural waters have more stable conditions under which the fish evolve hence enlisting biodiversity and its distribution over time space is important from the point of variations in fish fauna over time and space and enables to frame the strategies for its conservation. The fresh water reservoirs made with this purpose are underutilized and except water utility management no further use of such water sheets is done. 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 and Piska 2006). The thorough knowledge of fishery resources, their availability and distribution in a particular water body is essential for proper utilization of its fishery resource (Pawar et al. 2006). Fishes of the inland waters of the Indian subcontinent have been a subject of study since a century. Hamilton-Buchanan (1822), Day (1878), and Misra (1962) have contributed fresh water fishes to Maharashtra. Fishes have formed an important item of human diet they provide many products and by products. In Gondia district about 1397 water bodies are present, which occupied 16375 hectors of water spread area. The fish catching is a major source of lively hood of many fisherman and tribal in the area, about 60,000 people are directly involved in fishery activity. In Gondia district about 120 fishermen cooperative societies are exists with 855 fishermen. Owner of the reservoir is Itiadoh Bagh irrigation Department Gondia and took leased to Itiadoh reservoir fishery co-operative society Ramnagar (Gothangaon) from 2002 to till date. The society has 200 candidate among which 150 people is actively engaged in this job. The fishes collected by the fishermen having economic importance and they are sold after collection in the local fish market as well as other adjacent states. The fisheries in Gondia district required about 560 lac fish seed for every year of which 1557 lac are available. Excess of fish seeds are sold out to other district and funds are utilized for upliftment of fishermen family.

There is wide scope for the further development in the fisheries sector however; very less information is available about Ichthyofauna, present in lotic and lentic habitats of the Gondia district therefore present attempt has been made to document the fish fauna available and aim to scientific utilization for agricultural irrigation and fisheries activities, for sustained exploitation and simultaneous conservation of fisheries resources, basic scientific information on biodiversity is vital. Some valuable contributions were made by Jain (1998), Joshi and Sakhare (2002), Rathod et al. (2008), Pawar et al.

(2006). The occurrence of 35 fish species belonging to 6 orders (Steoglossiformes, Anguilliformes, Cypriniformes, Siluriformes, Atheriniformes & Perciformes). Cypriniformes order dominated with 16 species with major carps was abundant. Channa species was the dominant in order Perciformes. Sakhare and Joshi (2003) reported 34 species of fishes in reservoir of Parbhani district, Devi (1997) studies the Ichthyofauna of Ibrahim-bagh and Shathamarj reservoir and found 29 genera of fishes, out of which order Cypriniformes genera were dominated and followed by Perciformes.

MATERIALS AND METHODS

To investigate the Ichthyofaunal diversity, relative species abundance and aspects of inland fisheries of Itiadoh reservoir was selected as a case study in this region of Maharashtra. The specimens were collected from local fishermen during the time of fishing. For taxonomic study and identification confirmation photographs were snapped and characters were noted along with fish formula and their morphometry. The samples were preserved in formalin. The fishes were identified following work of Day (1994) and Talwar & Jhingran (1991).

Study site: Official Designation of Itiadoh Dam Irrigation Project is "Itiadoh Dam, D- 01049". However local and popular name is "Itiadoh Lake". Itiadoh Major Irrigation Project was approved by Planning Commission of India as a Major Storage/Reservoir Project for Irrigation and Hydroelectricity in 1965. Itiadoh Dam is constructed on Gadvi River (20°50'6"N 80°12'15"E) near Arjuni City. The dam is an Earth and Masonry dam. The length of dam is 505 m (1656.82 ft) while the height of the dam above lowest foundation is 29.85 m (97.9331 ft). The Project has a Spillway of Ogee type. Length of the spillway is 85.344 m (280 feet). It has catchment area of 70.448 thousand hectors. Maximum/Gross storage capacity is 246.88 MCM. Live storage capacity is 317.874 MCM. Now a day almost all the water bodies make for good picnics pots. This is biggest lake in Bhandara-Gondia district.

RESULTS AND DISCUSSION

In the present Investigation 35 fish species from 6 orders of 16 families were recorded from Itiadoh reservoir in number of catches carried out during study period. The members of order Cypriniformes were more with major carp's were dominant. During the study period different fish varieties found in the study area can be observed from the table 1. It can be seen from the result that that reservoir has rich in ichthyofauna. Major carps, *Cyprinus carpio, Rasbora daniconius* and Channa species were most abundant while remaining fishes were less abundantly found in the reservoir. Among the 35 species recorded 24 species were found to be common and 04 species were moderately found, *Clarias batrachus* has been listed as Least Concern (Allen 2011) while *Notopterus notopterus* and *N. chitala* were vulnerable in their threat status (IUCN 1988). Some exotic species such as *Ctenopharyngodon idella, Hypopthalamicthys molitrix, Cyprinus carpio, Tilapia mossambica* were also reported during the present study (Jhingran 1987). Though the exotic fish *Tilapia mossambica* has not yet fully established but its increasing numbers in catches during summer months may affect the production of major carp species, hence necessary steps needs to be taken to control the proliferation of this species for enhancement of fishery productivity pertaining to other species and specially the Indian Major Carps.

.**Table 1: Ichthyofaunal Species Recorded from Itiyadoh Reservoir.**

S.N.	Zoological Name	Common Name	Status	Remarks
	Class: Osteichthyes SubClass: Actinopterygii Order: Steoglossiformes Family: Notoperidae			
1	*Notopterus notopterus*	Featherback	**VL**	Food Fish
2	*Notopterus chitala*	Chital	**VL**	Food Fish
	Order: Anguilliformes Family: Anguillidae			
3	*Anguilla bengalensis*	Fresh water Eel	**UNC**	Food Fish
	Order: Cypriniformes Family: Cyprinidae			
4	*Oxygaster gora*	Chel-hul	**C**	Larvicidal
5	*Rasbora daniconius*	Common rasbora	**C**	Food Fish & Larvicidal
6	*Catla catla*	Catla	**C**	Food Fish
7	*Cirrihinus mrigala*	Mrigal	**C**	Excellent Fish for stocking the ponds

Table 1: continued…

S.N.	Zoological Name	Common Name	Status	Remarks
8	*Ctenopharyngodon idella*	Grass carp	**Exo**	Introduced in India from Japan in 1959
9	*Hypothalmichthys molitrix*	Silver carp	**Exo**	Introduced in India from Hong Kong in 1959
10	*Cyprinus carpio*	Common carp	**Exo**	Introduced in India from Bangkok in 1957
11	*Gara lamta*	Stone Sucker	**C**	Lower lip produced in to suctorial disc
12	*Labeo calbasu*	Kanas	**C**	Food fish
13	*Labeo fimbriatus*	Fringed lipped carp	**C**	Food Fish
14	*Labeo rohita*	Rohu	**C**	Food Fish
15	*Puntius saphore*	Khavali	**C**	Consumed in large quantities by poors
16	*Puntius amphibius*	Banded khavali	**C**	Food Fish
	Family: Cobitidae			
17	*Lepidocephalichthys guntea*	Loach	**UNC**	Inhibits clear standing water
	Order: Siluriformes Family: Bagridae			
18	*Mystus aor*	Red Cat fish	**C**	Used as a Food Fish by locals
19	*Mystus seenghala*	Shingta	**C**	Predatory Fish
20	*Mystus vittatus*	Shingur	**C**	Esteemed as food for its pleasant smoky flavor
	Family: Siluridae			
21	*Ompok bimaculatus*	Butter Catfish	**C**	It is excellent Food Fish
22	*Wallago attu*	Boal	**C**	Food & Game Fish
	Family: Clariidae			
23	*Clarias batrachus*	Magur	**LC**	Allen, 2011
	Family:Heteropneustidae			
24	*Heteropneustes fossilis*	Stinging Cat Fish	**C**	Good nourishing & tasty fish
	Order: Atheriniformes Family: Belonidae			
25	*Xenentodon cancila*	Gar fish	**C**	Good for eating with pot-herbs
	Order: Perciformes Family: Centropomidae			
26	*Chanda ranga*	Indian Glass fish	**C**	Good Aquarium fish
27	*Chanda nama*	Glass perch	**C**	Useful for malaria & guinea worm control (Talwar & Jhingran 1991)
	Family: Nandidae			
28	*Nandus nandus*	Mottled Nandus	**C**	Good food value
	Family: Chchlidae			
29	*Tilapia mossambica*	Tillapia	**Exo**	Introduced in India from Bangkok in 1952 (Jhingran1983)
	Family: Gobiidae			
30	*Glossogobius giuris*	Bar-Eyed Goby	**UNC**	Food Fish
	Family: Anabantidae			
31	*Anabas testudineus*	Climbing perch	**C**	Hardy fish due to presence of accessory respiratory organ.
	Family: Belontidae			
32	*Colisa fasciata*	Khosti	**UNC**	Aquarium Fish
	Family: Channidae			
33	*Channa punctatus*	Spotted Snake head	**C**	Prolific breeder
34	*Channa striatus*	Striped Snake head	**C**	Carnivorous, prefers muddy waters
35	*Channa marulius*	Giant Snake head	**C**	Sporting species & high food value

C = Common, **UNC** = Uncommon, **Exo** = Exotic, **LC** = Least Concern, **VL**=Vulnerable

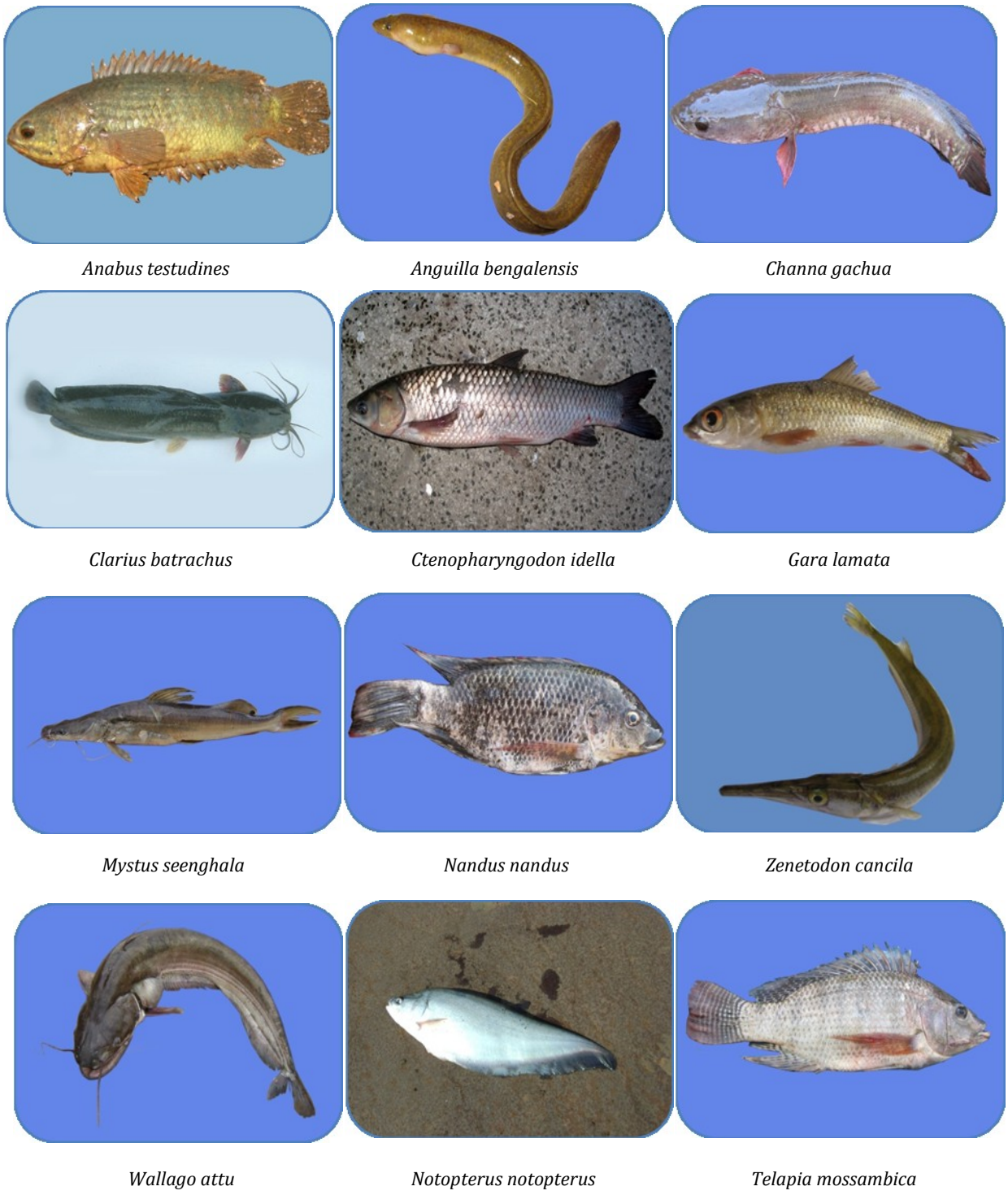
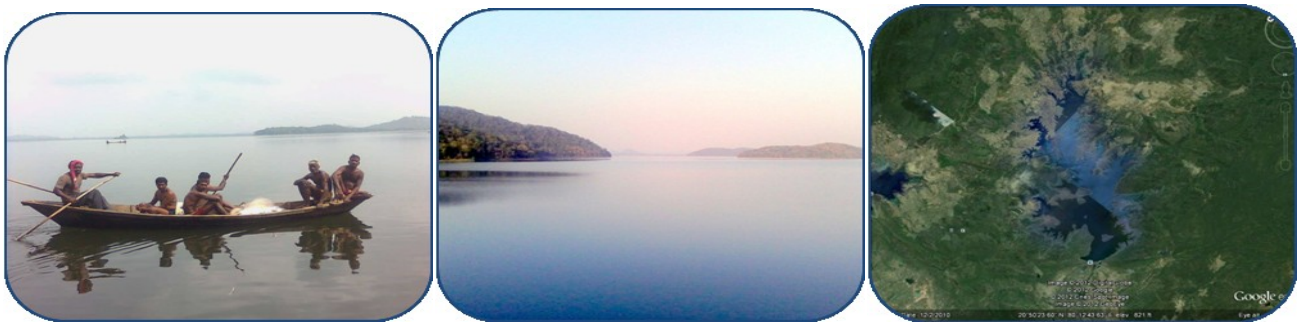


Plate: 1. Some of the Fishes in Itiadoh Dam

1. Transporting fish seed 2. Transporting fish seed 3. Depositing fish seed



4. Fishing activity 5. View of Dam 6. Satellite lake view

Plate 2: Fisheries activities and lake view

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