

## **A BRIEF APPROACH TO ICTHYOFAUNA OF TELANGKHEDI AND GANDHISAGAR LAKES OF NAGPUR, CENTRAL INDIA**

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### **ABSTRACT**

The present study carried at two lakes of Nagpur City in Central India from July 2010 to Jun 2012 confirmed ichthyofaunal diversity of 21 species belonging to 9 different orders, viz Cypriniformes, Anguilliformes, Beloniformes, Paraformes, Singuilliformes, Clupeiformes, Mastacembaliformes, synganthiformes and Ophiocephalliformes. Presence of carps like *Catla-catla*, *Labeo rohita*, *Cirrihina mrigala* and Silver carp showed good productive grounds for fish culture practice in two lakes.

**Keywords:** Nagpur, Ichthyofauna, Telangkhedi lake, Gandhisagar lake.

### **INTRODUCTION**

Lakes can also be categorized on the basis of their richness in nutrients, which typically affects plant growth. Nutrient poor lakes are said to be oligotrophic and are generally clear, having low concentration of plant life. Mesotrophic lakes have a good clarity and an average level of nutrient. Eutrophic lakes are enriched with nutrient, resulting in good plant growth and possible algal blooms. Nutrient is a valuable source of protein and occupies a significant position in the socio-nominal fabric of South Asian countries. For effective exploitation of any aquatic ecosystem basic information on its biodiversity is a must, thus there is a need to survey fish fauna associated with different freshwater habitats which will help in planning methods for their effective exploitation for fish production.

Many workers have studied taxonomy, biodiversity and distribution of fishes found in various parts of Indian subcontinent provided that there is a need for the survey of bio diversity of fishes in different types of habitats all over the country. Jayaram (1981) studied fish diversity of Indian subcontinent. Yazdani (1994) reported Ichthyofauna from Krishna, Cauveri and Ganga

river. In State of Maharashtra, ichthyofaunal diversity was studied by Ahirrao and Mane (2000), Sakhare & Joshi (2003), Yadaw (2003), Yadaw (2006), Rathod et. al. (2008), Tijare and Thosar (2008) and Harney et al. (2009). However, very less information is available about ichthyofauna present in lentic and lotic habitat of Nagpur district. Present study aims to document the fish fauna of two lakes of Nagpur city in Central India.

### **MATERIAL AND METHODS**

The present study was carried out in two years from June 2010 to July 2012. After netting the fishes, photographs were taken and the specimen were preserved in 10% formalin after giving abdominal cut and brought to laboratory for identification. For identification of fishes standard keys of Days (1878), Jayaram (1981) and Talwar and Jhigran (1991) were followed.

**Study Area:** Nagpur city [21°07'N & 79°07'E] the second capital of Maharashtra state lies in centre of India. The city has dry subtropical monsoon climatic condition with temperature range 06<sup>0</sup> C-to-45<sup>0</sup> C (Geo. Inf. Nat. Inf. Centre, 2006). Based on old records, city was boasted of about twenty two water bodies, but rapid

urbanization, load of population, widespread encroachment and continuous logging resulted into the existence of few water bodies in and around city. Primary aim of study is to investigate the ichthyofauna of Two lakes namely Telangkhedi lake, Gandhi Sagar lake. As these lakes were used in many activities since time period, fishing is one of old practice. Fishing is carried out throughout the year and fish culture is done subsequently in respective two lakes.

**Telangkhedi lake:** [21°09'N. & 79.09'E] Telangkhedi lake is an ancient and historical lake exists for 200 years and situated beside the highways on western area of Nagpur city. The Telangkhedi Lake furnished with immense finery and magnificence is one of the must visit tourist

attractions of the Nagpur city. Spread over an extensive are of 60 acres, the lake is enclosed by the guard walls on all the sides and encircled by a granite stone paving bequeathed with a fascinating garden.

**Gandhisagar lake:** [ 21°08' N. &79°08' E) is located near Raman Science Centre about one km. east of Nagpur .The lake which is said to be exists for more than 275 years established as a source of water supply by the then rulers .The picturesque rectangular shaped Gandhi Sagar reservoir is now enclosed with stonewalls and iron railings .One can also found a small island in the middle of the lake with an attractive Shiva temple and a garden.



Figure 1. Sketch of Gandhisagar Lake



**Figure 2. Sketch of Telangkhedi Lake**

## RESULTS AND DISCUSSION

During the present investigation a total of 21 fish species belonging to 9 different orders were recorded from the Two lakes (Table No.1). The Telangkhedi lake showed high species diversity with 20 species while , however 12 species were recorded from Gandhisagar Lake. Sharma et.al (2011) observed 15 fish species in Pinhole lake of Rajasthan.

Ten species of order Cypriniformes viz. *Ctenopharyngdon idella* (Grass carp), *Hypophthalmichthys molitrix* (Silver carp), *Catla catla* (Catla), *Labeo rohita* (Rohu), *Cyprinids' carpio* ( Common carp), *Cirrhina mrigala* (Mrigal carp), *Clarias batracus* (Walking cat fish), *Heteropneustus fossilis* (Stinging cat fish), *Barbus sp.*(Barbel )and *Wallago attu* (Mully cat fish) dominated the lakes. Similar findings were also observed by Shinde et.al. (2009) in Harsool-Savangi dam.

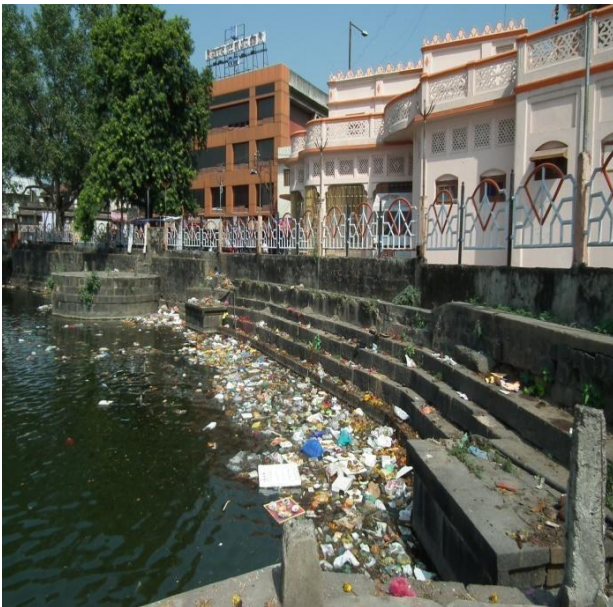
The Cypriniformes are an order of ray-finned fish including the carps and minnows and are most Telangkhediiverse in southeastern Asia (Nelson, 2006)

Cypriniform species are extremely variable morphologically and ecologically. The latter is evident from their wide distribution that includes virtually every type of freshwater habitat and an amazing diversity of reproductive and life- history strategies (Winfield & Nelson ,1991 and MacDonald 2008), Order Cypriniformes was followed by Ophiocephaliformes, Paraformes and Singuiliformes with 2 species while Anguiliformes, Beloniformes, Clupeiformes, Mastacembaliforms, syngnathiformes represented only 1 species respectively. Presence of carps like *Catla catla*, *Labeo rohita*,

*Cirrhina mrigala* and *Hypophthalmichthys molitrix* shows good productive grounds for fish culture practise in two lakes. Presence of *wallago attu*, *Mystus seenghala* and *Clarius garripinnus* as cat fishes also provides embossing of healthy ecosystem in these lakes. The ichthyofaunal diversity of Abundance is due to the easy availability of protein rich invertebrates and other food such as macrophytes , macro benthic organisms and planktons. Every organism maintains

specific relation with the environment in which it lives. These relations entail different environmental parameters eg. temperature, humidity, diet requirements etc. (Blair ,R.B.

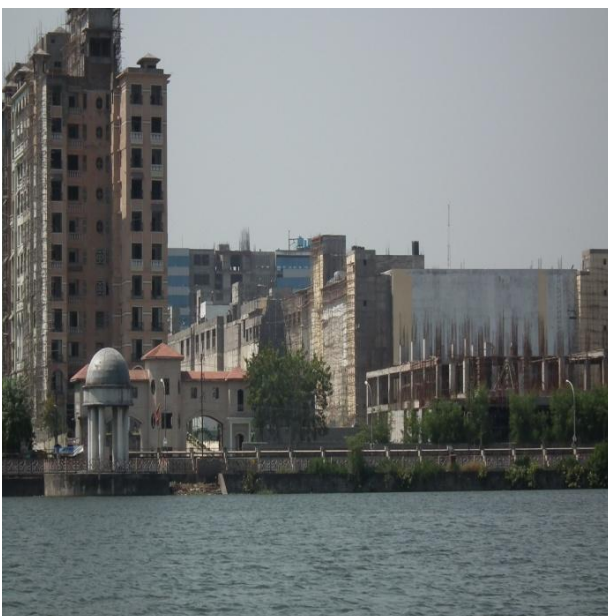
2001) . The result of our survey highlight the fact that ichthyofauna in these lake is abundant which indicate the favourable condition for their survival.



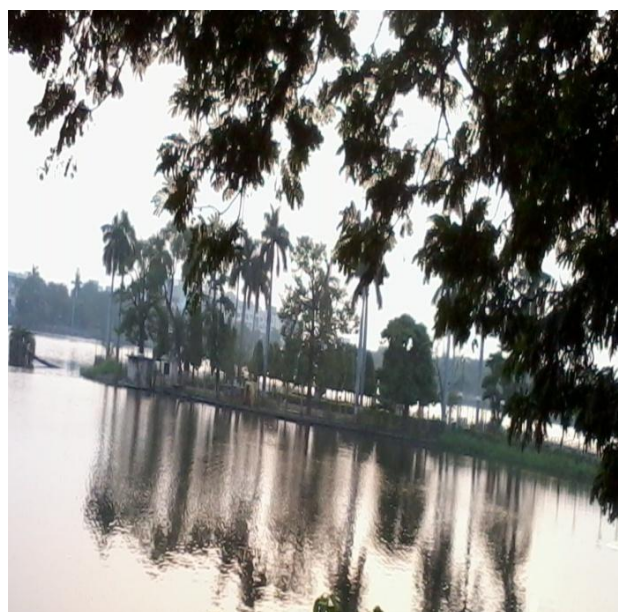
Site-I: Ganesh Temple



Site-II: Nehru Garden



Site-III: Empress Mall



Site-IV: Island Garden

**Figure 3. Photographs of Lake Sites- Gandhisagar Lake**

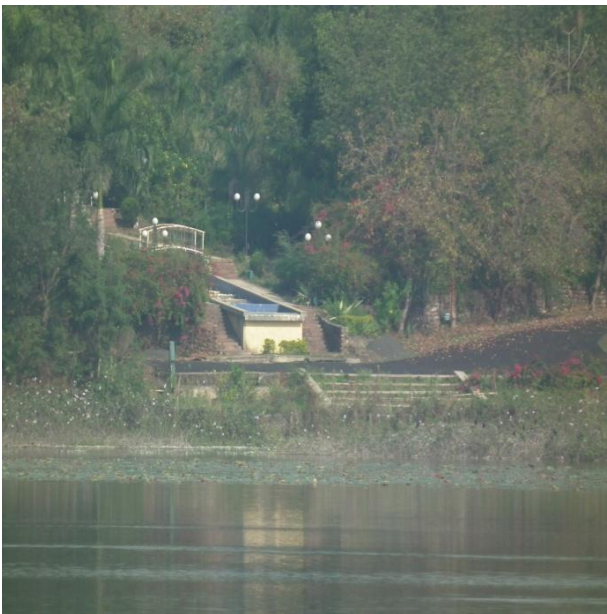
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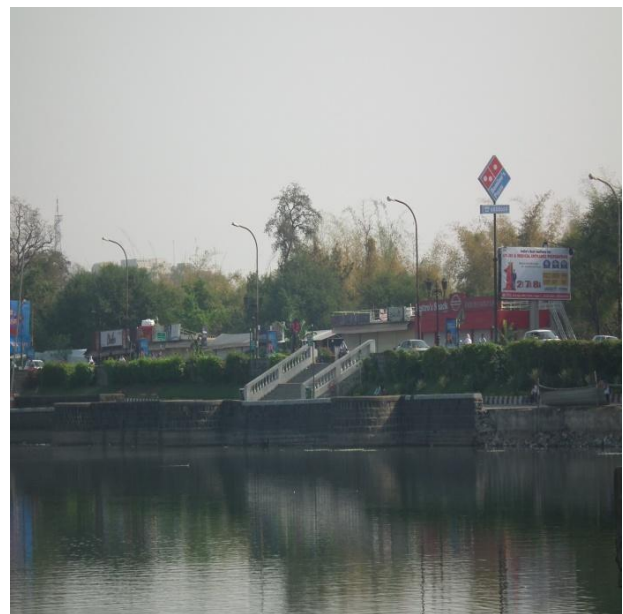
Site -I : Slum area



Site-II: Inlet



Site-III : Botanical Garden



Site IV : Corridors

**Figure 4. Photographs of Lake Sites- Telangkhedi Lake**

**Table 1. Ichthyofaunal diversity of two lakes in Nagpur. (+Present: - Absent)**

Sr. No.	Common Names	Scientific name	Order	Telag-khedi Lake	Ganhi -sagar Lake
1	Grass carp	<i>Ctenopharyngdon idella</i>	Cypriniformes	+	+
2	Silver carp	<i>Hypophthalmichthys molitrix</i>	Cypriniformes	+	+
3	Catla	<i>Catla catla</i>	Cypriniformes	+	+
4	Rohu	<i>Labeo rohita</i>	Cypriniformes	+	+
5	Common carp	<i>Cyprinus carpio</i>	Cypriniformes	+	+
6	Mrigal carp	<i>Cirrhina mrigala</i>	Cypriniformes	+	+
7	Walking cat fish	<i>Clarias batracus</i>	Cypriniformes	+	—
8	Stinging cat fish	<i>Heteropneustus fossilis</i>	Cypriniformes	+	+
9	Barbel	<i>Barbus sp.</i>	Cypriniformes	+	—
10	Mully cat fish	<i>Wallago attu</i>	Cypriniformes	+	—
11	Indian mottled eel	<i>Anguilla bengalensis</i>	Angulliformes	+	—
12	Needle fish	<i>Belone cancila</i>	Beloniformes	+	—
13	Common snake headed	<i>Channa striatus</i>	Ophiocephalliformes	+	+
14	Spotted snake headed	<i>Channa punctatus</i>	Ophiocephalliformes	+	—
15	Bulls eye snake headed	<i>Channa nama</i>	Paraformes	+	—
16	Bulls eye gobby	<i>Glossogobius giuris</i>	Paraformes	+	+
17	Giant river catfish	<i>Mystus seenghala</i>	Singuliformes	+	+
18	Shrptooth catfish	<i>Clarius garipinnus</i>	Singuliformes	+	—
19	Clown knife fish	<i>Notopterus chitala</i>	Clupeiformes	—	+
20	Tire track eel	<i>Mastacembalus aramatus</i>	Mastacembaliformes	+	—
21	Mosabbique Tilapia	<i>Tilapia sp.</i>	Syngnathiformis	+	+



GRASS CARP



SILVER CARP



CATLA CATLA



ROHU



MRIGAL



WALKING CAT FISH



SNAKE HEADED FISH



CLOWN KNIFE FISH

Figure 5. Photographs of fishes commonly seen in the present study

## REFERENCES

- Ahirrao, S.D. & Mane, A.S. (2000) The diversity of Ichthyofauna taxonomy and fishes from freshwater bodies of parbhani district, Maharashtra state(I). *J. Aqua. Biol.* 15(1 &2):40-43.
- Blair, R.B.(2001) Birds and butterflies along urban gradients in two eco-regions of the united states : Is urbanization a homogenous fauna ?In:J.L.Lockwood and M.L.McKinney (Eds).Biotic homogenization : The loss of diversity through invasion and extinction (pp 33-56). New York: Kluwer Academic Publishers.
- Days F.S. (1878) The fishes of India, William Dawson and Sons Ltd. London. Geographical Information on Nagpur city (2006) National Informatics Centre, Nagpur Retrieved -06-30
- Harney N.V., Dhamani A.A., Andrew R.J. (2009) Studies on Ichthyofaunal Diversity of Two water bodies Near Bhadrawati, Distt – Chandrapur, M.S. (I) *Hislopi Journal* (2/2) 2009: 151-157.
- Jayaram, K.C. (1981) The freshwater fishes of India, Pakistan, Burma and Sri Lanka. Handkook of Zoological Survey Of India, No. 2 XII + 475 PP.
- MacDonald, M. (2008) Loaches: Natural History and Aquarium Care (Hardcover). TFH publications, LTD.MacDonald.
- Nelson, Joseph S. (2006) *Fishes of the World*. John Wiley & Sons, Inc. ISBN 0-471-25031-7
- Rathod, S.D., Malu R.A., Dhabade D.S., Patil P.S., Charjan A.P. & Wanjari H.V. (2008) Diversity of fish fauna of Umra reservoir, washim dist. Maharashtra, *J. Aqua. Biol.* 23(2):26-28
- Sakhare V.B. & Joshi P.K. (2003) Reservoir fishery potential of Parbhani district of Maharashtra, *Fishing Climes* 23(5):13-16.
- Sharma R. Sharma V.Sharma M.S.Verma B.K. Modi R.and Gaur K.S.(2011) Studies on Limnological Characteristic, Planktonic Diversity and Fishes (Species) in Lake Pichhola, Udaipur, Rajasthan (India). *Universal Journal of Environmental Research and Technology*, 1(3): 274-285.
- Shinde S.E., T.S. Pathan, R.Y. Bhandare and D.L. Sonawane (2009) Ichthyofaunal diversity of Harsool-Savangi dam, Dist.Aurangabad (M.S.) India.*World Journal of Fish and Marine Sciences* 1 (3):141-143.
- Talwar P.K. and Jhingran A.G. (1991) *Inland fishes of India and adjacent countries Vol 1 and 2*. Oxford and IBH Pub Co. Ltd.
- Tijare R.V. and Thosar M.R. (2008) Ichthyofaunal study from the lakes of Gadchiroli Distt. Maharashtra (I) *J. Aqua. Biol.* Vol. 23(2), 2008: 29-31.
- Winfield, I. J. and J. S. Nelson (1991): *Cyprinid fishes: systematics, biology and exploitation*. Chapman and Hall, London.
- Yadaw B.E. (2003) Ichthyofauna of Northern part of Western ghat, Rec Zoological Survey Of India, OCC paper 215:1-40.
- Yadaw B.E. (2006) Pisces fauna of Tadoba Andhari Tiger Project conservation Area Sec.25:137-160.
- Yazdani G.M. (1994) Biodiversity of fishes of river Ganga, Report Zoological Survey Of India: 72.