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Fish diversity of Kapileshwar (Ashti) Lake in Wardha District (Maharashtra), India.

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ABSTRACT

The aquatic ecosystem has large economic importance especially fish which is an important source of food. The fish diversity of a water bodies, basically represents the Ichthyofaunal diversity. Indian water bodies have rich variety of fish species. Fish played an important role to providing protein rich and less fat diet to the mankind. The contribution focuses on the diversity of fish population and their conservation aspects in Kapileshwar (Ashti) lake in Wardha District (Maharashtra), India, was studied for a period of 2 years from 2016- 2018 and revealed the occurrence of 32 species of fishes.

Keywords: Aquatic ecosystem, Fish diversity, sustainable development, Kapileshwar (Ashti) lake, Wardha.

INTRODUCTION

Water is an indispensible resource gifted by the nature to us like a boon and one of the most needed factors for the existence of living organisms. The importance of fresh water resources in maintaining a healthy and prosperous nation in a healthy environment is amply understood from the very existence of the civilizations on this earth, out of the total global water 3% in the form of fresh water, which is suitable for human consumption. Fresh water is considered as universal solvent having many chemicals dissolved in it.

The tremendous increase in works population resulting in spurt in Urbanization, Industrialization, fisheries, Irrigation and Agriculture has put tremendous pressure on these water resources. Western Ghats of India is a rich freshwater fish fauna.

Fish played an important role to providing protein rich and less fat diet to the mankind It is one of the main source of protein in diet computed 11 kg/yr/person. The per capita availability of fish is 3.05 kg/yr in 1961, which increased upto 5.31 kg/yr, which further increased to 8kg/yr.[10] The changes takes place in the water bodies due to human's interference, it is difficult to monitor water quality only by using physico-chemical methods due to large number of pollutants and their low concentrations and it necessary to plan future fishery activity of the water bodies.

Number of exotic species has contributed substantially to commercial fisheries. Being basically a carp country the indigenous and exotic carps, Catla spp., Rohu spp., Mrigal spp., Silver carp, Grass carp and Common carp, account for a great bulk of the production. Fish production in reservoir is directly or indirectly dependent on the abundance of plankton. The physico-chemical properties of water determine the quality and quantity of plankton.

In the present study has been taken to evaluate present status of fish diversity to protect the biological resources of traditional use values of local communities depending upon the lake environment.

METHODOLOGY

Kapileshwar (Ashti) lake is located 1 km away from Ashti town, It is a Tahsil place in Wardha district in the state of Maharashtra, India. Ashti lake named as Kapileshwar Talav and is a famous due to Kapileshwar Mandir built at the base of talav, so named as Kapileshwar talav, now local name is Kapileshwar (Ashti) lake. it was constructed in 1960 as a irrigation project by the Government of Maharashtra. It was constructed on and impounds a local Nallah. It is good Picnic spots and a popular Tourist attraction for its scenic beauty. The marginal area of the lake used for cultivation.

Study Area

Status of Kapileshwar (Ashti) Lake ecosystem

Kapileshwar (Ashti) lake is situated at latitude of 21°12'32"N, 78°11'47"E and at an elevation of 303 Meters. The Ashti Town mostly benefited by this lake. The lake is surrounded by agricultural fields, dense forest and the lake water is suitable for domestic purpose, irrigation and fishery activity.

RESULTS AND DISCUSSION

Biodiversity of fishes

Sampling and data collection were from February 2016 to January 2018.

The fishes were collected by local fisherman. Specimens were packed,labelled in separate polythene bags,then brought into laboratory, washed, cleaned, observed and then identified up to species by referring standard literature of Qureshi and Qureshi [11], Day[1], Talwar and Jhingran [4] and Jayaraman[14]. The checklist of identified fish fauna is prepared and presented in table form.

Immediately on reaching the laboratory fishes were separated according to the species and live fishes were killed in a solution of formalin. Before fixation the colour pattern of the fishes, specific marks, spots and designs were noted as far as possible in live condition, since formalin decolorizes the fish colour on long preservation.

Observation

In the present study period total 32 species of fishes (Table 1) were noted and identified, belongs to five Order Cypriniformes, Ophiocephaliferma, Osteoglossiformes, Siluriformes and Beloniformes and belongs to nine Families Cyprinidae, Siluridae, Clavidae, Notoptevidae, Heteropueustidae, Sisuridae, Bagridae, Charidae and Belonidae.

Table 1: Check list of fishes in Kapileshwar (Ashti) lake.

Sr.No.	Order	Family	Scientific Name
1	Ophiocephaliforms	Charidae	*Channa marulius*
2	Ophiocephaliforms	Charidae	*Channa punctatus*
3	Ophiocephaliforms	Charidae	*Channa striatus*
4	Ophiocephaliforms	Charidae	*Channa gaclura*
5	Ophiocephaliforms	Charidae	*Anabust estudineus*
6	Ophiocephaliforms	Charidae	*Nandus nandus*
7	Ophiocephaliforms	Charidae	*Glassogobiu sgiurius*
8	Osteoglossiformes	Notoptevidae	*Notopterus notopterus*
9	Osteoglossiformes	Notoptevidae	*Notopterus chitala*
10	Osteoglossiformes	Heteropueustidae	*Heteropneusters fossils*
11	Osteoglossiformes	Clavidae	*Clarias batrachus*
12	Siluriformes	Siluridae	*Wallago attu*
13	Siluriformes	Siluridae	*Ompokpabda*
14	Siluriformes	Siluridae	*Ompokbimalulatus*
15	Siluriformes	Sisuridae	*Glyptothorax spp.*
16	Siluriformes	Bagridae	*Mystus seenghala*
17	Siluriformes	Bagridae	*Mystusaor*
18	Siluriformes	Bagridae	*Mystuscavasius*
19	Cypriniformes	Cyprinidae	*Garramully*
20	Cypriniformes	Cyprinidae	*Anabusranga*
21	Cypriniformes	Cyprinidae	*Anabus nama*
22	Cypriniformes	Cyprinidae	*Oxygaster bacaila*
23	Cypriniformes	Cyprinidae	*Punctitius ticto*
24	Cypriniformes	Cyprinidae	*Punctitius sophore*
25	Cypriniformes	Cyprinidae	*Punctitius sarana*
26	Cypriniformes	Cyprinidae	*Punctitius punctitius*
27	Cypriniformes	Cyprinidae	*Rasbora rasbora*
28	Cypriniformes	Cyprinidae	*Catla catla*
29	Cypriniformes	Cyprinidae	*Cirrhinus mrigal*
30	Cypriniformes	Cyprinidae	*Labeo rohita*
31	Cypriniformes	Cyprinidae	*Cyprinus carpio*
32	Beloniformes	Belonidae	Xenanthodoncancilla

Thirteen species were belongs to Family Cyprinidae viz. *Garramullya, Anabusranga, Anabusnama, Oxygasterbacaila, Punctitiusticto, Punctitiussophore, Punctitiussarana, Punctitiuspunctitius, Rasborarasbora, Catlacatla, Cirrhinusmrigal, Labeorohita and Cyprinuscarpio.*Seven species were belongs to Family Charidae, viz*Channamarulius, Channapunctatus, Channastriatus, Channagaclura, Anabustestudineus, Nandusnandus and Glassogobiusgiurius.*

Three species were belongs to Family Siluridae viz. *Wallagoattu, Ompokpabda andOmpokbimalulatus.* Three species were belongs to Family Bagridae viz. *Mystusseenghala, Mystusaor and Mystuscavasius.* Two species were belongs to Family Notoptevidae viz. *Notopterusnotopterus and Notopteruschitala.* Single species belongs to Family Heteropueustidae - *Heteropneusters fossils,* Family Clavidae – *Clariasbatrachus*, Family Sisuridae - *Glyptothorax spp.* One species each of Family Belonidae – *Xenanthodoncancilla.*

Different species on the basis of their food and feeding habits fishes were categorized into planktonovores, herbivores, ominovores and carnivores

a) Planktonovores: *Catla catla*
b) Herbivores: *Labeo* rohita.
c) Omnivores: Common carp, *Clarias batrachus, Heteropnuestes fossilis Puntius sarana and P. ticto.*
d) Carnivores or predators: *Channa* species, *Anabust estudinus, Nandus nandus* and *Mystus cavasius.*

DISCUSSION

Fish has been used as a traditional test animal to study the acute toxicity of a wide range of substances. The natural fish population, though serve as an important general indicator of water quality, they are less suitable for providing a detailed scientific assessment of water quality and other sections of biota are preferred. The inherent disadvantage of fish as an indicator of water quality is the fact that water quality is not the only factor that limits their distribution.[5]

In the present investigation, total 32 species were identified among those, 05 were of Order of Cypriniformes were 13 spp., Ophiocephaliforms were 07 spp., Siluriformes were 07 Osteoglossiforms were 04, and Beloniformes was only one species. Similarly, Jitendra*et et al.*[5] reported total 62 fish species belonging to 41 genera, 20 Families and 09 Orders were identified,. Order Cypriniformes (22 spp.) contributed maximum as compared to Siluriformes (20 spp.) and Perciformes (09 spp.) and Synbranchiformea shared (03 spp.) while Clupeiformes, Mugiliformes and Osteoglossiforms contributed two species where as Beloniformes and Traodontiformes shared on one species of Faizabad U.P. Sakhare [12] investigated the occurrence of 23 fish. viz Order Cypriniformes fallowed by order Siluriformes and orders like Osteoglssiformes, Perciformes and Channiformes.

Similarly, Nikam *et al., [9]* reported 23 species of fishes belonging to 05 Order and 12 Families were identified. The order Cypriniforms was found to be dominant among fishes at Ashti lake, Tal. Mohol District, Solapur. Dubey *et al.,* [2] reported 13 species belonging to 03 Order, 05 Families and 10 genera order Cypriniforms was dominant 06 species fallowed by Siluriforms 02 species and Perciformes 02 species at Sarangpani lake, Bhopal. Mistry [7] reported total of 37 species of fish belonging to 19 families were collected, out of 47 species 20 species of Cyprinidae families was dominated in the Ahiran lake, Murshidabad (W.B). Nayaka [8] reported on the basis of percentage composition and species richness order Cypriniformes was dominant (05 spp.) fallowed by Perciformes (03 spp.), Siluriforms (02 spp.) at Mallasandra lake of Tumakuru, Karnataka. Kumar [6] reported 40 species belonging to 18 families, 27 genera and 09 Order were identified in Turkauli lake, East-Champaran, Bihar.Out of 32 species found in this lake, *Catla cattla, Labeo rohita* and Common carp and *Mrigal spp.* were most abundantly and remaining fishes were shows their presence less in the lake.

During study period, 32 ichthyofauna found in the reservoir, Majority of species belong to Family Cyprinidae. Seven genera of family Charidae, three genera of minor carps of family Bagridae and Siluridae , two genera of Notoptevidae and one each genera of family Belonidae, Sisuridae, Clavidae and Heteropueustidae were identified.

CONCLUSION

In present investigation, only three fishes (catla, rohu and common carp found most abundant in the lake during two years period.To summaries, fish distribution is useful for designing and implementing conservation strategies, to make fishermen aware of fishing, to give scientific training, to provide facilities to the fish farmers. The present work will provide further strategies for fish conservation and development, which suggests that a major part of this is threatened by human activities. The present investigation on Kapileshwar lake of Ashti show the rich biodiversity throughout the year.

Conflicts of interest: The authors stated that no conflicts of interest.

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