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DIVERSITY OF FRESH WATER FISHES FROM THE WASHIM DISTRICT OF MAHARASHTRA, INDIA.

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ABSTRACT

Fishery is an important source of food for mankind. The main aim of study is to know edible and wild fishes of the particular area and its fishery potential. The data obtained in the present study is also important in variety of manners such as to know the present status of fish fauna in the local region, it is helpful for the researchers as well as fishermen's, to get an idea about the tolerance and diversity of fish found in Washim region and choose exact variety of fish species for the culture so as to get maximum yield. Nine water bodies where fish cultivation is a regular practise by various fish farmer societies were selected as sites of collection. Present study reports 22 species of fishes belonging to 06 orders, 11 families and 19 genera from the study area. Cypriniformes such as *Labeo rohita, Catla catla, Cirrhinus mrigala, Cyprinus carpio, Labeo boggut, Garra mullya, Puntius sophore Cirrhinus reba, Rasbora daniconius (Hamilton Crossocheiluslatius Hamilton) Salmostoma sp.* were found most abundant. Details of diversity of above mentioned species are discussed in this paper.

KEYWORDS :Fish Diversity, Fresh water, Washim, Maharashtra.

INTRODUCTION

The nature has endowed with a wealth i.e., biodiversity and its environment, which is vital for the sustenance of life on this earth. Biodiversity is the variety and variability of plants, animals and microorganisms in its environment. Ichthyodiversity refers to variety of fish species; depending on context and scale, it could refer to alleles or genotypes within piscian population, to species of life forms within a fish community, and to species of life forms across aquaregimes **(Battul *et.al*., 1992).** India is endowed with a vast expanse of open inland water. The fresh water resources are very precious for the life on our planet. The number of dams, reservoirs, tanks, etc. has significantly increased in last few years. The aquatic ecosystem is important and it has large number of economically important animals especially fish which is an important source of food.

Fish constitutes almost half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats. They exhibit enormous diversity of size, shape and biology, and in the habitats they occupy. Of the 39,900 species of vertebrates in the world, **Nelson (2006)** estimated 21,723 extant species of fish under 4,044 genera, 445 families and 50 Orders in the world, compared to 21,450 extant tetra pods. Of these, 8,411 are freshwater species and 11,650 are marine. **Day (1889)** described 1418 species of fish under 342 genera from the British India.

Maharashtra is rich in freshwater (rivers, irrigation canals, dams, and lakes) reservoirs and its fish diversity. Therefore, Maharashtra is one of the important states for fish production and natural water resources and there is great scope for developing fisheries in this state. The fish diversity was studied by many workers to a great extent that includes **Bandyopadhyay (1999)**, **Ahmad *et al.*, (2008), Bhakta and Bandyopadhyay (2008), Devi Prasad *et.al* (2009), Goswami and Landmankodi (2010), Sarwade *et al*. (2010), Jadhav *et al*.,(2011), Thirumala *et al*., (2011) , Muruga (2012), Gohil and Mankodi (2013), Islam *et al*., (2013), Bose *et al.,* (2013), Khanna and Fouzia (2013), Mohite and Samant (2013), Chouhan *et al.*, (2013), Sirajudheen and Khan (2014) and Londhe (2015).**

Fish diversity is declining rapidly each day due to unending anthropogenic stress. This diversity is not only the wealth of our world but it also has some serious implications on fishery. Thus there is an urgent need for proper investigation and documentation of fish diversity in order to develop a fresh water fish diversity information system having both bioinformatics and geo referenced databases of fish and fish habitat. Although extensive surveys have been conducted in Washim region but they did not provide a separate list of fish species of the present study area. The present study is an attempt to document the diversity of fresh water fishes of Washim region of Maharashtra.

MATERIALS AND METHODS

3.1. Study Area:-

Washim is one of the districts of Maharashtra states in India. It is located at 19° 38' N and 21° 13' N latitude and 76° 38' E and 77° 44' E longitude. It is 300-600m above the mean sea level. The region of the district spreads over 5178sq.km. Fishery activities in the district are mostly performed at reservoirs, checkdams and main rivers like Painganga, Arunavati, Adan, Pus, Katepurna and Bewla. The district is having 306 numbers of reservoirs, ponds and checkdams constituting 5221 hectors of area under water with total catchment area of 4718 hectors. fishery activites in the districts mostly performed at reservoirs ,check dam and main dam like Borala dam, Ekburji dam, Savargoan dam, Tornala dam, Suphakala dam, Khandala dam, Sukali dam, Dhumka dam and Nagthana dam .

3.2. Collection of fish samples:-

The fishes for the present study were collected from local fish markets and various water

resources such as Ekburji dam, Tornala dam, Savargoan dam, Sukali dam, Dhumka dam and Supkhala dam in Washim district of Maharashtra.

3.3. Identification of fish sample:-

The fishes from dams were collected using various fishing methods. After sampling, photographs of fishes were taken and collected fish samples were preserved in 10% formalin for detailed examination and identification by using standard literature of **Day (1878), Jayaram (2010) and Talwar and Jhingran (2001).** Some of the samples were sent to Western Regional Office of Zoological Survey of India for further identification.

RESULTS AND DISCUSSION

The present study reported 22 species of fresh water fishes belonging to 06 orders, 11 families and 19 genera from the Washim district of Maharashtra, India. The fresh water fishes reported during the present study are depicted in the table given below:

Table 1: List of fresh water fishes from the Washim district of Maharashtra, India.

Sr. No.	Order	Family	Fish Species
1	Cypriniformes	Cyprinidae	*Labeo rohita* (Hamilton-Buchanan 1822)
2	Cypriniformes	Cyprinidae	*Catla catla* (Jhingran 1966)
3	Cypriniformes	Cyprinidae	*Cirrhinus mrigala* (Hamilton Bachanan, 1822)
4	Cypriniformes	Cyprinidae	*Cyprinus carpio* (Linnaeus 1758)
5	Cypriniformes	Cyprinidae	*Labeo boggut* (Sykes 1838)
6	Cypriniformes	Cyprinidae	*Garra mullya* (Sykes 1841)
7	Cypriniformes	Cyprinidae	*Puntius sophore* (Hamilton Bachanan, 1822)
8	Cypriniformes	Cyprinidae	*Cirrhinus reba* (Hamilton Bachanan1822)
9	Siluriformes	Siluridae	*Ompok bimaculatus* (Lacepede 1803)
10	Siluriformes	Bagridae	*Mystus bleekeri* (Day)
11	Siluriformes	Bagridae	*Mystus cavasius* (Hamilton Bachanan 1822)
12	Siluriformes	Siluridae	*Wallago attu*
13	Perciformes	Cichlidae	*Tilpia mosumbica* (W.K.H pterus 1852)
14	Percisforme	Gobiidae	*Glossogobius giuris*(Hamilton-Bachanan1822)
15	Synbranchiformes	Mastocembelidae	*Mastocemelus arnatus* (Scopoli 1777)
16	Osteoglossiformes	Notopteridae	*Notopterus notopterus* (pallas1769)
17	Cypriniformes	Cyprinidae	*Rasbora daniconius (Hamilton)*
18	Cypriniformes	Cyprinidae	*Crossocheiluslatius Hamilton)*
19	Anguilliformes	Anguillidae	*Anguilla bengalensis (Gray)*
20	Perciformes	Channidae	*Channa striata (Bloch)*
21	Cypriniformes	Cyprinidae	*Salmostoma sp.*
22	Perciformes	Ambassidae	*Chanda nama(Hamilton)*

Table 2: List of fresh water fishes from the Washim district of Maharashtra, India with their Economic and conservation status.

Sr.no	Species (Binomial name)	Vernacular / Local name	Economic Status	Site of Collection	Conservation Status (IUCN 3.1)
1	*Labeo rohita* (Hamilton-Buchanan 1822)	Rohu	High	Ekburji damp	Least concem
2	*Catla catla* (Jhingran 1966)	Catla	High	Tornala damp	Least concem
3	*Cirrhinus mrigala* (Hamilton-Bachanan 1822)	Mrigal	High	Supkhela damp	Vulnerable
4	*Cyprinus carpio* (Linnaeus 1758)	Gowri	High	Tornala damp	Vulnerable
5	*Labeo boggut* (sykes 1838)	Bata	Less	Sukali damp	Vulnerable
6	*Garra mullya* (Sykes 1841)			Ekburji damp	Least concem
7	*Puntius sophore* (Hamilton-Bachanan 1822)	Gudda-pakke	High	Borala damp	Theratend
8	*Cirrhinus reba* (Hamilton-Bachanan1822)	Arja	Less	Khandala damp	Least concem
9	*Ompok bimaculatus* (Lacepede 1803)	Godalae	High	Borala damp	Near Threatened
10	*Mystus bleekeri* (Day)			Sukali damp	Theratend
11	*Mystus cavasius* (Hamilton-Bachanan1822)	Girlu	Less	Ekburji damp	Least concem
12	*Wallago attu*	Lachi	High	Khandala damp	Near Threatened
13	*Tilapia mosambica* (W.K.H pterus 1852)	Tilpia	Less	Supkhela damp	Near Threatened
14	*Glossogobius giuris* (Hamilton-Bachanan1822)	Jilebi	High	Tornala damp	Least concem
15	*Mastocemelus arnatus* (Scopoli 1777)	Haavu-meenu	Less	Tornala damp	Least concem
16	*Notopterus notopterus* (pallas1769)	Chappali	Less	Tornala damp	Least concem
17	*Rasbora daniconius* (Hamilton)	Blackline Rasbora,	Less	Tornala damp	Least concem
18	*Crossocheilus latius* (Hamilton)	Gangetic Latia	Less	Supkhela damp	Least concem
19	*Anguilla bengalensis* (Gray)	Vaam	High	Ekburji damp	Least concem
20	*Channa striata* (Bloch)	viral	High	Ekburji damp	Least concem
21	*Salmostoma* sp.	Myanmar	Less	Ekburji damp	Least concem
22	*Chanda nama* (Hamilton)	Glass Perchlet	High	Supkhela damp	Least concem

The results of the present study shows Cypriniformes as the dominant group in the assemblage

composition contributing 50% to total fish diversity in which *Labeo rohita, Catla catla, Cirrhinus mrigala, Cyprinus carpio, Labeo boggut, Garra mullya, Puntius sophore Cirrhinus reba Salmostoma sp., Rasbora daniconius and Crossocheilus latius* were found most abundant. Siluridae family contributing 9.09% to total fish diversity in which *Ompok bimaculatus, Wallago attu* were found. *Bagridae contributing* 9.09% to total fish diversity in which *Mystus bleekeri* and *Mystus cavasius* were found. *Cichlidae* contributing 4.54% to total fish diversity in which Tilapia mosumbica were reported. Gobildae contributing 4.54% to total fish diversity in which *Glossogobius giuris* species. *Mastocembelidae* family was reported contributing 4.54% to total fish diversity in which *Mastocemelus arnatus* was dominant species. *Notopteridae* was reported with 6 species contributing 4.54% to total fish diversity with *Notopterus notopterus fish*. Anguillidae family contributing 4.54% to total fish diversity *Anguilla bengalenisis*. Channidae family contributing 4.54% to total fish diversity with Channa striata. Ambassidae family contributing 4.54% to total fish with *Chanda nama.*

India is one of the mega diversity countries with respect to freshwater fish species (650+species). In freshwater fish diversity India is eighth in the world and third in Asia. There are plenty of cultivable species. The indigenous fishes should also be incorporated into the value systems of the society (sport, biological control, aesthetic, etc). The water bodies harboring endangered fishes must be declared as fish sanctuaries or aquatic diversity management areas. The use of illegal method to catch fish should be banned in this area to prevent for the depletion of fresh water fish resources. The fisherman's should make aware about fishing, scientific training and facilities should be made available to the fish farmers. Fishing of the spawns, larval fishes and immature fishes should be avoided and subsides loan facility may provide on large scale which may help in high yield of fish production. It was further concluded that studies may be done to develop technique for fish culturing, protecting and conserving the biodiversity of fish.

With the rapid increase in the human population and the increasing dependence on aquatic fishery resources including water and the continuing introduction of exotic species in natural water bodies, the loss of aquatic fish diversity is likely to increase further unless proper conservation measures are implemented.

Photoplate 1: Fish Diversity of Washim District, Maharashtra.

Labeo rohita

Catla catla

Cirrhinus mrigala

Cyprinus carpio

Labeo boggut

Ompak bimaculatus

Mystus bleekeri

Mastocembelus armatus

Tilapia mosumbica

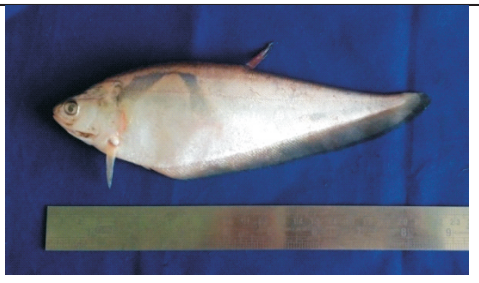
Glossogobius giuris

Garra mullya

Puntius sophore

Cirrhinus reba

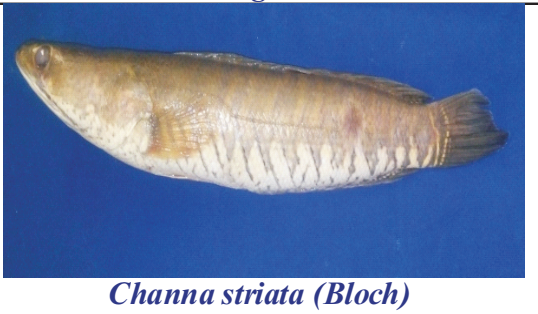
Mystus cavasius



Notopterus notopterus

Wallago attu

Chanda nama

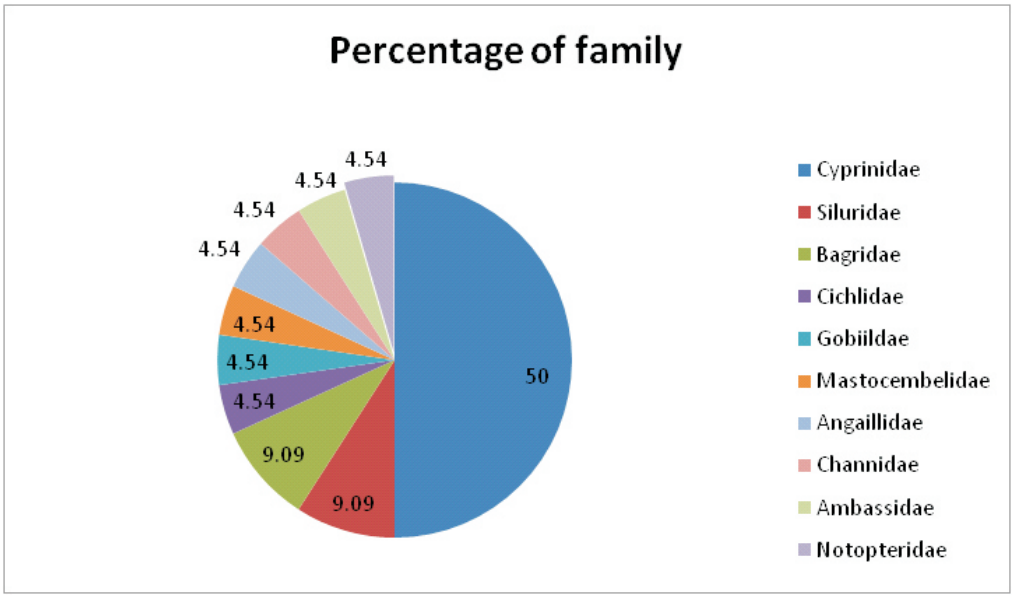


Channa striata (Bloch)

Rasbora daniconius (Hamilton)

Crossocheilus latius (Hamilton)

Photoplate II: Pie diagram showing Percentage occurrence of familywise distribution freshwater fishes of Washim district of Maharashta, India.



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