International Journal of Advance and Applied Research (IJAAR)
Peer Reviewed Bi-Monthly

ISSN – 2347-7075
Impact Factor – 7.065
Vol.8 No.1 Sept – Oct 2020

DIVERSITY OF FRESH WATER FISHES FROM THE AKOLE TAHSIL OF DISTRICT AHMEDNAGAR, MAHARASHTRA, INDIA

Balasaheb K. Tapale

Assistant Professor
Department of Zoology
Adv. M. N. Deshmukh College, Rajur.

ABSTRACT:

Fresh and clean water is essential for healthy life of plants and animals including human beings. Fishes are an important source of food for human beings. The main aim of study is to know edible and non-edible fishes of the particular area and its fishery potential. The data obtained during (2018-2019) the present study is also important to know the present status of fish fauna in the local region Akole tahsil of Ahmednagar district. It is helpful for the researcher, students and fishermen's, to get an idea about the tolerance and diversity of fish found in Akole Tahsil and choose exact species of fish for the fishery so as to get maximum production. Two water bodies where fish cultivation is a regular practise by fish farmer were selected as sites for sample collection. This study also shows the economic status of the species. During the present study reports 20 species of fishes belonging to 06 orders, 09 families and 19 genera are recorded 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, Salmostomasp.* Were found large in numbers above - mentioned 20 species are discussed in this paper.

Key words: Akole, Cypriniformes, Siluriformes, Synbranchiformes, Perciformes, Osteoglossiformes, Anguilliformes, Diversity

INTRODUCTION:

Global water is broadly classified into two classes, Fresh water and salt water. Fresh water present in lentic and lotic form. The rise and fall in chemical

and physical factors very frequently affect the fauna, alternating their number and diversity. About 97% of earth water is ocean water. It is saline and not useful for drinking and irrigation. Rest of, 02% is in the form of ice at Polar Regions. The remaining 1% is available as fresh water and is trapped in underground reservoirs, lakes, ponds, pools, streams, rivers, etc. UNEP (1987). The water is an important natural resource essential for the survival of life. The nature has endowed with a wealth i.e., biodiversity and its environment, which is vital for the sustenance of life on the earth. Biodiversity is the variation and variability of plants, insects, animals and microorganisms in the environment. Ichthyo faunal diversity refers to variety of fish species; depending on context and scale and species of life forms with in a fish community, and to species of life forms a cross aqua regimes (Battul*et.al*.,1992). India is endowed with a vast expanse of open in land water. The fresh water resources are very important for the life on our planet. The number of dams, rivers, 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 50% of the total number of vertebrates in the world. They live in almost all aquatic habitats. They exhibit enormous diversity of size, shape, weight and biology, and in the habitats. 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 bodies (rivers, irrigation canals, dams, and lakes) reservoirs and its fish diversity. Therefore, Maharashtra is one of the important states for fish production and there is great scope for developing fisheries in the state.

The fish diversity was studied by many researcher storage at extent that includes Aliukini *et al*. ,Archana Sharma and Devendra Mohan (2010) recorded 14 fish species belonging to 4 orders and 5 families from the Hema was dam during December 2006 to June 2009. Humilton and Buchanna (1922), Day (1978) were recorded fish fauna of Godavari and Krishna River. (1955), Mishra (1962), Jhingran (1977), Jayram (1981), Bandyopadhyay (1999),Ahmad *et al.*,(2008), Bhakta and Bandyopadhyay (2008), Devi Prasad *et.al* (2009), Goswami and Landman Kodi

(2010), Kamble and A.H., Kamble (2009), Pawar, B.A. and U.H. Mane (2006), Tapase and Kamble (2011), Jadhav et.al., (2011), Sakhare, V.B. (2001a),Sarwade *et al*. (2010), Jayram (2010), Jadhav,B.V., (2011), Jadhav *et al*., (2011), Gohil and Mankodi (2013), Bose *et al.,* (2013), Khanna and Fouzia (2013), Londhe(2015) and Thakare (2016).

Fish diversity is declining rapidly everyday due to unending anthropogenic stress and situation. The diversity is not only the wealth of our world but it also has some serious implications on fishery. Thus, there is need for proper investigation and documentation of fresh water fish diversity in order to develop fish diversity information system having both bioinformatics and geo referenced databases of fish and fish habitat. Although extensive surveys have been conducted in Akole tahsil region. The present study is an attempt to document the diversity of fresh water fishes of Akole tahsil region of Maharashtra.

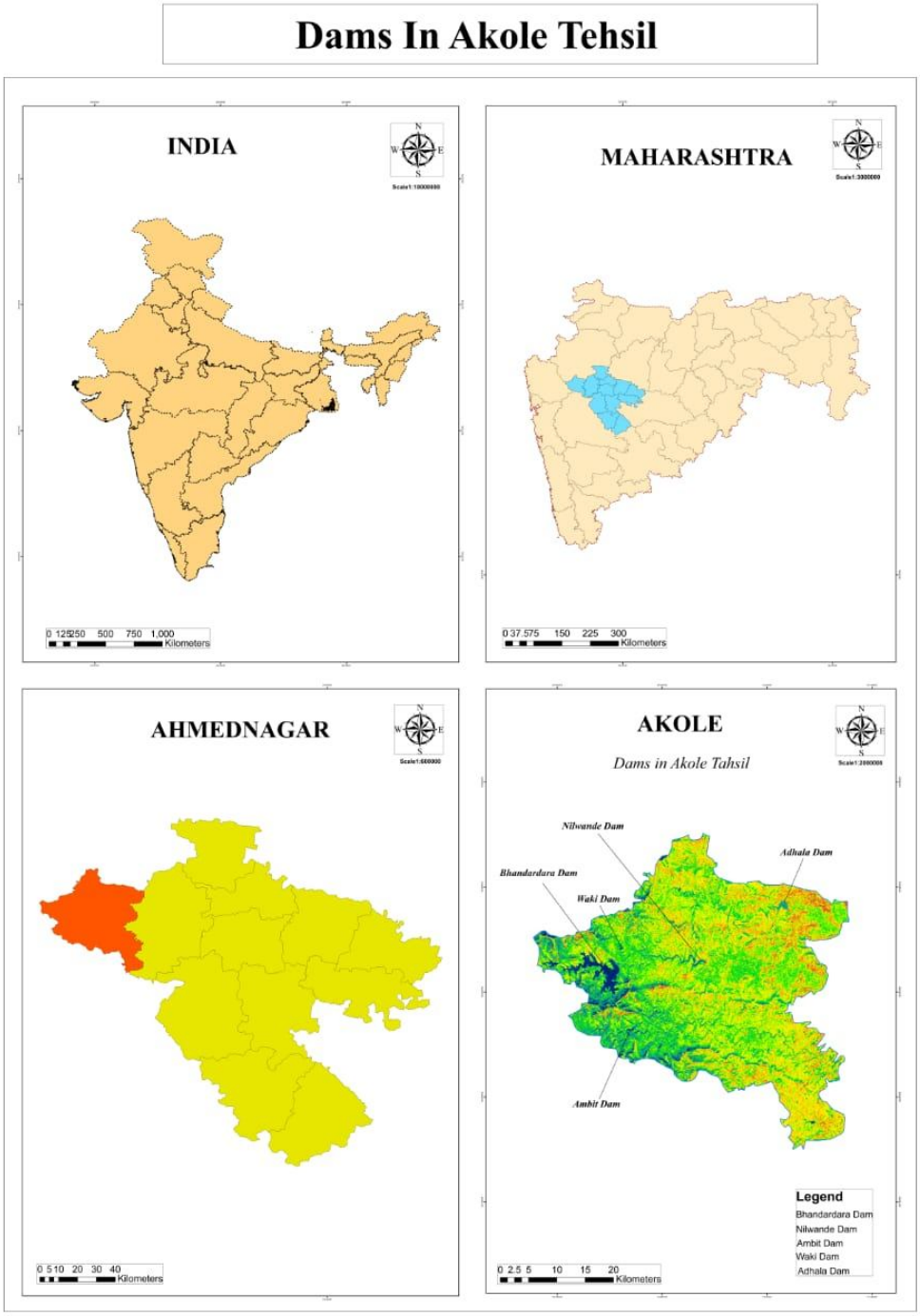
MATERIALS AND METHODS:

Study Area:

Akole is one of the tehsil of Ahmednagar districts of Maharashtra states in India. Akole is surrounded by the Sahyadri mountains of Western Ghats, India. It is located at 19^0 32' 11" N and latitude and 73^0 59' 56 00" E longitude. It is 593 m (1946 ft.) above the mean sea level. The region of the Akole tahsil spreads over 180/km 2470 sq. mi. The average rainfall is 1058 mm. Fishery activities in the Akole is mostly performed at reservoirs, dams and main rivers like Pravara, Mula, Krushnawanti, Mhalungi and Adhala. The Akole tahsilis having numbers of reservoirs, ponds and two dams, Bhandardara (Wilson Dam), Nilwande Dam, Ambit and Waki. The total irrigated area under the both dam is 23077 hectors. Fishery activities in the Akole mostly performed at reservoirs, dam and main river like Pravara, Mula, Krushnawanti, Mhalungi and Adhala.

Collection of Fish Samples:

The fishes for the present study were collected from and various water resources like Bhandardara, Ambit, Waki and Nilwande dam and local fish market such as Akole, Shendi, Rajur and Kotul in Akole Tahsil of Ahmednagar district of Maharashtra.



Map No. 1 Map of Akole Tehsil showing study area.

Identification of Fish:

The fishes from dams were collected using various fishing methods. After collection, photographs of fishes were taken and collected fishes were preserved in 10% formalin for detailed examination and identification by using standard literature of Day (1878), Jayaram (2010) and Talwar and Jhingran (2001).

RESULTS AND DISCUSSION:

The present investigation reported 20 species of fresh water fishes belonging to 06 orders, 09 families and 19 genera from the Akole tahsil of Ahmednagar district of Maharashtra, India.

The results of the present investigation show Cypriniformes as the dominant group. The composition contributing 53% to total fish diversity in which *Labeo rohita, Catla catla, Cyprinuscarpio, Labeoboggut, Cirrhinus mrigala, Puntiussophore, Cirrhinusreba, Rasboradaniconius and Crossocheiluslatius* were found large in numbers. Siluridae family contributing 6.00% to total fish diversity in which *Ompok bimaculatus, Wallago attu* were found*. Bagridae contributin*g 11.00% to total fish diversity in which *Mystus cavasius* was found. *Channidae* contributing 5.00% to total fish diversity in which *Tilapia mosumbica* was reported. *Gobildae* contributing 5.00% to total fish diversity in which *Glossogobius giuris* species was reported. *Mastocembelidae* family reported 5.00% contributing to total fish diversity in which *Mastocemelus arnatus* was reported as dominant species. *Notopteridae* was reported with 6 species contributing 5.25% to total fish diversity with *Notopterus notopterus fish*. Anguillidae family contributing 5.00% of total fish diversity in which *Anguillabengalenisis* was reported. Channidae family contributing 5.00% of total fish diversity with species *Channa striata*. Ambassidae family contributing 5.00% to total fish with species *Chandanama.*

The use of illegal and wild method to fishing should be banned in this area to prevent for the depletion of fresh water fish resources. The fishermen should make aware about scientific training and facilities should be made available for fishing. Fishing of the spawns, larval fishes and immature fishes should be avoided. The loan facility should provide on large scale which may help in high production of fish. Studies should be done to develop scientific technique for fish culturing, protecting and conserving the biodiversity of fish.

India is one of the large diversity countries with respect to freshwater fish species more than 650 species. In fresh water bodies, fish diversity, India is eighth in the world and third in Asia. There are lot of cultivable species. The indigenous fishes should also be incorporated in to the value systems of the society. The fresh water bodies harbour in endangered fishes must be declared as Fish Sanctuaries. With the rapid increase in the human population and the

increasing dependence fishery resources, the loss of aquatic fish diversity is likely to increase further unless proper conservation measures are implemented.

This investigation also shows the economic status of the fish species. The fresh water fishes reported during (2018-2019) the present study is showing in the table given below:

Chart No.1: Showing number of fish species found in fresh water bodies of Akole Tahsil of Ahmednagar District

Sr. No.	Order	Family	Fish Species
1	Cypriniformes	Cyprinidae	*Labeo rohita* (Hamilton-Bucha1822)
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	*Puntius sophore* (Hamilton Bachanan, 1822)
7	Cypriniformes	Cyprinidae	*Cirrhinus reba* (Hamilton Bachanan1822)
8	Cypriniformes	Cyprinidae	*Rasbora daniconius (Hamilton)*
9	Cypriniformes	Cyprinidae	*Crossocheiluslatius Hamilton)*
10	Cypriniformes	Cyprinidae	*Salmostoma sp.*
11	Siluriformes	Siluridae	*Ompok bimaculatus* (Lacepede 1803)
12	Siluriformes	Bagridae	*Mystus bleekeri*
13	Siluriformes	Bagridae	*Mystus cavasius* (Hamilton Bachanan 1822)
14	Siluriformes	Siluridae	*Wallago attu*
15	Percisforme	Gobiidae	*Glossogobius giuris* (Hamilton- Bachanan1822)
16	Perciformes	Channidae	*Channa striata (Bloch)*
17	Perciformes	Ambassidae	*Chanda nama (Hamilton)*
18	Synbranchiformes	Mastocembelidae	*Mastocemelus arnatus* (Scopoli 1777)
19	Osteoglossiformes	Notopteridae	*Notopterus notopterus*(*Pallas*1769)
20	Anguilliformes	Anguillidae	*Anguilla bengalensis (Gray)*

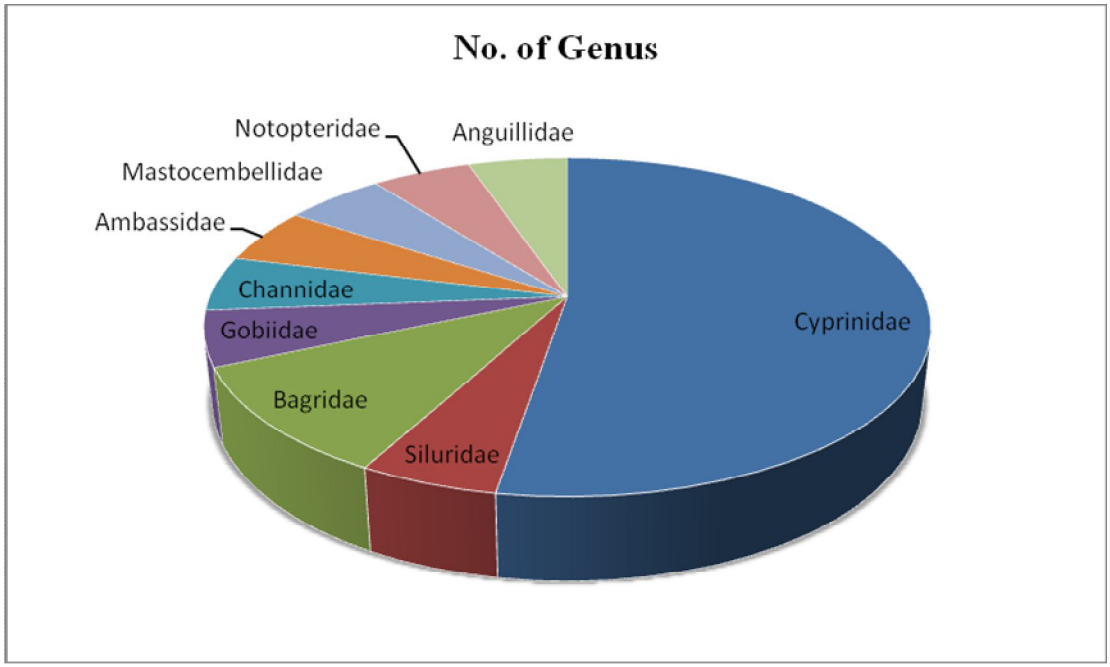
Chart No.2: Showing economic status of fish species found in fresh water bodies of Akole Tahsil of Ahmednagar District

Sr. No.	Species (Scientific Name)	Local Name	Economic Status	Place of Collection
1	*Labeo rohita* (Hamilton-Buchanan 1822)	Rohu	High	Bhandardara
2	*Catla catla* (Jhingran 1966)	Catla	High	Bhandardara
3	*Cirrhinus mrigala* (Hamilton-Bachanan 1822)	Mrigal	High	Bhandardara
4	*Cyprinus carpio* (Linnaeus 1758)	Gowri	High	Bhandardara
5	*Labeo boggut* (sykes 1838)	Bata	Less	Bhandardara
7	*Puntius sophore* (Hamilton-Bachanan1822)	Gudda-pakke	High	Bhandardara
8	*Cirrhinus reba* (Hamilton-Bachanan1822)	Arja	Less	Nilwande
9	*Ompok bimaculatus* (Lacepede 1803)	Godalae	High	Waki
10	*Mystus cavasius* (Hamilton-Bachanan1822)	Girlu	Less	Ambit
11	*Wallago attu*	Lachi	High	Nilwande
12	*Tilapia mosambica* (W.K.H pterus1852)	Tilpia	Less	Bhandardara
13	*Glossogobius giuris* (Hamilton- Bachanan1822)	Jilebi	High	Bhandardara
14	*Mastocemelus arnatus* (Scopoli 1777)	Haavu-meenu	Less	Adhala
15	*Notopterus notopterus* (pallas1769)	Chappali	Less	Mula
16	*Rasbora daniconius* (Hamilton)	Blackline Rasbora,	Less	Krushnawanti
17	*Crossocheilus latius* (Hamilton)	Gangetic Latia	Less	Adhala
18	*Anguilla bengalensis* (Gray)	Vaam	High	Bhandardara
19	*Channa striata*(Bloch)	viral	High	Bhandardara
20	*Chanda nama* (Hamilton)	Glass Perchlet	High	Bhandardara

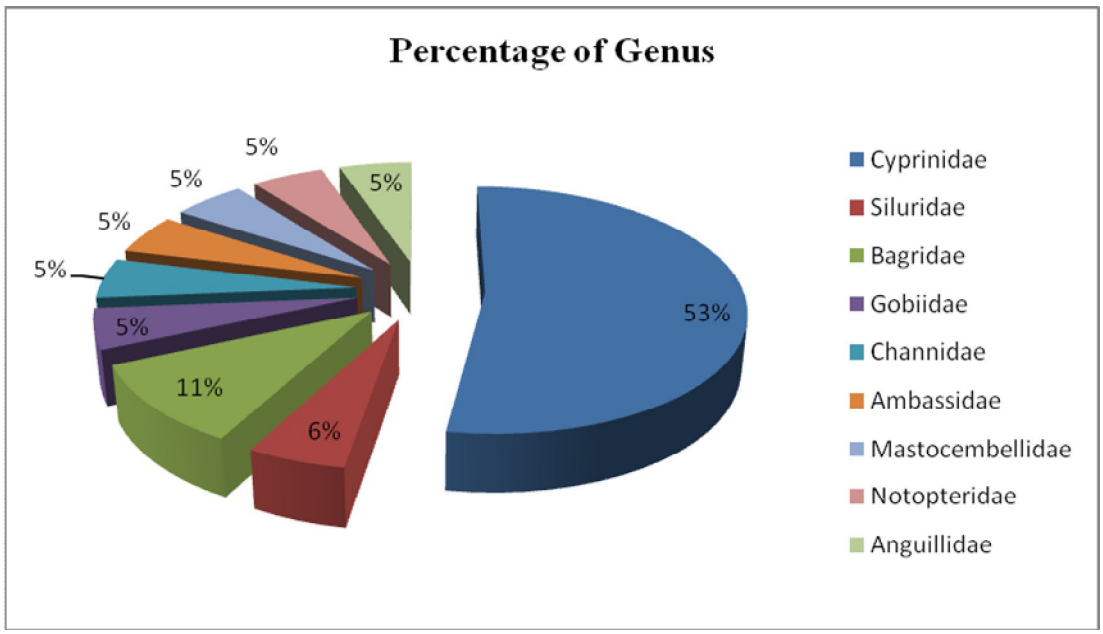
Plate 1. Fish Diversity of Akole Tehsil of Ahmednagar District.

 *Wallago attu*	 *Labeo calbasu*
 *Labeo bata*	 *Cyprinus carpio*
 *Punctus serina*	 *Catla catla*
 *Mastacembels armatus*	 *Mystus seenghala*
 *Natopterus notopterus*	 *Labeo rohita*

Graph No. 1 showing number of genus found in fresh water of Akole Tahsil.



Graph No. 2 showing percentages of genus found in fresh water of Akole Tahsil



REFERENCES:

1. A.G. Jhingram (1984): The fish genetic resources of India.
2. Ahmad S. M., Venkateshwarlu M., Honneshappa K. and Tantray A. K. (2008): Fish diversity of Sogane and Santhekadur tanks, Shimoga, Karnataka, India Current Biotica Vol 5(1):46-55.
3. Arehana Sharma and Devendra Mohan (2010). Fish faunal diversity of

Hemawas dam, Pali, Rajashan. *J. Aqua. Bial.* Vol. 25(2): 37-40.

4. Bandopadhyay P. K. (1999): Fish Diversity in Freshwater Perennial Water Bodies in East Midnapore District of West Bengal, India. Int. J. Environ. Res., Vol 2 (3):255-260
5. Battul P. N., Rao R. A., Navale K. R., Bagale, M. B. and Shah, N. Y. (2007): Fish Diversity from Ekrukh Lake Near Solapur Maharashtra. J. Aqua. Biol., 22 (2): 68-72.
6. Bhakta J.N and Bandyopadhyay P.K (2008): Fish Diversity in Freshwater Perennial Water Bodies in East Midnapore District of West Bengal, India. Int.J.Environ.Res., Vol 2(3):255-260.
7. Bose A. K., Jha B. C., Suresh V. R., Das A., Parasar K. A and Ridhi I.(2013): Fishes of the Middle Stretch of River Tawa, Madhya Pradesh, India. An International Peer Review E-3 Journal of Sciences.Vol.3, No. 1, 706-716.
8. Day F. (1889): The fauna of British India including Ceylon and Burma, London Fishes: Vol.1:548:Vol. 2:509.
9. Day, F. (1878): The fishes of India, being a natural history of the fishes known to inhabit theses and fresh waters of India, Burma and Ceylon. Vol. I and II. Ceylon text and atlas in 4 pts., London
10. Devi Prasad A.G., Venkataramana G.V. and Thomas M. (2009): Studied Fish Diversity and its conservation in major wetlands of Mysore. Journal of Environmental Biology September 2009, 30(5) 713-718.
11. Goswami A.P and Landmankodi P.C (2010): Diversity of fishes from fresh water reservoir Nyari II of Rajkot district, Gujarat. Electronic Journal of Environmental SciencesVol.3,23-26
12. Hamilton, B.F. and Buchanan, (1922): An account to fishes found in the river Ganga and its branches Edinburg and London VIII + 400 PP.
13. Jadhav, H.K., M.G. Babare and S.S. Dange (2011): Fish diversity of Khandala dom in Naldurg, Dist. Osmanabad (M.S.) *Journal of Science in formation* Vol. 2(1): 59-60.
14. Jadhav B.V., Sanjay S., Kharat., Raut R.N., Paingankar N and Dahanukar N. (2011): Studied Fresh water fish fauna of Koyna River, Northern Western Ghats, India. Journal of Threatened Taxa, 3(1): 1449-145
15. Jayaram, K.C. (2010): The Fresh water Fishes of the Indian Region. Second Edition. Narendra Publishing House, Delhi, 616pp.
16. Kamble, S.M. and A.H. Kamble, (2009): Biodiversity of some aquatic animals (crustaceans, molluscans and fishes) from Ruti reservoir near

Ashti, district Beed (M.S.) India. *J. Aqua. Bial.* Vol. 24(2): 67-72

17. Londhe, S.D and Sathe, T.V (2015): Fish faunal diversity and occurrence from lakes of Kolhapur district: Biolife; Vol3; Issue2:2320-4257.

18. Mandal, B.K. and Moitra, S.K. (1975): Studies on the bottom fauna of a freshwater fish pond at Burdwan, *Journal of Inland fisheries Society of India* 7:43-48.

19. Nelson, J.S., (2006): Fishes of the world, 4th Edition. John Wiley and sons, Inc, pp: 601.

20. Pawar, B.A. and U.H. Mane (2006). Hydrography of Sadatpur lake near Parvaranagar Ahmednager District, Maharashtra. *J. Aqua. Biol*. Vol. 21(1):101-104.

21. Sakhare, V.B. (2001a). Icthyofauna of Jawalgaon reservoir in Solapur district of Maharashtra. *J. Aqua .Biol.* 16(1): 31-33.

22. Sarwade J.P. and Khillare Y. K. (2010): Studied fish diversity of Ujani wetland, maharashtra, india j.fish diversity of ujani wetland special issue, Vol. 1: 173-179

23. Sirajudheen T.K and Khan J. (2014): freshwater pond ecosystems and ichthyo faunal diversity of Lakshadweep islands, India Journal of Aquatic Biology and Fisheries Vol. 2: 691 to 696

24. Tambe, D.B. and S.D. Pingle (2011). Diversity of Phytoplankton in Nilwande Dam, Akole, District Ahmednagar, (MS), India. *Nat. Conf. Baramati*.4th – 6th February, 2011.

25. Tapase, S.D. and S.M. Kamble. (2011): Ph.D. thesis "Biodiversity (Aquatic plants and animals) and physicochemical parameters of Mula Dam near Bargaon Nandur, Tal. Rahuri, District Ahmednager (M.S) India. Pp 187-188

26. Tambe, D. B., & Pingle, S.D., (2010). Ph.D. Thesis, Hydrobiological Studies of Wilson Dam (Bhandardara) Tal Akole, District Ahmednagar (Maharashtra).

27. Talwar, P.K. and Jhingran, A.G. (2001): Inland fishes of India and adjacent countries. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi, p.18

28. Thakare, A.J. (2016). Diversity of fresh water fishes from the Washim District of Maharashtra, India, Indian Streams Research Journal, 2016, Vol 6 (5) pp 1-10

29. UNEP, (1987): United National Environment protection report of 1987, about available water, pp 7-9.