

# Ichthyofaunal Survey of Various Ponds of Chandausi Region of District Sambhal (U.P.), India.

<sup>1</sup>Neeraj Malik, <sup>2</sup>Bijendra Singh, <sup>3</sup>Ajeet Singh

<sup>1</sup>Assistant Professor Department of Zoology, S. M. College, Chandausi, Sambhal (Affiliated to M.J.P.R. University, Bareilly)

<sup>2</sup>Research Scholar

<sup>3</sup>Assistant Professor Department of Mathematics, S. M. College, Chandausi, Sambhal (Affiliated to M.J.P.R. University, Bareilly)

**Abstract:** The present study has been conducted on 3 Different Ponds Situated near Chandausi Town (28° 27'N 78° 46'E/28.45°N 78.77°E) of District Sambhal at National Highway (N.H.509) during July 2022 to June 2023. This study's objective was to evaluate the diversity and abundance of the significant fish fauna inhabiting this region. Presence and absence of these fish species were also recorded in all the ponds on the basis of survey. The results revealed the occurrence of 8 Fish in number that belongs to 7 genera, 5 different families of 3 different order recorded. The dominant order was cypriniformes and siluriformes these have 3 genera each. Ichthyofaunal diversity comprises of 7 families namely Cyprinidae (37.5%), Bagridae (12.5%), Clariidae (12.5%), Heteropneustidae (12.5%), Channidae (25%). The highest number of these species were recorded during their breeding season April to July. There is no documentary evidence available in present study area till date regarding its aquatic fauna.

**Index Terms:** Aquatic, Fauna, Ichthyofaunal diversity, richness, aquaculture.

## INTRODUCTION:

Fish are incredibly important to both humans and the environment, because, it is a resource of protein, carbohydrate, fats, and different type Vitamins and Minerals. For nature's vital activities aquatic ecosystem plays an Important role. India is one of the world richest biodiversity spot. India have 12 most bio diversity spots. Fish can be found in two types of aquatic environments: fresh water and marine ones. Fresh water bodies are such as rivers, canals, ponds and other fresh water bodies. Different type of variety of fishes are found in fresh water bodies. Fishes are placed on the highest of the food chain and Fishes are Valuable Biological indicators in aquatic environment (10). Fish diversity is interested area for research of all time. Historical document is available on fish species in India (3,8,9,20,21). and still continue by Zoological Survey of India (Kolkata). Lakes, rivers, and streams are currently experiencing a number of environmental issues that are mostly caused by anthropogenic activity in their catchment area (23).

Demand of water in Uttar Pradesh is increasing day by day due to which many bio resources experience serious threat to both Aquatic biodiversity and Ecosystem stability. Therefore, research is being pursued globally to develop systematic conservation planning to protect fresh water biodiversity (13,18,15). and various methods strategies and priorities have been proposed (2,17).

## Survey of the Ponds:-

The survey was carried out to determine the number of different species of fish that can be found in a certain area's natural and man-made ponds. The survey was conducted for a number of reasons e.g. to know how many species of a particular genus of fish are present and also to know Base line information for an area.

In general, Small population size is associated with bigger threat of extinction locally, regionally or globally. Such information is collected by undertaking. Survey over varying geographically area.

## Materials and Methods: -

The objective of the present research was to determine the types of fish that lived in the local pond for a year. i.e. July -2022 to June 2023. This investigation was carried out on following steps.

- 1- Survey of the area.
- 2- Selection of the pond.
- 3- Sample Collection.
- 4- Taxonomic identification of fish.
- 5- Data collection.

### 1- Survey of the area:-

The area of survey was Chandausi Tehsil district Sambhal in Uttar Pradesh, India. Geographical position of Chandausi is 28° 27'N 78° 46'E/28.45°N 78.77°E. The original name of city was Chand Si Nagri, meaning moon like actually. Chandausi is a large town located about 45 kilometres from Moradabad. Chandausi is present between Moradabad to Agra National Highway 509. Zonal Railway Training Institute, which provides training for northern Indian railway employees is present in Chandausi. Chandausi is a remarkable marketplace for menthol, wheat, Sugar, Rice and Ghee.

### 2- Selection of Pond:-

On the basis of the survey three separate pond sites were chosen for sample collection. These Ponds were located near Chandausi's village and nagar panchyat.

Location of pond was follows:-

**Survey Site Location from Chandausi**

Pond 1 ----- Kaithal(village) ,4 Km.

Pond 2 ----- Narauli (Nagar panchyat) 6 Km.

Pond 3 ----- Atta (village) 3 Km.

**3- Sample Collection :-** Sample were collected for identification of fish at specific level.Fish were collected from the pond with help of local fishermen using different type of craft and gear like various type of net which are used by fishermen. Mostly fishes are identified within in field.

**4- Taxonomic Identification of fish:-** All the species of fish are collected and seen in chandausi region and were identified with the help of standard literature of Day (3,4,20,21,8,9). and identification key and UPBase Data of fish using various morphometric meristic Characteristics.

**5- Data collection :-** The specific feature (Various Characters and presence and absence of fish were noted in each pond in data table.All data were collected during survey.

**Different Survey Site Location**

**Site 1**



**Site 2**



**Site 3**





**Plate 1:** *Catla catla*



**Plate 2:** *Cirrhinus mrigala*



**Plate 3:** *Labeo rohita*



**Plate 4:** *Mystus seenghala*



**Plate 5:** *Clarias batrachus*



**Plate 6:** *Heteropneustes fossilis*



**Plate 7:** *Channa punctatus*



**Plate 8:** *Channa striatus*

**Table No 1 :- Survey table of pond 1,2,3 comprises the various type of fishes.**

S.N.	Common name	Zoological Name	Family	Order	Presence/Absence of fish in the pond	Economic value
1.	Bhakar	<i>Catla catla</i>	Cyprinidae	Cypriniformes	Pond 1,2,3 (P)	Food fish, commercially
2.	Nain	<i>Cirrhinus mrigala</i>	Cyprinidae	Cypriniformes	Pond 1(P),2(A), 3(P).	Food Fish
3.	Rahu	<i>Labeo rohita</i>	Cyprinidae	Cypriniformes	Pond 1,2,3,(P).	Food fish.
4.	Tengra	<i>Mystus seenghala</i>	Bagridae	Siluriformes	Pond 1(P) 2(A) 3(P).	Food fish.
5.	Mungur	<i>Clarias batrachus</i>	Clariidae	Siluriformes	Pond 1(A),2(P),3(P).	Food fish, Commercially important.
6.	Singhi	<i>Heteropneustes fossilis</i>	Saccobranchidae	Siluriformes	Pond 1(A), 2(A),3(P).	Food fish,Commercially important.
7.	Sauli	<i>Channa punctatus</i>	Channidae	Ophiocephaliformes	Pond 1,2,3(P).	Food fish,Commercially important.
8.	Mamil	<i>Channa striatus</i>	Channidae	Ophiocephaliformes	Pond 1(P),2(A),3(A).	Food fish ,Commercially important.

**Note:- P shows presence and A shows absence of species.**

#### **Observation and Result:**

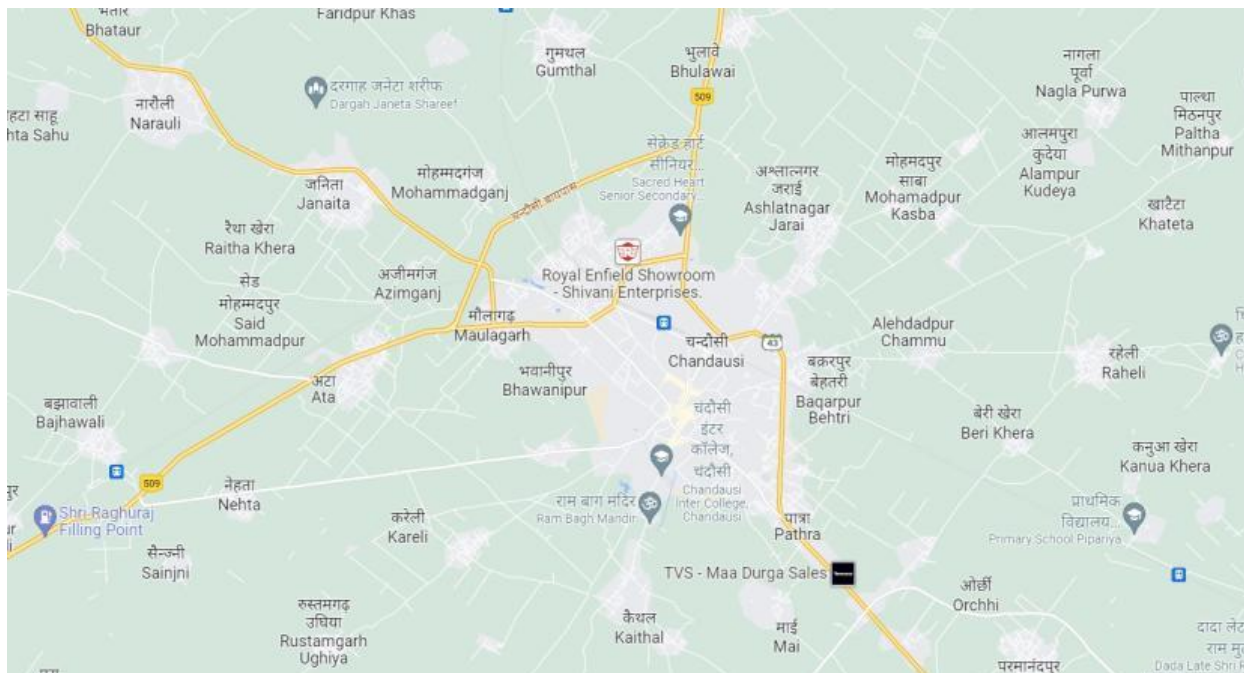
Total number of fishes species found in pond are 8 in number that belongs to 7 genera, 5 different families of 3 different order recorded from various water sources of Chandausi Tehsil. The identified species were commercial and are rich in food value in Indian market. The identified species and their economic value are given in the Table no 1.

The dominant order was cypriniformes and siluriformes these have 3 genera each . On the basis of percentage composition and species richness, Cypriniformes(3 species), Siluriformes (3 species), Ophicephaliformes (2 species) are depicted in figure no 2.

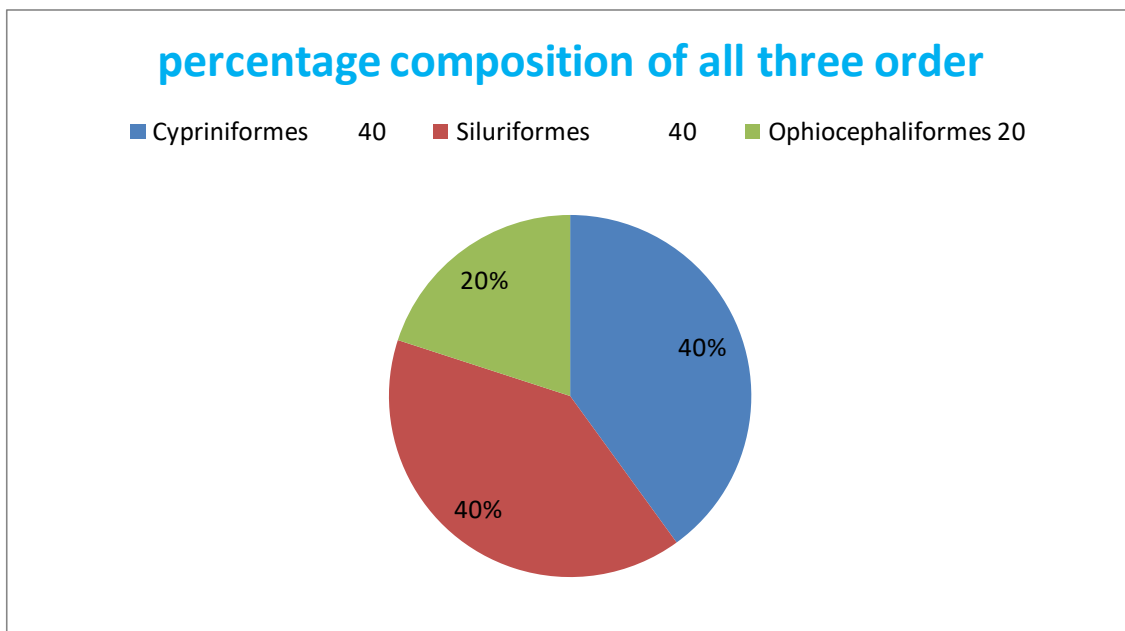
Ichthyofaunal diversity comprises of 7 families namely Cyprinidae (37.5%),Bagridae (12.5%),Clariidae(12.5%), Heteropneustidae (12.5%), Channidae (25%). The highest number of these species were recorded during their breeding seasons i.e. April to July. *Clarias batriecus* is considered as to be a delicious fish , so it is in great demand in market. The dominant family was Cyprinidae with 3 member , Bagridae having one member , Claridae having one member , Heteropneustidae having one member, clariidae one member, channidae two member.

In present investigation of all total fish 8 species .The study also revealed that *Catla* ,*Cirrhinus* and *labeo*, *Mystus*, *Clarias*, *Heteropneustes* and two genus of *Channa*. These fish are found in different pond site such as *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, *Mystus seenghala* are found in all research site,and *Clarias batrachus* are found in pond 2 ,3. *Heteropneustes fossilis* are found in pond no 3 and *Channa punctatus* are found in pond 1 , 2.*Channa striatus* are found in pond 1.

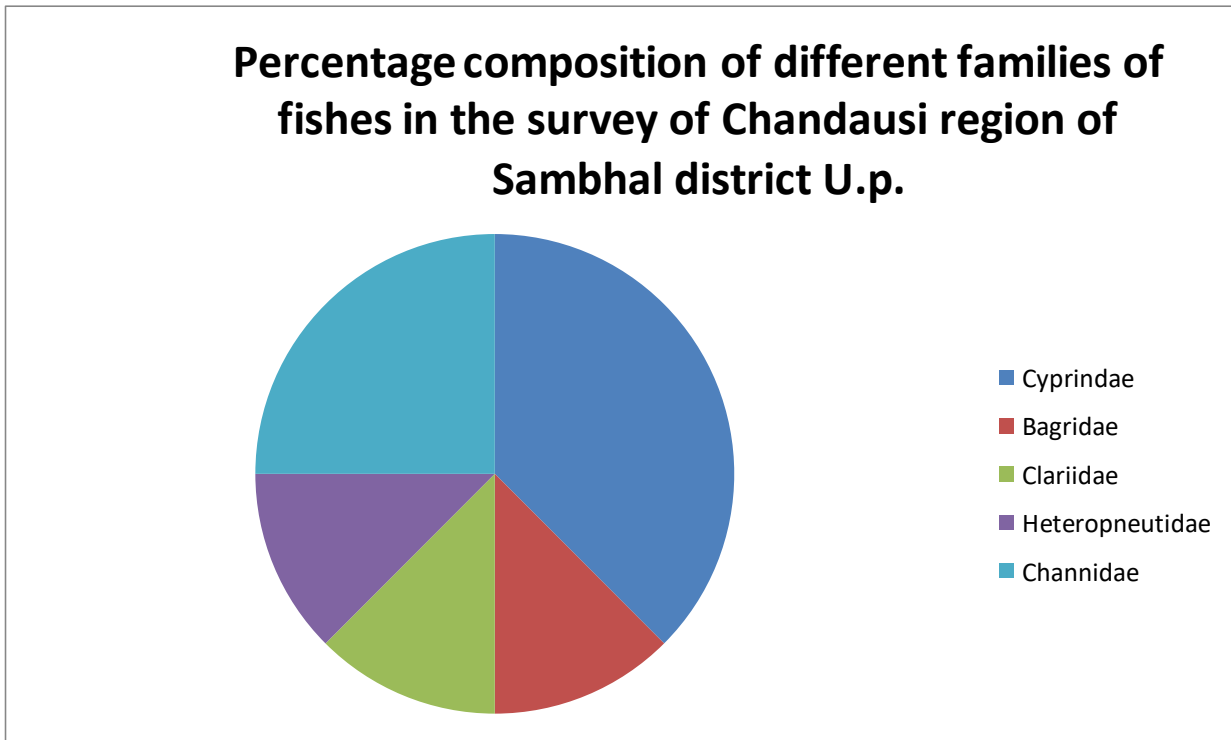
Six species in them are found in pond 1.the percentage composition of total number of species 75% species are found in pond 1 and 12.5% species are found pond 2 and 12.5% species are found in pond 3. The most abundant species were *Catla catla* , *Labeo rohita* and *Channa punctatus* these species are cultured in large scale.



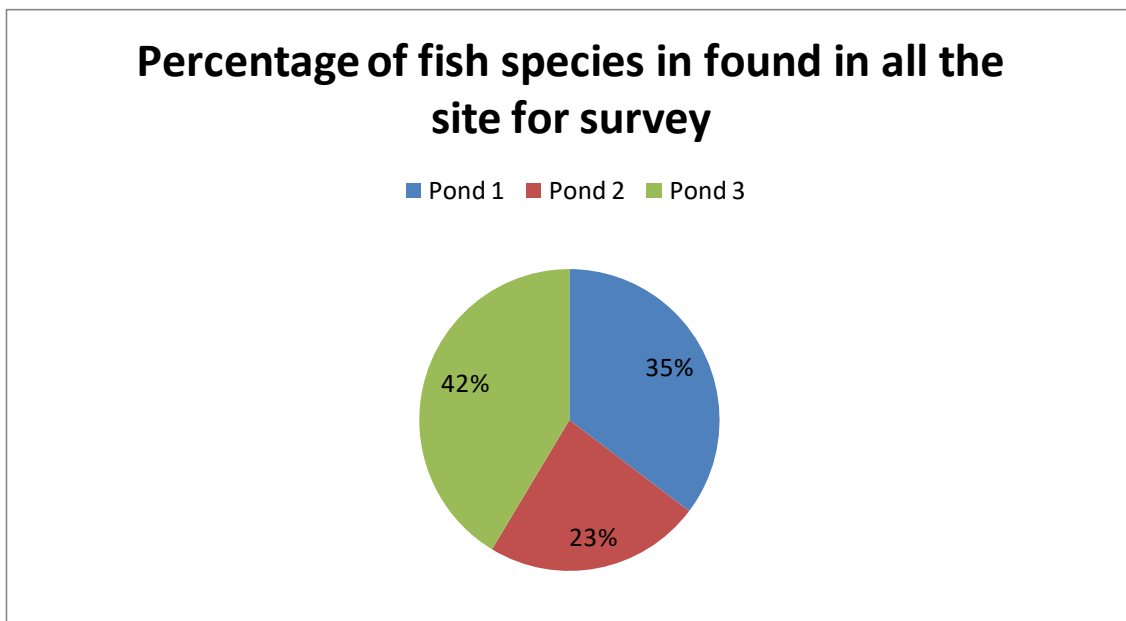
**Figure 1 – Map of survey site and location of all 3 Ponds in Chandausi region.**



**Figure no 2:- Total percentage occurrence of different orders of fishes in all 3 ponds.**



**Figure no 3:- Total number of families found during the study in all three pond(Cyprinidae-37.50%, Bagridae- 12.50%, Claridae-12.50%, Heteropnrustidae-12.50%, Channidae-25% value).**



**Figure no 4:- Total number of Species% occurred in differennr study area.**

**Discussion:**

Total of 8 fish species belong to 7 genera and 5 different families of 3 different order are found majorly. Presence and absence of these fish species were also recorded in all. The pond on the basis of surviving fish has been standard as a good food source for human being for centuries and is used as a perfect diet not only due to its excellent taste and high digestibility but also because of having high proportion of un-saturated fatty acids, essential amino acid and minerals for the formation of functional and structural proteins.

Many investigator survey different fresh water resource in india for ichthyofaunal diversity. Some are Jawalgaon reservoir ,Solapur Distict Maharastra report 23 species belong to 7 order (16). 37 species reporet in Issapur dam in distictYavatmal where Cyprinidae family was dominant with 20 species reporet by (11).In Harsul Savangi dam in district Aurangabad (Maharashtra) (19). 11 species under 10 genera which belong to Cyprinidae families (1). reported 18 species from Ekruckha lake Solapur District (22). reported that Cyprinidae families are dominant in Ambadi Dam in District of Aurangabad (Maharashtra ) (7). reported that fish meal is important for heart because these have more and good protein content.

(14) reported 36 species belongs to 6 order 11 families .23 genera from Bijnor district in western U.P. (5). reported that 20 species of fish are found in Mawana region of Meerut District U.P. (12). report that 12 species are found in Krishna river district Shamli U.P.

### Conclusion:

Based on the study it maybe concluded that the river and pond of the region host a number of fish species. During the study, it was also noted that the factors that are likely to be accountable for the poor fish output and diversity are urbanization, industrialization, and farming activities near the pond. However, a number of anthropogenic activities like deforestation, overfishing, sand mining, recreational activities, and organic and inorganic pollution put Chandausi's fish species at risk. More research is urged to be done in order to produce the fundamental biological data on the ichthyo-faunal of this area.

### REFERENCE:

- [1] Battul,P.N., Rao,R.A., Navale, K. R., Bagale, M.B. and Shah, N.V. "Fish diversity from Ekeukh Lake near Solapur Maharashtra," *J. Aqua. Biol.* **2007**; 22 (2), pp. 68-72.
- [2] Cowx I.G. ,Welcomme R.I.,(Eds). Rehabilitation of rivers for Fish. Blackwell, Oxford, U.K. 1998.
- [3] Day,F., " The Fishes of india : being a natural history of the fish known to habitat the seas and fresh water of India,Burma and Ceylon, Text and Atlas in 4 part , 1875-78; London,XX+ pp. 778.
- [4] Day, F ., " The fish of India, Being A natural history of the fish known to habitat the seae and fresh water of India, Burma , Cylone, Vol.1 and 2 . Today and Tomorrow's Book agency, 1986; pp 778.
- [5] Jain, S. "Current status of ichthyofaunal diversity of various water source of western uttarPradesh,India. International journal of fisheries and aqatic studies. Vol.5(2); 2017; pp: 473-478.
- [6] Jain,S., Rana ,N., Verma ,M." Ichthyofaunal Survey of various Fish pond of Mawana region of district Meerut (U.P.), India. International journal of fisheries and Aquaculture sciences. Vol.4(1), 2014; pp: 81-91.
- [7] Ja khar, J.K., Pal, A.K., Reddy, D., Sahu, N.p., Venkateshwarlu, and Vardia , H.K. " Fatty acids composition of some selected Indian Fishes ," African Journal OF basic and Applied Science 4(5): 2012; pp155-160.
- [8] Jay ram, K.C. The Fresh water Fish of the Indian Region," Narenderapublishing House, New Dehli,1999; pp xxvii +551.
- [9] Jay ram ,K.C. " The Fresh water fishes of the Indian Region," Second Edition. Narendra Publishing House ,Dehli,2010; pp616.
- [10] Karr,J.R., Fausch, K.D., Angermeir,P.L., Yant, P.R. and Schollosser, I.J. " Assessing biological integrity in running water a method and its rational ," 3 Nat.His. surv. Spec. publ., 5: 28, 1986.
- [11] Khedkar, G.D. and Gynanth, G. " Biodiversity and distribution of the fishes from the back water of Issapur Reservoir District Yeotmal, Maharashtra state India," Trend in life science (India), Vol . 20, no 2, 2005; pp.117.
- [12] Malik, N.,Kumar P., Baghel S."Ichthyofaunal Diversity of Krishna River District Shamli". International journal of all research education and scientific Methods . 2021; Vol.9(11) pp567 -571.
- [13] Margules C.R. and Pressey R.L. Systematic conservation Planning .Nature 405 : 2000; 243-53.
- [14] Nagma and Khan, M.A. " Studies on Fresh water fish fauna of district Bijnor in Western Uttar Perdesh, India. Int. J. LifeSc. Biotec. And Pharma Res. 2013; Vol.2,(3) ISSN2250-3137.
- [15] Nel,J.I.,Roux D.J., Abell R, Ashtonep.j., Cowling R.M., Higgins J.V. ThiemeMandVier J.H. Progress and challenge in Freshwater Conservation Planning. AquaTic Conservation: Marine and Fereshwater Ecosystem., 2009; !9(4):474-85.
- [16] Sakhare, V.B. " Ichthyofauna of jawalgaon reservoir in Solapur district of Maharashtra," J. Aqua Biol., 2001; Vol.16 (2),pp. 31-33.
- [17] Sarkar U.K., Pathak,A.K., Lakra ,W.S. Conservation of fresh water fish resource of india : new approach, assesment and chalange. Biodiversity and Conservation., 2008; 17(10) :2495-2511.
- [18] Saunder D.L., Meeuwig J.J., Vincent AC. J . Fresh water protect areas : Strategies for Conservation Biology. 2002; 16 (1):30 – 41.
- [19] Shinde, S.E., Paithne, R.Y., Bhandre, Sonawane, D.L. " ichthyofaunal diversity of HarsoolSavangi Dam District Aurangabad ( Maharastra).India. World J. fresh Marine Sci., 2009; Vol 3.(1),pp: 141-143.
- [20] Talwar ,P.k. and Jhingran , A. " Inland fishes of India and adjacent countries " , Oxford and IBH publishing Co pvt. Ltd. New Dehli, 1991; vol 2 (xxi)+ 1158.
- [21] Talwar, P. K. and Jhingran, A.K. " Inland Fishes of India and Adjacent Countries 1992; " vol.1 A.A. Balkema/ Rotterdam ,pp 1177.
- [22] Ubarhande, S.B. , J agtap, J. T. and Sonawane, S.R."Ichthyofanal Diversity from Ambadi Dam , Taluka Kannad ,District Aurangabad (Maharashtra)," Recent research in science and technology, 2011; vol3,(6) pp 34-37.
- [23] Young, R., Townsend, C. and Mathaei, C. "Functional indicator of river ecosystem health - An interim Guide for use in New Zealand (Report No. 870)," Ministry for the Environment-sustainable management fund contract 2208, New Zealand., 2004.