Recent Research in Science and Technology 2011, 3(6): 34-37
ISSN: 2076-5061
www.scholarjournals.org

www.recent-science.com

RRST-Environmental Science

Ichthyofanal Diversity from Ambadi Dam, Taluka Kannad, District – Aurangabad (M.S.)

Ubarhande S.B[1*] , Jagtap J.T[2] and Sonawane S.R[2]

[1]*Rajarshi Shau College of Arts, Commerce and Science, Pathri, Aurangabad*
[2]*Department of Zoology, Dr. B. A. M. University, Aurangabad*

Article Info

Article History

Received : 05-02-2011
Revised : 26-03-2011
Accepted : 01-04-2011

*Corresponding Author

Tel : +91-9423397827
Fax :

Email:
shivaji.ubarhande@gmail.com

Abstract

Ambadi dam is perennial water resource for human consumption and also helpful for the agriculture and fisheries in taluka Kannad, district Aurangabad. Keeping a view that Ichthyofaunal diversity of Ambadi dam is correlated to aquatic ecosystem, present investigation was carried out during the study period from May 2006 to April 2008, and it was observed that the ichthyofauna belongs to 08 orders 11 families 22 genus and 27 species while Cyprinidae family is dominant over other families. Finally it may be concluded that Ambadi dam is rich of fish diversity.

Key Words: Ambadi dam, Ichthyofaunal diversity, Cyprinidae

Introduction

"The most wonderful mystery of the life may well be the means by which it created so much diversity from so little physical matter" [1].

Around the world approximately 22,000 species of fishes have been recorded out of which 11 % are found in India i.e. 2,420, where the Osteichthyes include 34.55 % and Chondrichthyes include 65.45 %. In India, there are 2500 species of fishes of which, 930 live in freshwater and 1,570 are marine [2].

From 18 century till to date various pioneers have studied about Taxonomy (Ichthyofaunal diversity) [3-5] from Himalayan rivers [6] and studies of fishes of Cauvery river. However scanty information is available on fishes hence an attempt has been made here to present piscine inventory from the Ambadi dam.

Marathwada region is one of the six divisions of Maharashtra state comprising of eight districts, viz. Aurangabad, Beed, Hingoli, Jalna, Latur, Nanded, Osmanabad and Parbhani. The location of Marathwada is on 19°20' 56.76" E longitude and 76°14' 44.62" N latitude [7] which forms the part of the vast Deccan plateau of India.

Material and Methods

To study the ichthyofauna of Ambadi dam during the study period from May 2006 to April 2008, fish samples were collected every week from the fish landing centers with the help of skilled local fishermen by various fishing crafts, gears with variable mesh size. Sampling points were distributed throughout the site to cover its whole area and location was changed for the collection of fish fauna according to the season.

Identification of fishes was done up to species level at fish landing center to get its natural colour, pattern of scales, fins, mouth pattern, identification marks like black spot, bloach on operculum, paired and unpaired fins and body parts with the help of standard literature [3,4,6-16] and etc.

Fish species which were not identified on the field (landing center) were preserved in 10 % formalin. These fish samples were brought to Fishery research laboratory, Department of Zoology, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad for further identification and specimen with doubtful identifying characters was sent to Zoological Survey of India (ZSI) Pune, Regional branch (ZSI) Kolkata for identification.

Physico-chemical parameters were analysis by standard method given by [17] and[18].

Study site

Ambadi dam is a medium irrigation project constructed by Irrigation department, Government of Maharashtra on river Ambadi. River Ambadi is a tributary of river Godavari and originates from Pitalkhora, Satmala hilly ranges Kannad and runs from West to East taluka Kannad, district Aurangabad (M.S).

The study area is 65 kms away from district Aurangabad (Fishery Research Lab, Department of Zoology, Dr. Babasaheb Ambedkar Marathwada University Aurangabad). Location of the sampling site is in the North West of taluka Kannad, district Aurangabad and situated on latitude 20°17' 22.06" N and longitude 75°04' 59.67" E [7]

Ambadi dam is perennial, earthern dam, length of dam is 1,850 m, height is 19.28 m, while the catchments area is 141.35 km. The gross storage (FRL) and gross storage (MWL) is 11.76 Mcum and 12.78 Mcum.

The basic purpose of this dam is to supply water for drinking, domestic use and irrigation purpose at Kannad and near by villages and Fishing practices (culture and capture fishery).

Systematic position of fish species from Ambadi dam

Order :- Cypriniformes
Family :- Cyprinidae
1) Labeo rohita
2) Puntius chola
Puntius stigma
Puntius ticto
3) Salmostoma phulo
4) Garra lamta
5) Rasbora daniconius
6) Catla catla
7) Cyprinus carpio communius
8) Cirrhinus mrigala
9) Ctenopharyngodon idellus
10) Hypothalmichthys molitrix
11) Thynnichtnys sandkhol
Family :- Balitoridae
1) Nemachielus botia botia
2) Nemacheilus beavani

Order :- Siluriformes
Family :- Bagridae
1) Mystus bleekeri
Mystus cavasius
Family :- Clariidae
1) Clarias batrachus

Order :- Osteoglossiformes
Family :- Notopteridae
1) Chitala chitala

Order:- Perciformes
Family :-Channidae
1) Channa orientalis
Channa punctatus
Family :- Cichlidae
1) Oreochromis mossambica

Order :- Beloniformes
Family :- Belonidae
1) Xenentodon cancila

Order :- Synbranchiformes
Family :-Mastacembelidae
1) Mastacemdelus armatus
2) Macrognathus pancalus

Order :- Mugiliformes
Family :- Mugilidae
1) Rhinomugil corsula

Order :- Cyprinodontiformes
Family :- Poecilidae
1) Poecilia reticulate

Family wise species composition from Ambadi dam

Order	Family	No. Fish species	Species composition (%)
Cypriniformes	Cyprinidae	13	48.16
	Balitoridae	02	7.41
Siluriformes	Bagridae	02	7.41
	Clariidae	01	3.70
Perciformes	Channidae	02	7.41
	Cichlidae	01	3.70
Synbranchiformes	Mastacembelidae	02	7.41
Osteoglossiformes	Notopteridae	01	3.70
Beloniformes	Belonidae	01	3.70
Mugiliformes	Mugilidae	01	3.70
Cyprinodontiformes	Poecilidae	01	3.70

Order :- 08	Family :- 11	Species :- 27	100 %

List of Ornamental fishes	List of Larvivorous fishes
1) Puntius ticto	1) Poecilia reticulate
2) Puntius stigma	2) Oreochromis mossambica
3) Puntius chola	3) Rasbora daniconius
4) Salmostoma phulo	4) Puntius ticto
5) Rasbora daniconius	5) Channa orientalis
6) Garra lamta	6) Channa punctatus
7) Nemacheilus beavani	7) Rhinomugil corsula
List of Exotic fishes	List of Hill stream fishes
1) Cyprinus carpio communis	1) Rasbora daniconius
2) Hypothalmichthys molitrix	2) Mystus cavasius
3) Oreochromis mossambica	3) Clarias batrachus
4)Poecilia reticulate	4) Mastacemdelus armatus
	5) Nemacheilus beavani

Physico-Chemical Parameters of Ambadi Dam, 2006-2007

Parameters	Rainy season	Winter season	Summer season
Air Temp.	24.76 ± 2.54	21.37 ± 2.14	28.25 ± 2.5
pH	7.5 ± 0.68	8.1 ± 1.2	8.0 ± 1.0
DO	5.2 ± 2.87	7.8 ± 1.9	4.45 ± 2.4
CO_2	4.41 ± 2.31	3.47 ± 2.54	7.46 ± 2.5

All the values are in mg/L except Air temp and pH

Physico-Chemical Parameters of Ambadi Dam, 2007-2008

Parameters	Rainy season	Winter season	Summer season
Air Temp.	25.5 ± 2.1	20.62 ± 1.9	28.87 ± 2.3
pH	7.8 ± 0.25	7.8 ± 0.75	7.4 ± 1.2
DO	5.6 ± 1.6	7.5 ± 2.1	4.86 ±2.6
CO_2	5.0 ± 2.01	3.72 ±2.5	7.25 ±1.6

All the values are in mg/L except Air temp and pH

Result and Discussion

During the study period (April 2006 to May 2008) it was observed that the ichthyofauna of Ambadi dam belongs to 08 order, 11 families, 22 genus and 27 species where Cyprinidae family is dominant with 13 species which makes 48.16 % beside family Balitoridae, Bagridae, Channidae and Mestacembelidae contribute 02 species which makes 7.41 % and family Clarridae, Cichlidae, Notopteridae, Belonidae and Mugilidae contributes 01 species which makes 3.70 %. Similar result was reported [19] 12 Species belonging to Cyprinidae family among other family from Parbhani district, [20] reported 23 species belonging to 07order where Cyprinidae family is dominant with 11 species from Jawalgaon reservoir Solapur district Maharashtra. [21] reported 18 species from Ekruckh lake Solapur district where Cyprinidae family is dominant with 8 species, [22] 37 species from Issapur dam district yavatmal where Cyprinidae family is dominant with 20 species [23]reported 87 species under 36 genera under the Cyprinidae family from freshwater of Nepal. [24]observed 11 species under 10 genera under the Cyprinidae family from Harsul Savangi dam district Aurangabad (M.S).

Fishing practices are carried out through out the year. The average catch is more in winter and summer as compared to rainy season, hence it was observed that the physico-chemical parameters are with in permissible limit given [18], [17] and helpful for the growth of fishes.

The present work will provide a database for developing agencies of fish and fishery to sustain the ichthyofaunal diversity of Ambadi dam. Unscientific practices of fishing should be restricted in this area by fishermen and developing agencies regularly checking the physico-chemical parameters to prevent further duplication of freshwater fish resources and aquatic ecosystem.

Acknowledgement : the author is thankful to the Head, Department of Zoology Dr.B.A.M.University, Aurangabad and The Principal, Rajarshi Shau Art's Commerce and Science College Pathri, Phulambri Aurangabad for kind cooperation during the work.

References

[1] Wilson E.O. 1992. The Diversity of life. Belknap press, Harvard Univ., Cambridge. MA.

[2] Kar. D. 2003. Fishes of Baraka drainage Mizoram and Tripura in A. Kumar, C. Bhaora and L.K. Singh, (eds.). APH Publishing cooperation, New Delhi. : 202-211.

[3] Hamilton Buchanan 1822 . An account of the fishes found in the river Gangas and its branches. I-VII. Printed for Archibald constable and company, Edinburgh and Hurst, Robinson and Co - 90, Cheapside London. pp: 405.

[4] Day, F.1878. The fishes of India, being A natural history of the fishes known to inhabit the seas and fresh waters of India, Burma and Ceylon. Vol. I and II. Ceylon text and atlas in 4 pts., London.

[5] Menon A.G.K. 1999. Check List of Freshwater fishes of India (ZSI) Culcutta Occasional paper no.175.ZSI Culcutta pp-306., ISBN: 81-858774-15-8.
[6] Jayaram K.C 1981. The freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri lanka .A handbook. Zoological survey of India, Calcutta, 475 pp.
[7] http://www. Google Earth.com 2009. Europe Technologies Data SIO, NOAA, U.S. Navy, NGA, GEBCO.
[8] Datta Munshi J.S and Shrivastava 1988. Natural History of fishes and Systematic of freshwater fishes of India. Narendra Publishing House New Delhi- 110006.
[9] Talwar P.K. and Jhingran A.1991. *Inland fishes of India and adjacent countries*, Vol. 1 and II. Oxford and IBH Publisher, New Delhi.1158 pp.
[10] Jayaram K.C 1991. Revision of the genus ,Puntius Hamilton from the Indian region (Pisces : Cypriniformes : Cyprinidae :Cyprininae)Records of Zoological Survey of India, Occasional Paper no 135, ZSI, Culcutta 178 pp.
[11] Jayaram K.C 1999. The freshwater fishes of the Indian region Narmada publishing House New Delhi. 551 pp.
[12] Menon A.G.K. 1987. *Fauna of India and the Adjacent countries Pisces* (Part I) Homalopteridae ZSI, Culcatta.
[13] Jayaram K.C and Dhas J.Jeyachandra 2000. Revision of the Genus Labeo Cuvier from the Indian region with a discussion on its phylogeny and zoogeography (Pisces : Cypriniformes,Cyprinidae,Cyprininae)Records of the ZSI Occasional paper no.183,ZSI Culcutta, 139 pp.
[14] Jayaram K.C and Sanyal Anuradha. 2003. A taxonomic revision of the fishes of the genus Mystus scopoli (Family : Bagridae) Records of the Zoological survey of India occasional paper no 207 ZSI Culcutta 141 pp.
[15] Yazdani G.M. 1985. Fishes of Khasi Hills records of Zoological survey of India Occasial paper no. 70. Issued by the Director ZSI,Calcutta, 40 pp.
[16] Jyoti .M.K and Sharma .A 2006. Fishes Aid to Collection, Preservation and Identification Daya Publishing House Delhi.
[17] Trivedy R. K. and Goel P. K. 1986. Chemical and Biological methods for Water Pollution Studies, Env. Publications, Karad:
[18] APHA 1992. Standard Methods for the Examination of Water and Wastewater, 18th ed. American Public Health Association, Washington DC.
[19] Aher S.K., Mane U.H., and Pawar B.A. 2007 .A study on physico- chemical parameters of Kagdipura Swamp in relation to Pisciculture Aurangabad, Maharashtra. *J. Aqua. Biol.* Vol. 22 (1) 93-96.
[20] Sakhare .V.B. 2001. Ichthyofauna of Jawalgaon reservoir in Solapur district of Maharashtra. *J. Aqua Biol.*, Vol 16(1 and 2): 31-33.
[21] Battul, P.N., R.A Rao, Navale K.R. Bagale M.B. and Shah, N.V. 2007. Fish Diversity from Ekrukh Lake Near Solapur Maharashtra. *J. Aqua. Biol*., Vol 22 (2): 68-72.
[22] Khedkar G.D. and Gynanath; G. 2005. Biodiversity and distribution of the fishes from the back waters of Issapur reservoir dist Yeotmal, Maharashtra state India. *Trends in Life Science* (India) 2005, 20 (2): 117-126.
[23] Sharma Chhatra M. 2008. Freshwater Fishes, Fisheries and Habitat prospects of Nepal, *Aquatic ecosystem, health and management* vol. 11 (3).
[24] Shinde S.E., Paithane Bhandare R.Y and Sonawane D.L. 2009. Ichthyofaunal diversity of Harsool Savangi Dam district Aurangabad (M.S) India. World J. Fresh Mar.Sci.1(3):141-143.