

BIODIVERSITY OF SOME AQUATIC ANIMALS FROM KOREGAON DAM, TALUKA OMERGA, DISTRICT- OSMANABAD (M.S.), INDIA

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ABSTRACT

This dam is located on 17°-51'-30" North Latitude and 76°-38'-00" East Longitude of Tahasil Omerga; District-Osmannabad (M.S.), India, constructed in 1992 with a length 577.00mts, and 11.95mts, height and having capacity about 4.612 Mm³. It is a natural dam and with a large source of aquatic animals including, certain protozoan's, Molluscan's; Arthropod's, Fishes; other animals and aquatic plants; which are commercially important to man and environment. This dam is also used for drinking and irrigation water for nearly about 07 villages under the canal irrigation and domestic etc. The present investigation was carried out to study biodiversity of certain aquatic animals with reference to protozoan's; Molluscan's; Arthropod's; and Fishes From Koregaon Dam water body during the period from Jan – 2013 to Dec – 2013 one year. The results were confirmed the occurrence of one (1) species and one (1) genus belongs to one order of protozoa, three (3) specie and three (3) genus Belongs to 3 orders of Mollusca, seven (7) specie and six (6) genus belonging to 4 orders of Arthropods; while twenty three (23) species and 17 genus belongings to 7 orders of fishes. The orders cyprini forms was dominant with 12 species followed by order channiforms with 3 species; order clufeiforms, siluriforms and perciforms each with 2 species, while order , mugiliforms and mastacemberliforms each with only one (1) species. The results show's with rich biodiversity of aquatic animals.

KEYWORDS: Biodiversity, Aquatic Animals :(Protozoan's; Molluscan's; Arthropods; and Fishes), Koregaon Dam.

INTRODUCTION

The reservoirs or dams were constructed by for impounding effective utilization of water for irrigation, power generation and flood control. India is having very rich sources of Inland water bodies in the form of rivers; lakes and reservoirs. These reservoirs or dam form one of the most important source of food for large number of living aquatic animals; which are economically important for nature as well as human being for their using as a food. These are provided an excellent food with high protein; fats, carbohydrates and vitamins and certain minerals which are essential for health for man. The bottom fauna form a very important source of food for aquatic animals. These animals inhabit of river, lakes and reservoirs or dam and their distribution is directly related to availability of food and quantity sediment type (organic sandy and clay). There are certain organisms or macrobenthose play important or an eminent role and occupied a distinct place in the food cycle. The bottom fauna are also play an important role in the mineralization and recycling of organic matter, and as a link in the energy flow from primary production to fish and other aquatic animals. The considerable studies on biodiversity and diversity of aquatic animals from different water bodies of India have been carried out during the last few decades; Krishnamurthy (1966), Anitha *et.al.* (2004).made the previous studies on the macro-zoobenthos in India; Hamilton Buchanan (1822), Day (1878), Mishra(1962); Jayaram (1981) Gupta (1976).The more important work on this aspect is those of Srivastava (1959); Michal (1964).

More than one and quarter millions of species are living animals out of which at present only 5% i.e. about 5050 species belongs to chordates; millions of species of Arthropods; 45000 species of molluscan's and 2500 species of fish and other aquatic animals out of these large number of animals are economically important to nature and man.

Phylum molluscan's are constitutes dominant groups of animals and are includes soft bodied animals such as snails slugs, freshwater mussels, clams, oysters, octopods etc. This is very successful diverse and wide spread group with about 112000 species and second large phyla after Arthropoda. Mollusca's play significant role as links in food chains as detritus feeders improving bottom sediment and soil condition in an aquatic ecosystem and also a good indicators of localized conditions and the water quality. The molluscans are includes seven classes namely monoplacophoda;

Aplacophoda; polyplacophora, scaphopoda, Gastropod. Bivalvia; and cephalopoda out of which Gastropod are largest class includes 35000 living and 15000 fossil species such as snails; slugs; *Pila globosa*; freshwater mussels or *Lamellidens marginalis*.

A world molluscan's diversity varies from 50 thousand and 150 thousand. In India a total of 3271 molluscan species belongs to 220 families and 591 genera are known in which 1900 species of gastropods 1100. Species of bivalvia, 210 species of cephalopods; (4) species of scaphopoda; Earlier studies on the global manner pertaining to the molluscan diversity revealed occurrence of 450 species of gastropods and 150 species of bivalvia. Satyamurti (1952) further study recorded 100 species of gastropod and 158 species of bivalvia in the Gulf region, Nair and Rao (1974) were recorded on the commercial molluscs in India. The molluscs include seven classes. Jayaseeli and Murugon (2003) were recorded and identified 77 species of bivalvia on the Tulu coast, while D. Annadural (2006) were recorded 115 species of Gastropod belonging to single sub-class and three (3) orders and 44 genera, Sharma et al. (2010) were recorded total 16 species of molluscs from the Omkareshwar region out of which 9 belonged to Pelecypoda and 7 to Gastropoda.

Phylum Arthropoda is a largest group in the animal kingdom comprising more than 800,000 (8 lakh) species and including crustaceans and insects such as prawn, crabs, shrimps, lobsters, water scorpion, water stick insects, and other related forms. There are about more than 73 species belonging to 20 genera and 5 families such as *Palaemon malcolmsoni*, *P. kistnensis*, *P. rosenbergii*, and four species of crabs, *Barytelphusa gurini*, *B. cunicularis*, *Paratylphosa macanni* and *Caradina nolotica*. These are economically important using as a food for human consumption as a diet.

The aquatic environment is an enormously rich resource that offers a good base of food. Fishes form one of the most important groups of vertebrates influencing life in various ways. Fish play an important role as it is not only useful for food but also is used in recreation and biological control. Fish catches are mainly for human diet enriched by protein, fats and vitamins A, D. The phosphorus and other elements present in it give good taste and are easily digestible. Fishes from the inland water bodies of the Indian subcontinent have been subject to zoology study since last century. Hamilton Buchanan (1822), Day (1978), Misra (1962), Jayaram (1981), Talwar and Jhingran (1991), Jayabhaye and Khedkar (2008) were studied fish diversity of Sawana dam in Hingoli, district, Maharashtra. Rothod et al. (2008) were studied on fish diversity of Umra (Shamsudin) reservoir Washim district, Maharashtra. Ashashree et al. (2008) were studied biodiversity of fishes in Savalanga pond, Davangere district Karnataka, Srikanth et al. (2009) were studied the fish diversity of Rammappa lake, Warangal, Andhra Pradesh, India. Archana Sharma and Devendra Mohan (2010) were studied the fish faunal diversity of Hemawas dam Pali Rajasthan. Kamble and Kamble (2009) were studied the biodiversity of some aquatic animals, crustaceans, molluscs and fishes from Ruti-reservoir near Ashti: Dist- Beed.

Hence present investigation was undertaken to study the biodiversity of some aquatic animals (protozoans, molluscs, Arthropods and fishes); from Koregaon Dam, Tq.- Omarga, Dist. Osmanabad. This dam is one of the minor irrigation projects in Osmanabad District constructed in 1992 located on 17° 51' 30" North latitude and 76° 38' 00" East longitude of Tahasil Omarga, Dist. Osmanabad. With a length of 577.00 m and 11.95 m height and having storage capacity about 4.612 mm³. It is a natural dam and with large source of aquatic animals. This dam is also used or contracted for irrigation and drinking purpose and about more than 07 villages are beneficial under canal irrigation and domestic etc.

MATERIALS AND METHODS

The aquatic animals were collected from the Koregaon Dam with the help of local fisherman by using different types of nets and also with help of hand, after noting down color and other morphological features. These animals were cleaned with clean warm water to remove stem of micro-organisms and blood stain. The animals were preserved in 4% and 5% formal solution for further study and systematic identification of animals was done with the help of standard literature. The various aquatic animals and fishes were identified with the help of following key of Ward and Whipple (1959), Khanna and Govindaswamy (1995). Identification of Arthropods and protozoans was done by using standard tests and keys Edmondson (1959). The molluscs were identified with the help of key given by earlier research workers Bhatt (1959). The fishes were identified up to the species level with help of Hamilton (1822), Day (1878), Jayaram (1981), Talwar and Jhingran (1988), Khanna (1992).

RESULTS AND DISCUSSION

The distributions of aquatic animals are quite variable because of geographical and geological condition of water body. The aquatic ecosystem is an important and having large number of aquatic animals which are economically important including protozoan's; Molluscan's crustances, insects and fishes. The present results has confirmed the occurrence of protozoan's with (1) species belongs to 1 order and 1 genera; Molluscan's with 3species belongs to 3 orders and 3 genera; Arthropods with 7 species belonging to 4orders and 6 genera; while 23 species of fishes belonging to 7orders and 17 genera. The order cypriniformes was dominant with 12 species followed by order channiformers with 3 species and orders clupeiformes; siluriformes and order Perciformes each with 2 species while orders mugiliformes and mastacembeliformes each with only one (1) species, during the Jan. 2013 to Dec. 2013 (Check List :1,2,3 and 4). The results shows with rich biodiversity of aquatic animals including; Prawns; Crabs; other crustaceans; insects; Gastropods; Bivalvia and fishes.

1. Check List of Protozoan's From Koregaon Dam from Jan.2013 to Dec.2013.

Phylum – Protozoa.

Sub-Phylum – Ciliophora.

Supper Class – Ciliate.

Class – Ciliata.

Sub – Class – Holotrichea.

Order – Hymenostomatids.

Genus – *Paramecium*.

Specie – *caudatum*.

2. Check List of Molluscan's From Koregaon Dam from Jan.2013to Dec.2013.

Phylum – Mollusca.

Class – Gastropod.

Sub-Class – Prosobranchiata.

Order – Pentinibranchiata.

Genus – *Pila*

Species – *globosa*

Subclass – Euthyneura

Order - Pulmonata

Genus – *Lymnaea* (Fresh Water Snail)

Species-*limnaea*.

Class – Pelecypoda (Bivalvia)

Order – Eulamellibranchiata.

Genus – *Lamellidens*

Species – *marginalis*.

3. Check List of Arthropod's From Koregaon Dam from Jan.2013to Dec.2013.

Phylum – Arthropod

Sub- Phylum – Mandibulata.

Class – Crustacea.

Sub – Class – Malacostraca.

Order – Mysidacea.

Genus – *Mysis*.

Order – Decopoda.

Genus – *Palaemon*

Spices – *Malcolmsoni, rosenbergii*

Genus - *Barytelphusa*

Species – *guerini, cunicularis*.

Order – Nebaliacia

Genus – *Nebalia*

Class – Insecta (Hexupoda).

Sub- Class Pterygata.

Order – Hemiptera.

Genus - *Nepa* or Water Scorpion.
Genus - *Ranatra* or Water (Stick Insect)

4. Check List of Fishes. From Koregaon Dam from Jan.2013to Dec.2013.

Phylum – Chordate.

Sub – Phylum – Gnathostomata.

Supper – Class – Pisces

Class – Teleostomii

Order – Clupeiformes.

Genus – *Notopterus*

Species – *notopterus; chitala*

Order – Cypriniformes

Genus – *Catla*.

Species – *catla*.

Genus – *Labeco*

Species- *rohita* and *bata*

Genus – *Cirrhina*

Species – *mrigala* and *reba*

Genus – *Cyprinus*

Species – *carpio*

Genus – *Chela*

Species – *phulo*

Genus – *Resbore*

Species – *daniconus*

Genus – *Punctius*

Species – *ticto* and *sarana*

Genus – *Clarias*

Species – *batrachus*

Genus – *Nemacheilus*

Species – *botia*

Order - Siluriformers

Genus – *Mystus*

Species – *Seenghala*

Genus – *Wallago*

Species – *attu*

Order – Perciformes

Genus – *Glossogobius*

Species – *giuris*

Genus – *Ambassis*

Species – *nema*

Order – Channiformer

Genus – *Channa*

Species – *muralius; gachua, striatus*

Order – Mugiliformer

Genus – *Mugil*

Species – *corsula*

Order – Mastacembeliformes.

Genus – *Mastacembelus*.

Species – *armatus*

The study and survey of aquatic fauna of an aquatic water body is useful for planning of fish development for fish and other fishery culture. These species of aquatic animals were shows variations during different seasons of the year. The large number of protozoan's crustaceans and insects including *Palaemon* species, shrimps; *Mysis* ; crab *Barytelphesa*

species was recorded, during monsoon rain season and also constant recorded through year but not in November month while mollusks; and fishes was recorded throughout the year but maximum after monsoon season. The molluscan species like snails; *Pila globosa* species was recorded largely during monsoon month and few in winter and summer months while freshwater mussels or *Lamellidens marginalis* or unio was recorded maximum winter and summer months and less in monsoon months. Satyamurti (1952) were recorded molluscan diversity revealed the occurrence of 450 species of gastropods and 156 species of Bivalvia. Devaraj (1998) were recorded 100 species of Gastropods and 158 species of Bivalvia from Gulf of Manner Marine Biosphere while Batt (1959) were reported 59 species of Gastropods and 31 species of Bivalvia Jayaseeli and Murugan 2003 were recorded 77 species of *Bivalvia* from Tuticorine Coast. D. Annadurai (2006) were recorded 115 species of Gastropods from Gulf of manner Biosphere Tamilnadu Sharma *et.al.* (2010) were reported a total. 16 species of molluscan's from Omkareshwar region out of which of belonged to pelecypoda and 7 to gastropod from Narmada River, Madhya Pradesh.

Fishes are form one of the most important groups of vertebrates influencing his life in various way and comprise the true bony fishes. The recorded fish species from Koregaon dam was largely during summer than winter and monsoon months. This work is supported by large number of research authors. The survey of fish fauna has been done by number of workers Central Inland Capture Fisheries Research institute (1997) was reported presence of 49 species belonging to 30 genera and 12 families in Bhatgher reservoir and institute also recorded 44 endemic and 7 introduced fish species in Aliayer reservoir. Kumar (1990) were reported 51 species from Govindsagar reservoir; Himachal Pradesh. Singh (2001) reported a total of 27 fish species belonging to six families in pong reservoir of Himachal Pradesh. Pawar *et.al.* (2003) was reported 11 species from Shirur dam. Sakhare and Joshi (2003) were reported 34 species from parbhani reservoir. Kamble *et.al.* (2006) were recorded 27 species from the river Manjra, Kallam.

Tijare and Thosar (2008) were recorded 32 Species belonging to 25 genera under 13 families and 7 order from three representative (Bohali; Gadchiroli and Murkhal) lakes, Rathod *et. al.* (2008) was reported 12 fish species from 12 different genera of 3 orders and 6 families from class teleost from the Umra (Shamsudin) reservoir. Ashashree (2008) were recorded 18 species of fishes under 7 orders and 9 families. The order cypriniformes was dominant with 11 species from Savalanga pond Davangere Disirid Karnataka. Jayabhaye and Khedkar (2008) were reported a total of 25 fish species belonging to 14 genera, 8 families and 6 orders from the Sawana Dam Hingoli, (M.S.). The order Oyrpriniformes was dominant with 15 species followed by order siluriformes with three species, while the orders like Clupeiformes and perciformes were represented by two species each and the order Mastacembeliformes by single species from Sawana dam, Hingoli (M.S.), Srikanth *et.al.* (2009) were reported 31 fish species belonging to 6 orders; 23 genera of 14 families; from Rammappa Lake; Warangal Dist. Andhra Pradesh. Kamble and Kamble (2009) were confirmed the occurrence of Molluscan's with 3 species belonging to 2 orders and 3 genera; crustaceans 5 species belongs to 2 orders and three genera while 26 fish species belonging to 7 orders 17 genera and 9 families. The order cypriniformes was dominant with 12 species followed by order channiformes with 4 species and siluriformes with 3 species and orders like clupeiformes; perciformes and mastacembeli forms each with two species while order mugiliformes with single (1) species, during March. 2008 to Feb. 2009 from Ruti reservoir near Ashti, Dist. Beed. Archana Sharma and Devendra Mohan (2010) were reported 14 fish species belonging to 4 orders and 5 families. The most dominating order cypriniformes with 10 species of fish and order siluriforms with two species, while osteoglossiformes and perciformes were represented by one species each from Hemawas dam pali. Rajasthan during Dec-2006 to June-2009.

REFERENCES

- Anita G. Kodarkar M.S. Chandrsekher S.B.A. and Grace Nalini (2004).** Studies on macro-zoobenthos, Mir Atam lake Hyderabad, Andhra Pradesh. *J. Aqua. Biol.* 19(1):61-68.
- Archana Sharma and Devendra Mohan (2010).** Fish Fauna Diversity of Hemawas Dam, Pali, Rajasthan. *J. Aqua. Biol.* 25 (2): 37-40.
- Ashashree H.M. and Srinivas A. and Renuka Swamy H.M.(2008).** Biodiversity of Fishes in Savalanga pond, Davangere District, Karnataka. *J. Aqua. Biol.* 23 (1): 36-39.
- Bose S.K. and Lakra M.P. (1998).** Studies on the macro-zoobenthos of two fresh water ponds on Ranchi. *J. Aqua. Biol.* 6(2):135-142.
- Bhatt Y.M. (1959).** A study of intertidal organisms of Bombay Ph.D. thesis, University of Bombay, India.
- Day F.S. (1978).** The Fishes of India Willams and Son Ltd. London.

- Devraj M. (1998).** Conservation and sustainable management of marine living resource of the Gulf of Manner Marine Biosphere Reserve. *Prov. Tech. Workshop held at Chennai*. Feb.10-11,128-149.
- D. Annadurai (2006).** Gastropods diversity of the Gulf of Manner Marine Biosphere Reserve. Tamil Nadu, India. *J. Aqua. Biol.* 21(1):49-52.
- Edmondson W.T. (1959).** Rotifera in fresh water Biology Ed. W.T. Edmondson, John weily asons Inc. New York , London 420-494.
- Gupta S.D. (1976).** Macrobenticfauna of Loni reservoir. *J. Inland Fisheries Soc.* 8: 81.
- Hamilton B.F. (1822).** An account of fishes found in the river Ganga &its branches Edinburg London VIII & 400pp plates39.
- Jayaram K.C. (1981).** The fresh water fishes of India, A handbook, Z.S.I. Kolkata, India.
- Jayaseeli A.A. and Murugan (2003).** Diversity of bivalves in Tuticorin coast of Gulf of Mannar Resource status and exploitation SDMRI Res. Pub. 3: 137-141.
- Jhingran V.G. (1988).** Fish and fisheries of Indian Hindustan Publishing Corp. India.
- Jayabhaye U.M. and G.D. Khedkar (2008).** Fish diversity of Sawana dam in Hingoli Dist. of Maharashtra. *J. Aqua. Biol.* 23(1) 26-28.
- Khanna S.S. (1992).** An introduction to fishes. Indian Universities press and Publishing by Central Book Dept. of Allahabad 1-59.
- Kumar K. (1990).** Management and development of Gobindsagar reservoir. A case study. *Proc. Nat. Workshop areservoir Fush.* 13-20.
- Kannan L. and C. Govindaswamy (1995).** Rotifers of portonovo center of Advanced Study in Marine Biology Annamalai University, Portonova, Tamil Nadu, India 49 p.
- Kamble S.M. Mohekar A.D. and Bhagwan H.K. (2006).** Biodiversity of fishes of River Manjara near Kallam, Dist. Osmanabad.(M.S). *Indian J. Aqua. Biol.* 21(3): 3-4.
- Kamble S.M. and A.H. Kamble (2009).** Biodiversity of Ruli reservoir near Ashti, Dist. Beed . *J. Aqua Biol.* 24 (2) 67-72.
- Krishnamurthy K.N. (1966).** Preliminary studies on the bottom macrofauna of the Tungabhadra Reservoir. *Proc. Ind. Acad. Sc. Set. B* 63:96-103.
- Michael G.R. (1964).** Limnological investigation on pond plankton micro fauna and chemical constituents on water and their bearing or fish production M.Phil.Thesis Calcutta University.
- Misra K.S.(1962).** An aid to the identification of the common commercial fishes of India and Pakistan. *Rec. Indian Mus.* 57(1-4): 1-320
- Rathod S.D., Malu R.A., Dabhade D.S., Patil P.S., Chariana P. and H.V. and Wanjari (2008).** Diversity a fish fauna of umra (shamsudin)reservoir, washim district, Maharashtra. *J. Aqua. Biol.* 17.
- Satyamurti S.T. (1952).** Them mollusca krusadai Island (in the gulf of manner) Bulletin of Madras Govt. Museum Govt. Press Madras.
- Sakhre V.B. and Joshi P.K. (2003).** Resrrvoir fishery potebtlial of Parbhani District Maharashtra. *Fishing Chimes.* 23(5): 13-16.
- Srivastava V.K. (1959).** Studies of freshwater fauna II Qualitative composition and variation of the available food supply of fishes. *Proc. Nat. Acad. Sci. India.* 29: 207-216.
- Sharma, Shailendra L.K., Mudgal Zahoopir and Imtiyuz Toli (2010).** Distribution of molluscan biodiversity in Narmada river, Madhya Pradesh. *J. Aqua. Biol.* 25 (2):30-33.
- Srikant K. Ramu G. and Benarjec G. (2009).** The study on this diversity of Rammappa lala, Waragal, Andhra Pradesh. *J. Aqua. Biol.* 24 (2):57-60.
- Talwar P.K. and Shingran A.G. (1991).** Inland fishes of Indian and adjacent countries vol.1&2; Oxford & IBH publishing Co-Pvt.Ltd.
- Ward H.B. and Whipple E.C. (1952).** Fresh water bilogy; John Wiley and Sons Inc.; New York.