

BIODIVERSITY OF ICHTHYOFAUNA FROM PATALGANGA RIVER WATERS BODIES AT KHOPOLI, TAL. PANVEL, DIST. RAIGAD IN MAHARASHTRA



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Received on: 10 October 2013, accepted on: 12 December 2013

Abstract: Fishes are the valuable source of high grade protein and other organic products. Fishes occupy a significant position in socioeconomic fabric of South Asian countries by providing the population not only the nutritious food and also as an employment opportunity. India is endowed with a vast expanse of open freshwater in the form of rivers, canals, natural and manmade reservoirs, lakes and ponds, etc. India has a vast potential of development of freshwater fisheries. An attempt was made to study biodiversity of ichthyofauna, present in different sampling stations (A, B, C and D) of Patalganga River of Tal. Panvel, Dist. Raigad of Maharashtra State. The fishes were collected from different sampling stations (A, B, C and D) of Patalganga River during the two years study period January 2007 to December 2008 and confirmed the occurrence of 25 species of fishes belonging to 17 genera, 7 orders and 8 families. The order cypriniformes was dominant with 11 species followed by order channiformes and order siluriformes with 3 species, order clupeiformes, perciformes and order mastacembeliformes with 2 species each while order mugiliformes with only 1 (one) species.

Key words: Fish fauna, River Patalganga, Freshwater.

INTRODUCTION

India has a large network of rivers, lakes, canals, ponds and reservoirs. The rivers and streams are an immense source of freshwater production. These constitute about one thousandth total inland surface area and having 14 major rivers and other small tributaries of India flowing through four states and other parts of India. The freshwater or inland water bodies' fall into five major categories distinguished as the Ganga, the Brahmaputra, the Indus system of the northern India, the east and west coast river systems of the southern India. These river systems have certain characteristics of their own with respect to their ecology and climatic conditions.

The rivers and reservoirs forms one of the most important for large number of living aquatic animals, which are economically important for nature as well as human being for their using as food. The ecological processes in these ecosystems are much more complex and variable than those found in natural lakes, Agostinho and Gomes (1997). The bottom fauna form a very important source of food for some

fishes and therefore a better understanding of their ecology are essential for evaluation of their role in aquatic productivity. The fishes, apex of aquatic productivity are known to depend on benthos directly or indirectly of most part of their food. Many invertebrate species are extremely sensitive to pollution and respond to it very quickly. In the productive capacity of water body, the importance of bottom fauna as a link in the energy flow from primary production to fish yield has been stressed by many workers. Many investigators Krishnamurthy (1966), Michael (1964 and 1968), Bose and Lakra (1994), Anitha *et al.* (2004) made the previous studies on macro-zoobenthos in India.

Biodiversity is the variability among living organisms from all sources including terrestrial, marine, freshwater and other aquatic ecosystems and the ecological complexes of which they are part (UNEP, 1992). Biodiversity includes 3 different aspects i.e. genetic diversity, species diversity and ecosystem diversity, which are closely related to each other; Bisby (1995). It is estimated that there exists about 5.30 millions

species of living forms on earth of which only 1.5 millions have been identified, *Maruthanayagam and Sharmila (2004)*. This includes 250,000 species of flowering plants; 21,730 species of fishes; 4522 species of amphibians; 6,550 species of reptiles; 9720 species of birds and 462 species of mammals.

The faunal wealth of India is estimated to have about one and a quarter million living species and 15000 fossils species, 35000 molluscs, 800000 Arthropods and 50000 species about Chordata out of which Fishes 2500, Amphibians 6000, Reptiles 9000, Birds 4500 and nearly 25000 species of Mammals; representing 6.6% of the known world animals. Species of living animals are known at present of these only 5% enters about 50,000 species belongs to the chordates. The remaining 95% i.e. about 1.2 million species of the invertebrates out of these nearly one million are arthropoda in which the class insect includes 900,000 species other major invertebrates groups includes nearly 45,000 molluscs, 50,000 protozoans, 5,000 sponges, 11,000 coelenterates, 12,000 nematodes, 8,700 annelids and 6,000 cehunderny.

Kadam and Gaikwad (2006) studied Ichthyofauna of Masooli reservoir, District Parbhani. Jayabhaye et.al. (2006) study of fish diversity in the Parola Dam near Hingoli. Pawar et al. (2007) were study the fish fauna of Pethwadas Dam, TalukaKandhar in Nanded, Maharashtra.

The certain important fishes from different sampling stations (A, B, C and D) of Patalganga River in District Raigad. The origin of Patalganga River is near Khopoli city in the mountains of Sahayadri. The tail rest water of Tata Hydraulic Power Station is the main source (stream) of the Patalganga River. The Patalganga River sampling stations (A, B, C and D) were recorded some important aquatic animals including protozoans, prawns, crabs, crustaceans, crustacean larvae, molluscs and important fishes from a years January 2007 to December 2008.

MATERIALS AND METHODS

The fishes were collected from different sampling stations (A, B, C and D) of Patalganga River with the help of local fisherman by means of different types of nets Cast, Gill, Drag nets

and local markets; after noting down colour and other morphological features the specimens were preserved in 4% formalin. Seasonal collections were made from January 2007 to December 2008 over a period of two years.

Standard identification keys were used for identification of specimen up to species level by Hamilton Buchanan (1922), Day (1878, 1958, 1967 and 1994), Talwar and Jhingran (1991), Jhingran (1975, 1977 and 1982), Jhingran (1975, 1977 and 1982), Khanna (1992)

RESULTS AND DISCUSSION

The aquatic ecosystem is an important and having large number of economically important, aquatic animals including macro-invertebrates such as protozoans, molluscs, certain crustaceans, crustaceans larvae, insects and fishes. The distributions of aquatic animals are quiet variable or differ because of geographical, geological and ecological conditions of water bodies. In the present investigations has confirmed the occurrence of 25 species of fishes belonging to 17 genera and 7 orders and 9 families were recorded from different sampling stations (A, B, C and D) of Patalganga River District Raigad, during the research period from January 2007 to December 2008 (Table 1 Check list of Ichthyofauna).

The order cypriniforme was dominant with 11 species followed by order channiformes with 4 species, order siluriformes with 3 species, order clupeiformes, perciformes and mastacem beliformes with 2 species while order mugiliformes with one species during January 2007 to December 2008 from Patalganga River of different sampling stations (A, B, C and D).

Fish fauna is an important aspect of fishery potential of a water body. More work has been carried out on fish fauna in Indian reservoirs, lakes, ponds and rivers. The distribution of fish species is quite variable because of geographical and geological conditions. Water quality is an important criterion for fish habitat. In present investigation were recorded 25 species of fishes belonging to 17 genera and 7 orders and 9 families from different sampling stations (A, B, C and D in Plate No. 4.3) from Patalganga River, District Raigad from a period of January 2007 to December 2008. The changes in the

Table 1. Check list of Ichthyofauna in Patalganga River during January 2007 to December 2008

Phylum	: Chordata	Genus	: <i>Labeo</i>
Sub-phylum	: Gnathostomata	Species	: <i>rohita</i>
Supper class	: Pisces		<i>bata</i>
Class	: Teleostomii	Genus	: <i>Catla</i>
Sub class	: Actinopterygii	Species	: <i>catla</i>
Order	: Clupeiformes	Genus	: <i>Cirrhina</i>
Family	: Natopteridae	Species	: <i>mirigala</i>
Genus	: Natopterus		<i>reba</i>
Species	: <i>catla</i>	Genus	: <i>Cyprinus</i>
Genus	: <i>Cirrhina</i>	Species	: <i>carpio</i>
Order	: Cypriniformes	Genus	: <i>Punctius</i>
Family	: Cyprinidae	Species	: <i>ticto</i>
	<i>sarana</i>	Genus	: <i>Mugil</i>
Genus	: <i>Chela</i>	Species	: <i>corsula</i>
Species	: <i>phulo</i>	Order	: Perciformes
Genus	: <i>Rasbora</i>	Family	: Gobidae
Species	: <i>daniconus</i>	Genus	: <i>Glossogobius</i>
Genus	: <i>Rohiti</i>	Species	: <i>giuris</i>
Species	: <i>cotia</i>	Family	: Centropomidae
Family	: Balitoridae	Genus	: <i>Ambassis</i>
Genus	: <i>Nemachelius</i>	Species	: <i>nema</i>
Species	: <i>batia</i>	Order	: Channiformes
Order	: Siluriformes	Genus	: <i>Channa</i>
Family	: Bagridae	Species	: <i>mauralias</i>
Genus	: <i>Mystus</i>		<i>gachua</i>
Species	: <i>seenghala</i>		<i>striatus</i>
	<i>vitattus</i>		<i>punctatus</i>
Genus	: <i>Rita</i>	Order	: Mastacembeliformes
Species	: <i>rita</i>	Family	: Mastacembelidae
Order	: Mugliformes	Genus	: <i>Mastacembelus</i>
Family	: Mugilidae	Species	: <i>Armatus, guentheri</i>

composition of a fish assemblage often indicate a variation in the water quality parameters such as physico-chemical such as pH, salinity, water temperature, turbidity, hardness, dissolved oxygen, total dissolved solids, etc.

Kumar (1990) were reported 51 Ichthyofaunal species of fishes belonging to 9 families in GovindSagar reservoir in Himachal Pradesh out of which a (12) dozen fishes are commercially important. Devi (1997) were studied the Ichthyofauna of Ibrahimbagh and Shathamari reservoirs and found 24 genera of fishes out of which order cypriniformes genera were dominated and followed by order silluriformes, channiformus and perciformes. Jain (1998) reported 53 species of fish fauna was recorded and were grouped into seven categories in Rajasthan State.

Datta *et al.* (2000 a and 2002 a) were recorded 26 fish species from river Chenab; A total of 27 species belonging to six (6) families has been encountered in Pong reservoir. Sakhare (2001 a) were recorded 23 fish species belonging to 7 orders in Jawalgaon reservoir in Solapur District. Sakhare and Joshi (2002a) were recorded 28 fish species including 9 species of carps 5 of catfishes, 2 of feather backs, 5 of live species and 7 belonging to miscellaneous fishes. Pawaret al. (2003) were recorded 11 fish species belonging to 5 orders in Sirur dam. Joshi and Sakhare (2002) reported the ichthyofauna of Bori reservoir in Maharashtra. Total 21 species of fishes belongs to 14 genera falling under 4 orders (cypriniformes, perciformes, siliniforms and osteoglossiformes). Cypriniformes order dominated with seven species and genus pontius was abundant. Channa species was dominate

in order percaformes. Vankuteshwara *et al.* (2002) and Bhatt (2003) recorded order cypriniformes was dominant with 11 fish species from the Western Ghats followed by Silluriformes with species, order perciformes with species clupeiformes. Sakhare and Joshi (2003) reported the Ichthyofauna of Bori reservoir in Maharashtra and recorded 20 fish species belonging to 14 genera following under 4 orders.

Sakhare and Joshi (2003) were reported 34 species of fishes in reservoirs of Parbhani District of Maharashtra. Chary (2003) were reported 31 species of fishes of Ichthyofauna, Durgam-charuvu and also stated that major carps were domination. Paik *et al.* (2003) were recorded 75 species of fishes belonging to fifty (50) genera, twenty three (23) families and six (6) orders in Subarnarekha River in Singhbhum District of Jharkhand, India. Dutta *et al.* (2003) were recorded 96 fish species in the river Tawi. Lohar and Borse (2003) were recorded 23 species in river Tapti.

Rajaram *et al.* (2004) have studied Ichthyofaunal diversity as 258 fishes which include the medicinally and ornamentally important species Great Hicober Islands. Salaskar and Yeragi (2004) were recorded by 18 main fish species from Powai Lake, Mumbai in Maharashtra. Meshram and Meshram (2005) were recorded 17 fish species of teleosts belonging to order cypriniformes and ophiocephaliformes. Muley and Patil (2006) were recorded 31 species of fishes belonging to 24 genera in 12 families and 4 orders have been observed in Pauna Rivers. SuvallaMuraliKrishan and Ravi Shankar Piska (2006) were recorded 31 species of fishes in secret Lake Durgamcheruvu Ranga Reddy (A.P.). Majority of genera belonging to order cypriniformes six (6) genera of other fishes major carps. Three (3) genera of minor carps, three (3) genera of murrels, seven (7) genera of trash fishes, six (6) genera of other fishes. Mastacembeliformes percaformes and cyprinodontiformes were identified in the Durganachenuvu. Kadam and Gaikwad (2006) were reported 23 fish species belonging to six (6) orders. The order cypriniformes was dominant with eleven (11) species followed by order channiformes with four (4) species while

the order siluriformes, clupeiformes, perciformes were represented by two (2) species and rest of the orders by single species.

Jayabhaye *et al.* (2006) were recorded eleven (11) species of fishes belonging to five (5) orders and order cypriniformes was dominant with 5 species to be followed by the order ophiocephaliformes and order siluriformes each with 2 species and the order clupeiformes and mastacembeliformes each with one (1) species in the Parola Dam near Hingoli District Maharashtra. Rajalakshmi and Sreelatha (2006) were recorded 44 species of fishes belonging to 16 families and 26 genera in Gautami – Godavari estuary Yaman, Union Territory of Pondicherry India. The family Engraulidae was dominant with 8 species followed by cyprinidae and clupeidae with 5 and 4 respectively.

Kamble *et al.* (2006) were recorded 27 fish species from river Manjara near Kallam, District Osmanabad. Rathod *et al.* (2008) were recorded 12 fish species from 12 different genera belonging to 3 orders of 6 families from class teleost from Umra (Shamsudin) reservoir, Washim District Maharashtra. TijareRajendra and Thosar (2008) reported 32 species of fishes belonging to 25 genera and 13 families and 7 orders were recorded from the three representative lakes of Gadchiroli District Maharashtra, India. Order cypriniformes formed major bulk of Ichthyofauna about 16 species followed by Siluriformes (7), order Perciformes (6) and others (3). The Murkhalalake showed rich diversity of fish fauna (30 species) as compared to other two lakes. Bothali (23 species) and Gadchiroli lake (21 species). Ashashree *et al.* (2008) were recorded 18 species of fishes belonging to 7 orders and 8 families. The order Cypriniformes was dominant with 11 species of fishes. Anish Dua and ChanderParkash (2009) were recorded 61 species of fishes from Harike wetland and these belonging to 17 families and 35 genera. Maximum number of species 27 from family Cyprinidae; followed by Bagridae 7 species, Siluridae, Schilbedae, Channidae, Mastacembelidae each with 3 species; Gobidae, Notopteridae, Sisordae, Ambasiidae and Belontiidae each with 2 species. Clupeidae, Claridae, Heteropneutidae, Synbranchidae, Belonidae and Nandidae each with one (1) species.

Jayabhaye and Khedkar (2008) were recorded a total of 25 fish species belonging to 14 genera, 8 families and 6 orders from the Sawana dam. The order cypriniformes was dominant with 15 species to be followed by order siluriformes with three species while the orders like clupeiformes, channiformes and perciformes were represented by two species and the order Mastacem-beliformes by single species. Archana Gaur and Devendra Mohan (2008) were recorded a total of 19 fish species belonging to 8 families and 14 genera around three small wet lands of Jodhpur Rajasthan.

Mohan and Singh (2006) mentioned the occurrence of 80 fish species belonging to 6 orders, 20 families and 37 genera from the Thar Desert of Rajasthan. Mohan and Singh (2006) also reported 32 species of fishes in Jodhpur district. Deshpande and Bhilave (2009) were recorded 57 fish species belonging to eight orders and fifteen families from Satara Tahasil of Maharashtra. Kamble and Mudkhede (2009) were recorded 46 fish species from Medium reservoir Mandvi Kinwat, Maharashtra. Krishna and Ravishankar Piska (2006) were recorded 31 fish species from secrete lake Durgamcheruvu, Ranga Reddy District, Andhra Pradesh.

Pawar *et al.* (2007) were recorded 26 fish species from Pethwadas dam TalukaKandhar in Nanded District, Maharashtra, India. The fish diversity is correlated with biological and various physico-chemical parameters that regulate the productivity and distribution of different species of fishes. Sharma *et al.* (2007) were recorded 29 species of fishes belonging to six orders. Out of the six orders cypriniformes was dominant with 15 species followed by siluriformes with six species; Perciformes with three species and Mastacombelidae, Beloniformes and Clupeiformes represented by one species.

Srikanth *et al.* (2009) were recorded 33 fish species belonging to 23 genera falling in 6 orders 14 families have been identified in the three years study on four lake of Warangal district. 13 species from order cypriniformes 7 species from siluriformes, 3 species from chaniformes, 6 species from perciformes and one from osteoglossiformes and atherniformes each. Central Inland Capture Fisheries Research Institute (1997) were reported 49 species

belonging to 30 genera and 12 families in Bhatghar reservoir and institute also recorded 44 endemic and 7 introduced fish species in Aliyar reservoir. Paik Tapaskumar *et al.* (2003) stated 75 species of fishes belonging to 50 genera are recorded 23 families 6 orders in Subarnerekhariver in Singbhum district of Jharkhand India. Salaskar and Yeragi (2004) recorded by 10 main fish species from Powai lake Mumbai in Maharashtra. Kamble and Kamble (2009) were confirmed the occurrence of molluscans with 3 species belongs to 2 orders and 3 genera, Crustaceans 5 species belongs to 2 orders and 3 genera while 26 fish species belongs to 7 orders, 17 genera and 9 families.

ACKNOWLEDGEMENTS

The author is thankful to the Dr. G.A. Thakur, Principal, M.P. A.S.C. College, Panvel, for giving laboratory facilities and for encouragement.

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