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Biodiversity True Fish (Ichthyofauna) and Shell Fish (malacofauna) of River Daha Siwan (North Bihar)

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Abstract: In present paper study of Ichthyofauna 32 species of fish belonging to 7 order, 15 families, 19 Genera and malacofauna 25 species, 5 order, 10 families of River Daha Siwan (North Bihar). In the age of global decline of biodiversity , it is necessary to study the present status of different fauna and hence this attempt were made.

Keywords: Biodiversity, Ichthyofauna, malacofauna. River Daha, Global.

INTRODUCTION

Biodiversity is one of the most important life Supporting system of earth. It is essential for stabilization of ecosysytem and protection of over all environmental quality for understanding intrinsic work of all species on the earth. Without a wide range of animal, Plants and micro-organism, we cannot have the healthy ecosystems that we rely on to provide us with the air we breathe and the food we eat and people also value nature of itself.Life on earth is diverse at many levels. Begining with genes and extending to the wealth complxity of species, Life forms and functional roles, organized in spatical patterns from biological communities to ecosystem, regions and beyond (colwell 2009). In other words, it means variety and variability among living organism. Their genetic difference and the ecosystem in which they live. (winter and Hughes, 1997, Ruhbek and Colwell 2011.

Ichthyofauna means the fish life of a region. All fish share two traits. They live in water and they have a backbone. They are vertebrates,apart from these similarities, however, many of the species in this group differ markedly from one another. Fin fish like salmon have gills, are covered in scales and reproduce by laying eggs.

The study of molluscs is called "malacology". From the Greek word "Malaros", the word malacology was derived it bears the meaning also soft (Nordsiech 2012). Thus the molluscs are defined as a soft bodied, non metallic, triplobalstic, coelomic, basically a bilaterally symmetrical invertebrate, typically having an anterior head, a ventral muscular foot, the visceral mass enclosed in a thin fleshy mantle, well protected by an external calcareous shell. They have free swimming trochophore larvae normally present in the embryonic development.

MATERIAL & METHODS

Study location - The district Siwan is locate in the north western part of Bihar in inter fluvial region of river Ghaghara and Gandak. This district extends from 25° 22′ N to 26° 22′ latitude and 84° E to 84° 47′ E longitudes. It has got a maximum length of 85 km from east and width of 52 from north to south.

Selection of study sites – Study of molluscan fauna was carried out along different stretches of Daha river during 2 Years (Shown fig- 1,2.) The first study site (A) Mirganj is located in Gopalganj district upsteam water flow of the river. The second study site (B) Tarwa is sandy bottom in the middle stream of this river. The

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third study site (C) Pulwaghat has experience the contaminated water from the sewage of the siwan town. The fourth study site (D) Terighat is endowed with rockey bottom sediment which is being contaminated by anthropogenic activites and the fifth study site (E)Sariyan is located in the Hasanpura block.

Sampling Methods - A field. Survey Conducted for was two 2 year from Jan. 2019 to Dec. 2020 molluscs and fish were collected bi-monthly. Icthyofauna Sampling Method - The specimens were collected with the help of different kinds of fish catching appliance and devices. The Specimen were fixed in 8% formaline for the preservation. And 90 % alcohol were tried. Large forms containers with proper labeling and the tail pointing upwards to avoid damage to the caudal fin. Adopted accordingly to P.K. Verma (1976). Malacofauna Sampling method - The methods that was implemented for the collection of Samples were hand picking methods, digging the Substratum and Collection of living sample with the help of a net fitted. worth the equipment used in this project were net, polythene bag, gloves, Collection bottle, forceps and a DSLR Camera. Sample were hand -picked from the muddy areas during the low tide period. There, after the collected specimens were thoroughly washed withe brackish water to study there morphological characteristic. The specimens were preserved and fixed in 95% alcohol Washed specimens were preserved in a bottle with its respected identification tag. each Collected specimen was photographed before Preservation. The preserved organisms were identified with standard key to Subba Rao and Ramakrishna and Day, 2007) and the specimens of Ichthyofauna and molluscs are comfirmed by Zoological Survey of India, Patna.

RESULT AND DISCUSSION

The Present study reveled, the diverty of malacofauna and Ichthyofauna from River Daha in the 5 different streches during the two year. The collected 32 species of fish belonging to 7 order, 15 families, 19 Genera (show table 1) and fresh water molluscs were recorded from two class, Gastropoda and Bivalve. The total 25 Species, 5 order, 10 family (show table 2).

Fig. 1: Sasamusha

Fig. 2: Mohammadpur

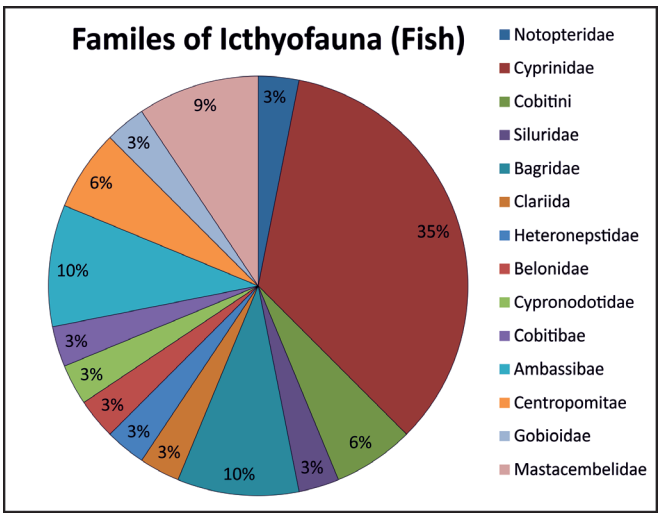

Fig. 3 : Family wise percentage of species identified

The fish fauna observed in the river is given in. (Table 2). During the period of investigation 32 species of fish belonging to 7 Orders, 15 Families and 19 Genera were reported. Fishes of this river show a close affinity with the same

Table 1 : List of fishes (Ichthyofauna) reported from Daha river of Siwan

Order	*Family*	*Genus & Species*	*Common Name*	*Status (Anon 1998)*
I. Clupeiformes	(a) Notopteridae	(1) N. nototerus	Patra	LR-nt
II. Cypriniformes	(b) Cyprinadae	(1) A. mola	Mola Carplet	LR-lc
		(2) Aspidoparia Jay	Jaya	LR-lc
		(3) Chela atpar	Silver hatchet chela-	LR-nt
		(4) Chela Labuca	Indian glass barb-	LR-nt
		(5) Oxygaster Bacaila	Largerazobelly minor	LR-lc
		(6) Puntish conchnius	Rosy barb	LR-nt
		(7) P. cosuatis	Barb	LR-nt
		(8) P. phutinis	Dwarf barb	LR-nt
		(9) P. sopho	Spot fine barb	LR-nt
		(10) P. saran	Olive barb	Vu
		(11) P.ticto	Two Spot Barb	LR-nt
	(c) Cobitni	(1) L. guntea	Guntea loach	LT-nt
		(2) N. botia	Nakati	NE
	(d) Siluridae	(1) Wallago attu	Bola	LR-nt
	(e) Bagridae	(1) Mystus cavacius	Tengara	LR-nt
		(2) M. tengara	Tengara	Vu
		(3) M.vittatus	Stripped-dwarf catfish	Vu
	(f) Clariida	(1) Clarias batrachus	Mangur	Vu
	(g) Heteronepstidae	(1) H. fossilis	Singhi	Vu
III. Beloniformes	(h) Belonidae	(1) X. cancila	Gar Fish	LR-nt
IV. Cyprinodontiformes	(i) Cyprinodontidae	(1) A. panchax	Panchax minnow	NE
V. Symbranchiformes	(j) Cobitibae	(1) Botia lohachata	Y loach	LR-nt
VI. Perciformes	(k) Ambassibae	(1) Colisa chuna	Gourami	NE
		(2) C. fasciatus	Giant Gourami	NE
		(3) C. lalius	Dwarf Gourami	NE
	(l) Centropomitae	(1) Chanda baculies	Indian glass fish	NE
		(2) C. ranga	Indian glossy fish	NE
	(m) Gobioidae	(1) A. cuchia	Mud eel	LR-nt
VII. Symbranchifornes	(n) mastacembelidae	(1) M. aculeatus	Spotted eel	LR-nt
		(2) M. armatus	Spily eel	NE
		(3) M. pancalus	Stripped spiny ee	NE

LR-lc = Lower risk least concern, LR-nt = Lower risk near threatened, NE= Not evaluated, VU= Vulnerable.

Table 2: List of Molluscs (molacofauna) reported from Daha river of Siwan

	Order	***Family***	***Species***
Gastropoda	Architaenioglossa	Viviparidae	*Bellamya bengalensis* (Lamarck, 1822)
			Bellamya crassa (Benson ,1836)
		Ampullariidae	*Pila globosa* (Swainson, 1822)
	Mesogastropoda	Bithyniidae	*Digoniostoma pulchella* (Benson , 1836)
			Bithynia cerameopoma (Benson , 1836)
		Thiaridae	*Melanoides tuberculata* (O.F. Muller ,1774)
			Thiara scabra (O.F. Muller ,1774)
			Thiara granifera (Lamarck, 1822)
			Thiara lineata (Gray, 1828)
		Pleuroceridae	*Brotia costula* (Rafinesque, 1833)
	Basommatophora	Lymnaeidae	*Radix ovalis* (Gray, 1822)
			Lymnae accminata (Lamarck, 1822)
		Planorbidae	*Gyraulus convexiusculus* (Hutton ,1849)
			Indoplanorbis exustus (Deshayes, 1834)
Bivalvia	Veneroida	Corbiculidae	*Corbicula bensoni* (Deshayes, 1854)
			Corbucula striatella (Deshayes, 1854)
	Unionoida	Unionidae	*Lamellidens consobrinus* (Lea, 1859)
			Lamellidens corrianus (Lea, 1834)
			Lamellidens maginalis (Lamarck. 1819)
			Lamellidens narainporensis (Preston, 1912)
		Amblemidae	*Radiatula caerulea* (Lea 1831)
			Parreysia favidens (Benson , 1862)
			Radiatulla olivaria (Lea, 1831)
			Radiatulla occata (Lea, 1860)
			Parreysia sikkimensis (Lea, 1859)

species reported in River Ganges. Cyprinid was abundant among all the families. Others were Notopteridae, Cobitidae, Siluridae, Bagridae, Beloniade, Cyprinodontidae, Mastacembelidae, Centropomidae etc (Shown in fig 3.) Smaller weed fishes such as O. bacaila, P. sophor, A. nama, M. vittaus and M. Pancalus were found in large numbers. Other reported fished were A. mola, H. fossilis and Channa sps. Many of them were air breathers and naturally hardy, withstanding a certain degree of environmental hazards. Several otger species like Anguilla (Eel), Mastacembelus (Spiny eel) and Anabas (hardy perch) burry themselves in the mud for sometime or supplement oxygen deficiency by gulping or storing air.

The fish species inhabiting the River Daha were evaluated as per Anon (1998). Categorasation and the list consist of some highly important threatened species, which includes 15-Lower rick near threatened, 3-LR Lower risk least concern, 09-not evaluated, and 5-vulnerable.

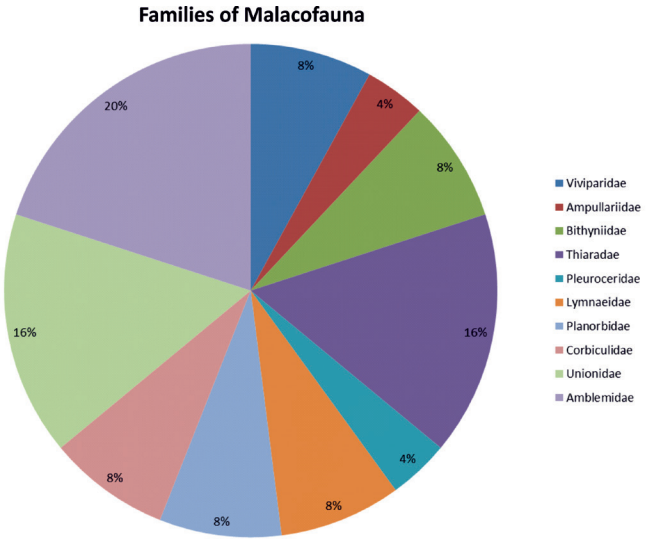

Fig. 4 : Family wise percentage of species identified

In present study diversity of molluscs in Daha river Siwan (North Bihar) is represented by 25 different species of moulluscs belonging to 5 order and 10 families (table 2). Out of 25 species, 14 species were gastropods and 11 species were bivalvia. The gastropods species are classed under 7 families viz, viviparidae, Ampullariidae, Bithiniidae, Thiaridae, Pleuroceridae, Lymnacidae, planorbidae where as pelecypods (Bivalvia) are comprised under 3 families- Cordiculidae, Unionidae, Amblemibae. Among the population structure of fresh water molluscs, the maximum diversity was found in family Amblemidae and minimum was Ampullariidae and pleuroceridae. Even though the family member of Amblemidae are more but about population the family viviparidae are dominating where as Ampullariidae are list dominant (Fig. 4).

CONCLUSION

The Ichhyofauna and malacofauna taxa have richness and abundance varied among all sampling site. Biodiversity of this river is very good. However, more awareness and motivation is required on the value of indigenous fish diversity and molluscs diversity, conservation of aquatic resources to ensure the sharing of benefits of its utilization in ecosystem, gets adequate of time to recover its natural community structure.

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Reference

Anon (1998) Report of the workshop on conservation assessment and management Plan (CAMP) for freshwater fishes of India. Organized by zootreach organization and NBFGR, Lucknow, 22-26, September 1997. 156p.

APHA, (1995), Standard Methods for the Examination of Water and Wastewater, 20th ed., American Public Health Association, Washington DC.

Bird life international (2021) country Profile Georgia http://www.birdlife.org/datazone/country georgia Acessed on 2021-03-02.

Col well , R.K. (2009) Bio diversity, Concept Patterns and measurnment. INSA Levin (Ed.) The Princuton guide to ecology (PP. 257-263)

Kumari Reeta and P. Rani (2008) Ecological investigations of Daha river of siwan, Bihar, Nature Environment and Pollution Technology ISSN : 0972. 6268, vol.7, PP.337-376.

Kumari Reeta et al. (2010) Ecological Status of River Daha in north Bihar and its effect on Fish Diversity, Nature Environment and Pollution Technology ISSN: 0972-6268.Vol-10 PP. 293-295.

Lakra, W.S. (2010) Fish biodiversity of Uttar Pradesh issues of livelihood security, threats and conservation. In: National Conference on Biodiversity, Development and Poverty Alleviation (May 22, 2010). Uttar Pradesh State Biodiversity Board, Lucknow, 40-45.

Lakra, W.S. and Pandey, A.K. (2009) Fish germplasm resources of India with special emphasis on conservation and rehabilitation of threatened species. In: Goswami, U.C. and Dilip Kumar, eds, Aquaculture Management. Narendra Pub. House, Delhi, 85-104.

Neiber MT, Bikashnli A, Bananashvili G, Shubashishvili A, Japoshvili B, Walther F, Mumladze L. (2021) Continental Mollusca Collected During The Second Georgian German.

Rahbek C and Col well R.K. (2011) Bio diversity Species loss revisited Nature 573, 288-289.

Ramakrishna and Dey, (2007). Handbook on India freshwater molluscs, Zoological Survey of India, Calcutta XXIII. PP- 289.

Subba Rao, N.V (1989) hand book of fresh water molluscs of India ZSI , and Calcutta.

Sumitra M, SharmaV, Sharma MS, (2007) Tropical Status of Lake Pichola in relation to physico – chemical characteristics of its water, National symposium on Limnology, 2007, 244-248.

Trivedy, R.K. and Goel, R.K. (1984). Chemical and Biological Methods for Water Pollution Studies. Env. Pub., Karad, India.

Vinarski, M.V. Bolor, I.N. Aksenova O.V et al. (2021) fresh water mollusea of the circumpolar Artic: a review on their taxonomy, diversity and biogeography. Thydrobiologia 848, 2891-2018(2021).

Winter BD Hughes RM (1997) Biodiversity Fishesis (Bethasda) 22(1) 22-29.