

A STUDY ON ICTHY OF AUNA OF FRESH WATER OF GOGI, SHAHAPUR TALUK, YADGIR DISTRICT

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ABSTRACT

The present study deals with Ichthyofauna of freshwater Gogi village, (Kelaginakere and Melinakere), Shahapur taluk, Yadgir district, Karnataka. The study area earlier was known for mining of Uranium (U235). Study was undertaken for a period of one year and monthly collections were made from February 2014 to March 2015. During the study occurrence of sixteen fish (16) species belonging to three (3) orders were identified. Order **Siluriformes** was dominant with 8 species, *Mystus krishnenis*, *Procutropiichthys taakree taakree*, *Ompak bimaculatus*, *Wallago attu*, *Amblypharygodon mola*, *Xenentodon cancila*, *Channa striatu*, *Mastacembelus aratus* followed by **Cypriniformes** order with seven (7) species *Cirrihinus reba*, *Labeo rohita*, *Catla catla*, *Cirrihinus mrigala*, *Puntius sophore*, *Puntius sarana sarana*, *Tor Mussullah* and **Osteoglossiformes** with one species *Notopterus notopterus*.

KEYWORDS: Fish Fauna, Conservation Status, Anthropogenic Stress, Kelaginakere, Melinakere

INTRODUCTION

Fishes are the important elements in the economy of many nations as they have been a stable item in the diet of many people. They constitute slightly more than half of total number of approximately 54,711 recognized vertebrate species of fish (Nelson 2006). Of these, 8411 are fresh water species and 11650 are marine. India is one of the mega biodiversity country in the world and occupies the ninth position in terms of fresh water mega biodiversity (Mittermeier, R.A and C.G Mittermeier. 1997). In India, there are C,2500 species of fishes, of which C,930 lives in fresh water and C,1570 are marine (Kar, D. 2003a). The Northeastern region of India is considered to be one of the hotspots of fresh water fish biodiversity in the world (Kottelat and Whitten, 1996; Ramanujam *et al.* 2010).

Fishes are the most diverse and protean group of vertebrates fishes are a treasured source both in terms of utility as food and as material for scientific study (Marshall, N, B 2000). Fish are often a key element in environment planning (Schiemer, F 2000) and they appear to be good indicators of the status of aquatic environment (Schneiders *et al* 1993). In addition to being an important, palatable food item for human consumption, they are part of aquatic food chain, nutrient cycling and ecosystem services. Fish also generate employment function as a genetic library for possible future use in medicine and aquaculture, stimulate human interest in nature, and provide aesthetic and recreational values. Certain ecosystem services generated by fish populations are also used as management tools, for example, in enhancing rice

production (tilapia, carp), mitigating diseases in tropical zones (Mosquito fish) mitigating growth of lake vegetation (Grass carp) (Holmlun *et al* 1999).

Fish diversity is changing and getting depleted alarmingly fast a result of over exploitation, water pollution etc. our study area includes Gogi village; there are two water bodies in the vicinity of village, Kelaginakere (lower-side pond) and Melinakere (upper-side pond). Since from 2007 in the study area Uranium (U235) mining is carried out by Uranium Corporation of India Limited (UCIL) (www.google.com. 2015). Our study is aimed to report an impact of various anthropogenic stressors contributing to biodiversity loss of the river and suggest appropriate conservation and management strategies by awareness among the local people.

STUDY AREA

The study region located in Yadgir and Gulbarga Districts in North Karnataka, spreads over a 30 km radius from the centre point Gogi (2826 km²). The area is located 17.33°N 76.83°E with an average elevation of the 455m (1492 ft.) above sea level (Fig. 1). The area is endowed Deccan Plateau and is mostly covered by dry deciduous vegetation. Adjacent to Gogi, particularly in Shahapur and Surpur Taluks, some parts are covered with hillocks with barren and stony surroundings while other villages are covered with sparse natural vegetation. According the map-soil orders of Karnataka State, the soil system of the study area is mainly composed of entisols, vertisols and inceptisols.

Climatically, the study region is a very hot and arid with low rainfall and high temperatures and experiences mainly 3 seasons – the summer from late February to mid-June, followed by the south- west monsoon from the late June to late September, and dry winter until mid- January. The study region is a drought prone area with an average rainfall of less than 650 mm spread over 46 rainy days in a year. The weather is very hot during summer with day temperatures hovering between 26°C in winter and 42°C in summer.



Figure 1: Study Area

MATERIALS AND METHODS

A survey of fish fauna inhabiting the important water resources of Gogi village was made for a period of one year during Feb 2014 to March 2015. There are two water bodies in the vicinity of village, Kelaginakere (lower-side pond) and Melinakere (upper-side pond). Fishes were collected from the rivers, reservoir and ponds with the help of local fishermen using different types of nets, viz., gill nets, cast nets and drag nets. Fishes were preserved individually in 6% formaldehyde solution for identification and classification literatures (Day, 1986; Talwar and Jhingran, 1991 and Jayaram, 2010). The samples were photographed, immediately prior to preservation as formalin decolorizes the fish colour on long preservation. Various observation were also carried out if the water was clear, to understand the distribution of fish species. Information on local name, economic value and behaviour pattern was obtained from fishermen.

RESULTS AND DISCUSSIONS

The results of present investigation confirmed the occurrence of (16) sixteen fish species in Gogi (Doddakere and Sanakere) during Feb 2014 to March 2015. The distribution of fish species is quite variable because of geographical and geological conditions.

The fish species found in Gogi (Doddakere and Sanakere) are order **siluriformes** family Bagridae with a species, *Mystus krishnenis*, family schilbeidae with (4) species *Proeutro piichthys taakree taakree*, *Ompak bimaculatus*, *Wallago attu*, *Amblypharygodon mola*, family Belonidae with a species *Xenentodon cancila*, family channidae with a *channa striatus*, Mastacembelidae with a species *Mastacembelus armatus* followed by **Cypriniformes** order, cyprinidae family with 7 species *Cirrihinus reba*, *labeo rohita*, *Catla catla*, *Puntius sophore*, *Puntius sarana sarana*, *Tor mussullah* *Cirrhinus mrigala* and **Osteoglossiformes** order, Notopteridae with a species *Notopterus notopterus*, Were found during sampling in two rivers (Doddakere and Sanakere).

The results of present investigation confirmed the occurrences 16 species belong to 3 order siluriformes order was dominated with 8 species, followed by Cypriniformes with 7 species, followed by order osteoglossiformes with 1 species

CONCLUSIONS

Due to multiple uses of fisheries resources, fishing has become a major industry and a large number of these aquatic communities are under a big threat of extinction. Habitat loss of environmental degradation has seriously affected the fish fauna. Knowledge of available resources and the biological characters of species serve the base line information for further studies on resources conservation and maintenance. Further there is a need for survey of diversity of fish fauna in different types of habitats all over the country. Industries effluents and manmade pollutants also contribute towards the disruption in the balance on aquatic ecosystem. The work will provide further strategies for development and fish conservation. A conservation measure requires forestation in catchments and awareness on illegal fishing and killing of fishes (Mala Ramesh *et al*, 2014).

The aim of the study is to provide baseline information as available today with respect to the impact of to future developmental activities on water bodies (biodiversity) in the Uranium mining area of India.

Table 1: Fish Species Recorded in Gogi Village Fresh Water Bodies

SL NO	ORDER	CYPRINIFORMES
1	Family:	Cyprinidae
	Species:	<i>Cirrihinus reba</i>
		<i>Labeo rohita</i>
		<i>Catla catla</i> , <i>Cirrhinus mrigala</i>
		<i>Puntius sophore</i>
		<i>Puntius sarana sarana</i>
		<i>Tor mussullah</i> ,
2	ORDER	SILUROFORMS
	Family:	Bagridae
	Species:	<i>Mystus krishnenis</i>
	Family:	Schilbeidea
	Species:	<i>Proeutropi ichthys taakree taakree</i> <i>Ompak bimaculatus</i>
		<i>Wallago attu</i> <i>Amblypharygodon mola</i>

	Family:	Belonidea
	Species:	<i>Xenentodon cancila</i>
	Family:	Channidea
	Species:	<i>Channa striatus</i>
	Family:	Mastacembelidea
	Species:	<i>Mastacembelus armatus</i>
3	Order	Osrtioglossiformes
	Family:	Notopteridea
	Species:	<i>Notopterus notopterus</i>

REFERENCE

1. Day F (1986) 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.1 and 2. Today and Tomorrow's Book Agency, p. 778.
2. <http://earth.google.com/intl/en/download-earth.html> assessed on 9-2-2013
3. Holmlun, C.M and Hammer, M (1999) Ecosystem services generated by fish populations. *Ecolo. Econom.*, 29: 25-268.
4. <http://www.meconlimited.co.in/FlashNews/Gogi.pdf> accessed on 20 June 2014
5. Jayaram K C (2010), *The Freshwater Fishes of the Indian Region*, Second Edition. Narendra Publishing House, Delhi, p. 616.
6. Kar. D. 2003a: Fishes of Barak drainage, Mizoram and Tripura, pp.203-211. In Kumar, A, C Bora and L.K. Singh (Eds). *Environment pollution and Management*, APH Publishing corporation, New Delhi, 604 PP.
7. Kottelet, M.,T. Whitten. 1996: *Freshwater Biodiversity in Asia with special reference to Fish*: World Bank Technical Paper No. 343. Washington, DC: The World Bank.59 p.
8. Mala Ramesh, R.Nijagunppa, Ravikiran. K and Manjunat.K. 2014: Fish fauna of Shree Sharnabasaveshwara lake, Gulbarga District, Karnataka, India. *IMPACT: IJRET*, 2(8):143-146.
9. Marshall, N. B (2000). *Fish life Environment and Diversity*. Agribios (India) pp. 347.
10. Mittermeier, R.A and C.G Mittermeier 1997: Mega biodiversity Earth's biologically wealthiest Nation. In: Mc Allister, D.E, A.L. Hamilton and B.Harvey(Ed's). *Global Freshwater Biodiversity: Sea wind*, CEMEX, Mexico City, 11:1-140.
11. Nelson, J.S, 2006: *Fishes of the world*, 4th edition. John Wiley and sons, Inc, pp: 601
12. Ramanujam, S.N., M. Monorama and Dey, S, 2010: *Ichthyodiversity of Meghalaya: India*. *Electronic Journal of Ichthyology* 6(2): 15-26.
13. Schiemer, F (2000). Fish as indicators for the assessment of the ecologist integrity of large rivers. *Hydrobiologia*, 422-423; 178-271.

14. Schneiders, A., Verhaert, F, E, Blust, G.D., Wils,C., Bervoets, L and Verheyen,, R. F (1993). Towards an ecological assessment of water courses. *J. Aquat. Ecosyst. Health.*,2:29-38.
15. Talwar P K and Jhingran A G (1991), *Inland Fishes of India and Adjacent Countries*, Oxford-IBH Publishing Co. Pvt. Ltd., New Delhi, p. 1158.

