

LIMNOLOGICAL STUDY OF FISH SPECIES DIVERSITY WITH THE RIVER NARMADA IN NIMAR REGION OF M.P.

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Abstract

The fishes are one of the most important vertebrate, provided rich protein sources for human and several animals and important element in the economy of many countries. Fish diversity of river essentially represents the fish faunal diversity. Rivers conserve a rich variety of fish species which supports the from the period August 2015 to July 2016. The aim of the study was to explore the fish fauna of Narmada River. In the course of investigation, Four sampling spot were selected. Omkareshwar, Mandleshwar, Maheshwar and Barwani of Narmada River. The total 43 fish species were recorded under four orders, nine families and 16 genera. 21 species of commercial fisheries. The country is rich in diversity of such important group of animals keeping in the view, the diversity of fish fauna of the Narmada River in Omkareshwar to Barwani, Madhya Pradesh, central India has been studied. Cypriniformes, three species of Ophiocephaliformes, two species. The Cyprinidae family is dominant and sub dominant family is of Perciformes and one species of Mastacembeliformes have been recorded Ophiocephalidae. Recently, the Tor fish species commonly called 'Mahasheer' has been declared state of Madhya Pradesh. The over fishing and pollution are the major threat for fish diversity of the Narmada River.

Keyword: Fish Diversity, Fresh water fishes, Narmada River, Conservation

1. INTRODUCTION

Study of biodiversity of fish fauna and their identification is one of the interesting field of biological

research, which gives us an idea about the morphological variation and population diversity of fauna in polluted and non polluted site of any particular habitat (Mukesh kumar Napit 2013). Rich biodiversity of any ecosystem is absolutely essential in order to maintain their stability for proper function of their food chains (Siddiqui et.al. 2014). The Narmada is a river in Central India and fifth largest river in subcontinent. It forms the traditional boundary between north India and south India. Narmada "the backbone of Madhya Pradesh" is the largest westward flowing river of India. It is also referred as 'lifeline of Madhya Pradesh'. It is considered holy by Hindus. It originates from Maikal Hill, Amarkantak in Shahdol district of Madhya Pradesh. It is situated at longitude 72° 32' and 81° 45' E and latitude 21° 20' and 23° 45' N. Total length of River Narmada is 1312 km which after traveling through three states namely Madhya Pradesh, Maharashtra and Gujarat for a distance of 1,077 km, 74 km and 161 km, respectively joins the Gulf of Cambay, near the District of Bharuch, Gujarat. (Pathak T. et.al. 2014). Fishes are the important element in the economy of many nations as they have been as table in the diet of many people (Shukla Pallavi et.al 2013). Ichthyofaunal documentation is important to analyze status of fish species and also helps us for future planning to improve and conserve the biodiversity (Bose A.K. et, et.al 2013). Present study is based on the fish diversity of Narmada river at Nimar region.

2. MATERIAL AND METHOD

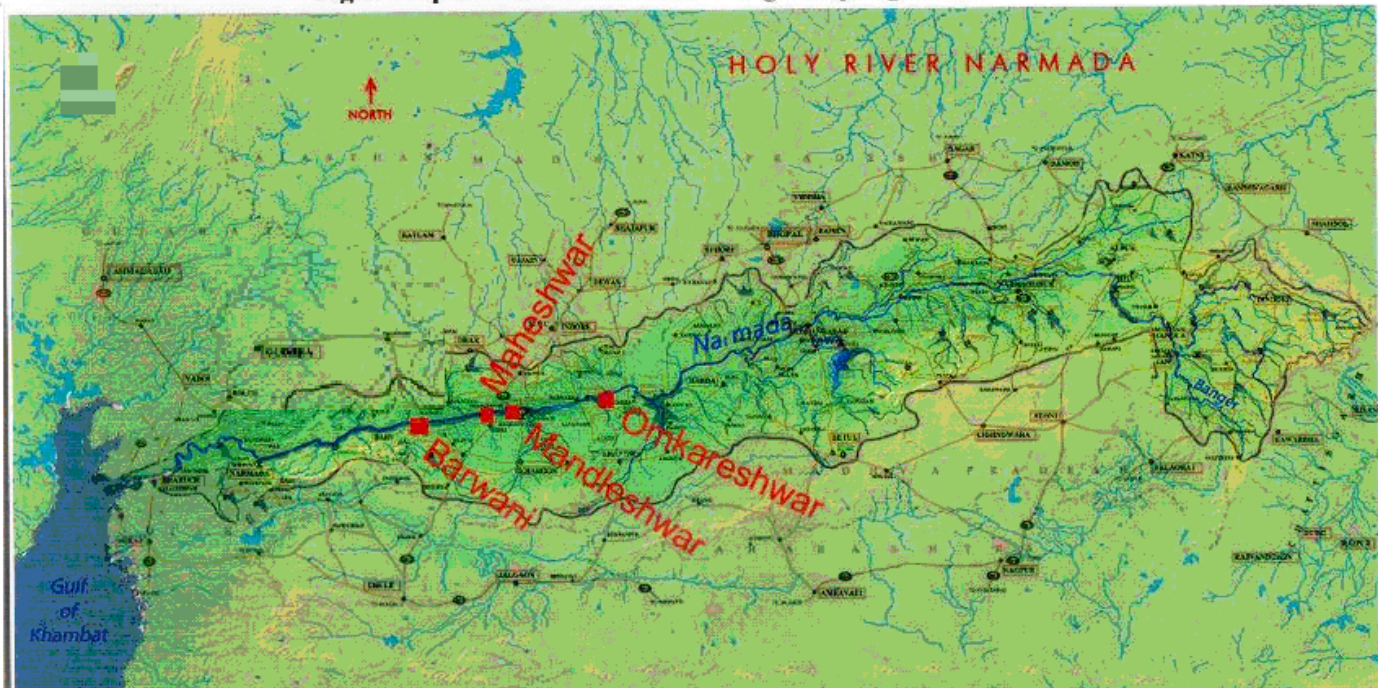
Description of study Area the Narmada river is considered as the life line of Madhya Pradesh. The catchment area of the river exists in the States of Madhya Pradesh (86.18%), Gujarat (11.6%),

Maharashtra(1.5%) and Chattisgarh (0.72%).During its course, the river drop from an elevation of 1051m to sea level, and flow through narrow gorges in the head reaches. The basin is bounded on the north by the Vindhya ranges, on the east by the Maikal range, on the south by the Satpura ranges and on the west by the Arabian Sea.Deep black soil covers the major portion of the basin .The river has 41 tributaries, of which 22 are on the left bank and 19 are on the right bank. The Barna, Tawa, Kolar and sukta dam have been constructed on the tributaries. The Bargi is constructed on the

mainstream, while the Indirasagar, Omkareshwar, Maheshwar and Sardar Sarovar dams are under construction.

The fish samples were preserved in 5-10% formalin according to the size of the fishes. Smaller fishes were directly placed in the formalin solution, while larger fishes were given an incision on the abdomen before they were fixed. Plastic jar were used for the collection and preservation. Fishes were of taxonomic key, Days fauna (1994) and Talwar and JHhingran 1991 Fishes were of taxonomic keys.

Fig 1. Map of Narmada river showing Sampling Stations



3. RESULTS AND DISCUSSION

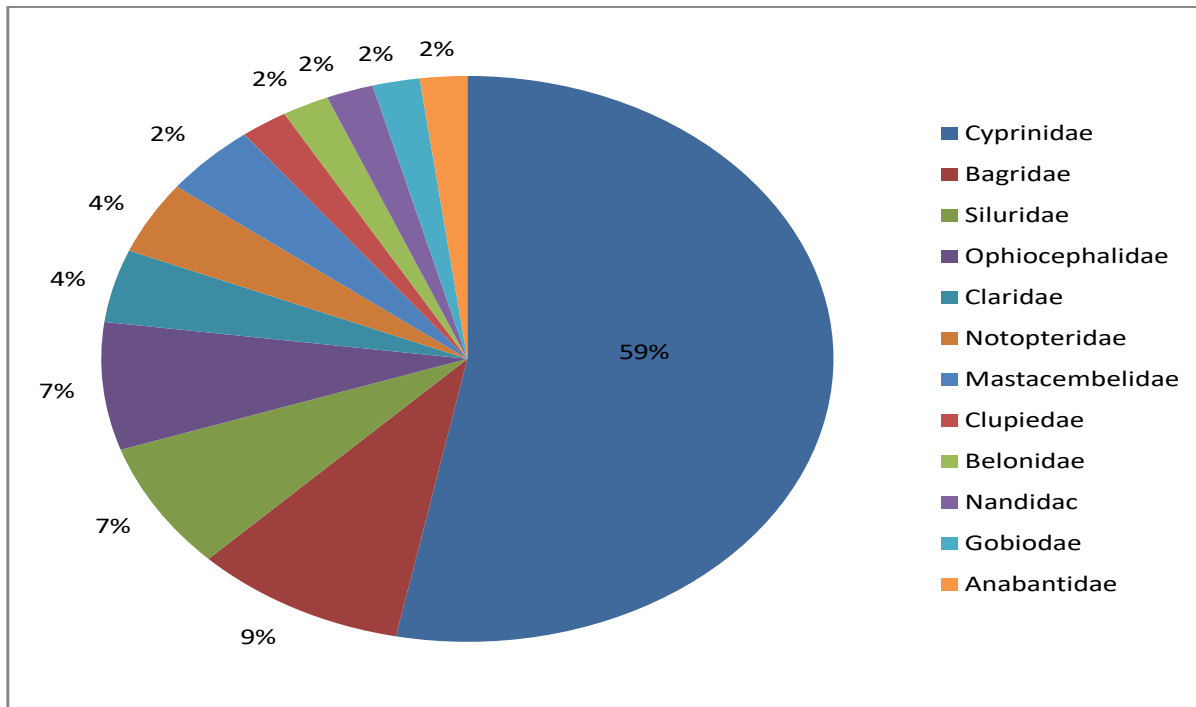
A total 43 species of fishes recorded from selected sites of Narmada river at nimar region belonging to 7 orders and 14 families. Among species, family Cyprinidae was the most dominant with 24 species and the percentage composition is 59% of fishes followed by Bagridae 9% with 4 species, Siluridae and Ophiocephalidae 7% with 3 species, Claridae, Notopteridae and Mastacembellidae 4% with 2 species and Schielbeidae, Clupeidae, Belonidae, Centropomidae, Nandidae, Gobioidae and Anabantidae represented with single species of fish in each family with 2% of each. The diversity was low in pre monsoon probably due to the shrinkage of water. Information collected from fisherman communities

displayed high decline of fish diversity. Deforestation, water scarcity, pollution, introduction of exotic species and mining and excessive fishing are the biggest threats to fish population. Various workers have done work on Narmada river. Vishwakarma et.al. (2014), recorded 33 fish species belonging to 5 orders, 9 families and 21 genera. Kumar et.al. (2014) studied the fish species diversity of river Narmada In Khedighat, Warwaha, Madhya Pradesh, and recorded 21 species of fish belonging to 4 orders and 6 families. Family cypriniformes were dominated with 15 species of fish. Pathak et.al. (2014) recorded 58 species of fish from western region of Narmada river at nimar region. Vyas et.al. (2013) recorded 27 species of fish from Jamner river, a

tributary of Narmada river. Siddiqui et.al.(2014) work done on Biodiversity of Ichthyofauna of Narmada river of Mandleshwar region, Madhya Pradesh, India and recorded 48 species of fish belonging to 7 orders and 17 families. Bose at.al. (2013) recorded 57 species, belonging to 35 genera , 13 families, and 6 orders from middle stretch of river Tawa. Bakawale et, al. (2013) worked on the fish Species diversity of the River

Narmada in western zone, and recorded total 51 species of fish belonging to 7 orders and 15 families. In the present study 49 fish species,belonging to 7 orders and 14 families were recorded

% Composition of fish families in Narmada river during Aug. 2015 to July. 2016.



Cyprinidae (51%) > Bagridae (9%) > Siluridae(7%) > Ophiocephalidae(7%) > Claridae (4%) > Notopteridae (4%) > Mastacembelidae(4%) > Scheilbedae (2%) ,Clupiedae (2%),

Belonidae(2%),Centropomidae (2%), Nandidae (2%), Gobiidae (2%), Anabantidae (2%)

Table 1 : List of fish species from Narmada river

Order	Family	species
Cypriniformes	Cyprinidae	Labeo rohita
		Catla catla
		Cirrihinus cirrihosa
		Cirrihinus reba
		Labeo calbasu
		Labeo fimbriatus
		Labeo bata
		Labeo gonius
		Nemacheilus botia
		Puntius chola
		Puntius sarana
		Puntius dorsalis
		Tor tor
		Ctenopharygdon idella
		Hypothalmichthys molitrix
		Cyprinus carpio
Puntius ticto		
Rasbora daniconius		
Siluriformes	Claridae	Clarius batrachus
		Heteropneustes fossilis
		Hilsa hilsa
		Ompok bimaculatus
		Wallago attu
	Siluridae	Mystus bleekeri
		Mystus seenghala
	Bagridae	Mystus cavasius
		Mystus aor
		Mystus tangara
		Mystus vittatis
Rita rita		
		Rita pavementata
Cluiformes	Clupeidae	Notopterusnotopterus
		Notopterus chitala
Beloniformes	Belonidae	Xenentodon cancila
Perciformes	Centropomidae	Chanda nama
		Nandus nandus
	Anabantidae	Anabas testudinus
Ophiocephaliformes	Ophiocephalidae	Channa marulius
		Channa punctatus
		Channa striatus
		Channa gachua
Mastacembeliformes	Mastacembelidae	Mastacembelus armatus
		Mastacembelus pancalus

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