

Assessment of Ichthyofaunal Diversity of the Digha Escape Reservoir of the Indira Gandhi Canal, District Jaisalmer, Rajasthan

HARINDER SINGH BANYAL and SANJEEV KUMAR

Desert Regional Centre, Zoological Survey of India,

Jodhpur - 342005 (Rajasthan).

E-mail: dr.harinderbanyal@gmail.com

The Thar Desert of Rajasthan has never been considered a rich spot for fish faunal diversity. Himalayan waters through Indira Gandhi Nahar Pariyojana (IGNP) brought in to the Thar Desert fulfilled the requirement of water for drinking and irrigation in the most xeric conditions prevailing in the region. The canal water from the Harike Barrage at Sultanpur in Punjab has brought many changes in the faunal composition of the Thar Desert, including fish and fisheries resources. Since north western parts of the state, especially the districts of Sriganganagar, Hanumangarh, Barmer, Churu and Bikaner, besides western parts Jodhpur and Jaisalmer, get Himalayan water from the IGNP, they now exhibit diverse fish faunal diversity, because of high moisture realm in the region.

In order to reduce the pressure on the main canal, five major escape reservoirs have been naturally developed along the main canal, for the surplus water which is intermittently released from the main canal. These escape reservoirs are perennial water bodies and harbour rich biota including fish diversity. IGNP canal has become the main source of bringing fish spawn from the Himalayan rivers such as Sutlej and Beas. This factor has made the area a field with enormous potential for Ichthyological explorations.

Previously, due to extended droughts, fish species diversity was very less, but floods in the recent past have increased the diversity by adding 21 more fish species to the region. Johal & Dhillon (1981) reported 57 species of the fish from Ganganagar district, belonging to 30 genera including 19 species as new records. Yazdani (1996) has reported a total of 142 species from the entire Thar Desert, out of which 112 species belonging to 64 genera 26 families and 6 orders were reported from the Thar region of Rajasthan. Besides, Mohan & Singh (2004) have reported 80 species belonging to 6 orders, 20 families and 37 genera from the Thar Desert of Rajasthan. The highest numbers of fish species were recorded from the Jaisalmer district, mainly due to the extension of IGNP water and the presence of three escape reservoirs, namely, Digha, RD 1356, and RD 1120.

Details regarding the fish faunal diversity of Digha

reservoir are almost not available. Hence, this reservoir (N 27°25.888' & E 070°58.829') was surveyed in the year 2014, to know the fish faunal diversity.

Material and Methods

Fishes were collected mainly by using cast and gill nets. Hand net, scoop net, drag net and baited hooks were also used. The fishes were preserved in 10% formalin for further studies and were identified following Talwar & Jhingran (1991), Jayaram (1999) and Froese & Pauly (2014) i.e. www.fishbase.org, [version (02/2014)].

Results and Discussion

Absolutely no information is available on consolidated description of the fish faunal composition from Digha Reservoir. During the present studies, 17 spp. of fishes are reported from this reservoir (Table 1). Cypriniformes was the dominant order of fishes (7 spp.), followed by Channiformes (3 spp.), Siluriformes (2 spp.), Mastacembeliformes (2 spp.), Clupeiformes (1 sp.), Osteoglossiformes (1 sp.) and Beloniformes (1 sp.), in order of their presence in the waters. Among fishes, *Labeo bata* (Ham-Buch) and *Channa marulius* (Ham-Buch) were found to be the dominant species in fish catches, whereas other species of fishes were less in numbers. Presence of above mentioned species of fishes and their juveniles in Digha reservoir pointed out that most of the fishes are established in the reservoir. Decrease in water level in the recent past due to increase in harvesting of canal water for agriculture coupled with poor monsoon during 2014, have aggravated the water availability in the reservoir. This may jeopardize the fisheries prospects in the days to come, thereby resulting into vanishing of not only the fish population but also the entire fish faunal composition of these reservoirs. Investigation results are apprehensive of the fact that if water is not released immediately from the IGNP canal, this ideal reservoir in the Thar Desert will soon get dry, accentuated by its poor water holding capacity as well.

All the reported fishes are of 'Least Concern (LC)' status, according to the IUCN (2012).

A list of the fishes observed in the reservoir with their classification is given below in Table I.

Table 1. Fish fauna of the Digha Escape, IGNP, Jaisalmer.

	Species name	Utility of fish	IUCN Status
	Order- Osteoglossiformes		
	Family- Notopteridae		
1	<i>Notopterus notopterus</i> (Pallas)	Commercially important	LC
	Order- Clupeiformes		
	Family- Clupeidae		
2	<i>Gudusia chapra</i> (Ham-Buch)	Commercially not important	LC
	Order-Cypriniformes		
	Family-Cyprinidae		
	Subfamily- Cyprininae		
3	<i>Cirrhinus mrigala</i> (Ham- Buch)	Commercially important	LC
4	<i>Labeo bata</i> (Ham-Buch)	Commercially important	LC
5	<i>Labeo boggut</i> (Sykes)	Commercially important	LC
6	<i>Labeo calbasu</i> (Ham-Buch)	Commercially important	LC
7	<i>Pethia ticto</i> (Ham-Buch)	Commercially not important	LC
8	<i>Salmophasia bacaila</i> (Ham-Buch)	Commercially not important	LC
9	<i>Rasbora daniconius</i> (Ham-Buch)	Commercially not important	LC
	Order- Siluriformes		
	Family- Bagridae		
10	<i>Mystus gulio</i> (Ham-Buch)	Commercially not important	LC
11	Family- Heteropneustidae		
	<i>Heteropneustes fossilis</i> (Bloch)	Commercially important	LC
	Order- Beloniformes		
	Family- Belonidae		
12	<i>Xenentodon cancila</i> (Ham-Buch)	Commercially not important	LC
	Order- Synbranchiformes		
	Family- Synbranchidae		
13	<i>Mastacembelus armatus</i> (Lacepede)	Commercially important	LC
14	<i>Mastacembelus pancalus</i> (Ham-Buch)	Commercially not important	LC
	Order- Perciformes		
	Family- Ambassidae		
15	<i>Chanda nama</i> (Ham-Buch)	Commercially not important	LC
	Family- Channidae		
16	<i>Channa marulius</i> (Ham-Buch)	Commercially important	LC
17	<i>Channa punctata</i> (Bloch)	Commercially not important	LC

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