

A Preliminary Survey of Fish Fauna of Changhoz Dam, Karak, K.P.K. Pakistan

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Abstract: A preliminary study of Changhoz dam Karak, K.P.K. Pakistan was conducted from June 2009 to January 2010 to find out Ichthyofauna of this dam. A total of seven fish species were identified belonging to 2 different orders, 2 families and 5 genera based on their systematic account. The family Cyprinidae of the Order Cypriniformes was the richest family of the present survey and is represented by 6 species viz. *Barilius vagra*, *B. pakistanicus*, *Crossocheilus latius*, *Labeo rohita*, *Cyprinus carpio* and *Hypophthalmichthys molitrix*. Only one species, viz *Mastacembelus armatus* represented family Mastacembelidae of the order *Mastacembeliformes*. The Present study contributed three new records from the Karak District viz. *Crossocheilus latius*, *B. pakistanicus* and *Mastacembelus armatus*.

Key words: Ichthyofauna · Changhoz dam · Karak · Pakistan · Fish species

INTRODUCTION

Fisheries play a key role in boosting the economy of the country and prosperity of the area. The present study was focused on the identification of fish fauna of the Changhoz Dam, District Karak, Pakistan, which is the first effort in this regard.

Study of biodiversity is an important issue in today's world. Biodiversity is essential for stabilization of ecosystem and protection of overall environmental quality [1]. Fishes are the most numerous of the vertebrates [2]. Biodiversity study of fish generally termed as Ichthyodiversity refers to the variety of fish species found in certain area [3]. Identification of fish fauna is a very important feature of studying a water body. Lot of work has been done in this regard on different lentic and lotic habitats of this province.

In recent past valuable contributions have been made by the researchers like Butt [4] who reported 94 species of fishes from the whole province of N.W.F.P. Similarly Mirza *et al.* [5] reported 13 species of fishes from river Kurram, Hussian *et al.* [6] recorded 6 species from river Swat. Nisar [7] worked on the fishes of Tanda Dam Kohat and reported 23 species. Shahjehan and Khan [8] reported 26 fish species belonging to 8 families from Baran dam, Bannu. Ali [9] enlisted about 165 fish species from the freshwater of whole Pakistan:

McClelland [10], Qureshi [11], Talwar and Jhingran [12], Hussian *et al.* [6] and Mirza [13] also made some

monumental contribution to the field of fisheries. However, much work has been done on other district of N.W.F.P. (now called as K.P.K.). The only specific work on district Karak was made by Ilyas [14] who had recorded 12 species from Zebi Dam, Karak.

Changhoz Dam is situated 4 miles towards west of Latamber Town, in the west of Karak city, District Karak. The dam is surrounded by mountains from eastern and western sides. Changhoz dam is one of the most important dams in the area, which plays a key role in the economy and prosperity of Karak, especially the surrounding towns and villages like Latamber, Sharif Wala, Mondawa and Akar Wala. Basically it is a rain filled "barani dam" mainly used for irrigation purposes. A canal has been constructed from it which nearly flows through out the year, but in the month of August and September, it flows with high speed due to heavy rainfall. Apart from irrigation it also meets the need of drinking water of the people of the area to some extent.

Changhoz dam was completed in 2006. It has a total catchment area of about 48 square miles which is equivalent to 3300 Acres. Its height is 140 feet with a live water storage capacity of 11550 Acre Feet. (Small Dams Organization K.P.K. Irrigation Department, Peshawar and Small Dams Directorate, Kohat).

The present work was carried out to identify the fish diversity in dam and to predict the fish species which could potentially be stocked in the dam.

MATERIALS AND METHODS

Fishes were collected from Changhoz dam, with the help of local fisherman using different types of nets and hooks. Fishes were preserved in 5% formalin solution in separate bottles according to the size of fish and were brought to the laboratory. Small fishes were directly preserved in 5% formalin solution while larger fishes were also given an injection of formalin in the belly to avoid decomposition.

The morphometric characters were studied and fishes were identified up to the species level with the help of standard Keys and related literature. For the identification of fishes following Keys were used.

- Inland fishes of India and Adjoining countries, (Volume 1 and 2) [12]
- Key to fishes of Punjab Pakistan, [15]
- The Fishes of the Indian region [16]

RESULTS AND DISCUSSION

In the present survey, conducted from June 2009 to Jan 2010, seven species belonging to 2 orders, 2 families and 5 different genera were recorded from Changhoz Dam. The total catch was 103. Some of them are commercially important food fishes.

The study showed that Cyprinid fishes were the most common and abundant group of fishes found in this area. Following seven fish species were identified from Changhoz Dam viz, *Barilius vagra*, *Barilius pakistanicus*, *Crossocheilus latius*, *Labeo rohita*, *Cyprinus carpio*, *Hypophthalmichthys molitrix* and *Mastacembelus armatus*. (Table 1).

Cyprinidae was found to be the most abundant family of the fishes represented by 6 species. Family Mastacembelidae was not so rich represented by only a few specimens of *Mastacembelus armatus*, the freshwater eel locally known as Marmahi.

Some fishes seem to be the resident species of the dam and found throughout the study period. These fishes include *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita* and *Barilius pakistanicus*. The existence of these species throughout the study period may be due to the reason that they can tolerate both lower and higher water temperature which generally fluctuates between 14.22 to 25.62°C [17]. While the absence of species of genera like *Channa*, *Puntius*, *Chirrinus*, *Carrasius*, *Catla* etc. in the reservoir as compared to the other parts of this province is most probably either due to harsh environmental conditions and arid climate of district Karak or no body has tried to introduced these species in the reservoir to gain better production from this water body.

Previously there was no faunal study available regarding freshwater fishes of district Karak. Ilyas [14] worked on Zebi dam, District Karak and identified 12 species of fishes namely *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita*, *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*, *Ctenopharyngodon idella*, *Puntius ticto*, *P. sophore*, *Hypophthalmichthys molitrix*. *Channa punctatus* and *Channa straitus*.

In the present study four species reported by Ilyas [14] viz. *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita* and *Hypophthalmichthys molitrix* have been recorded whereas species like *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*, *Ctenopharyngodon idella*, *Puntius ticto*, *P. sophore*, *Channa punctatus* and *Channa straitus* reported by him were missing in Changhoz dam.

A similar study was also conducted by Shahjehan and Khan [8] on Baran Dam Bannu (the adjoining District of Karak) NWFP Pakistan, who identified 26 species viz. *Cyprinus carpio*, *Labeo rohita*, *L. boga*, *Hypophthalmichthys molitrix*, *Catla catla*, *Cirrhinus mrigala*, *C. reba*, *Ctenopharyngodon idella*, *Puntius ticto*, *P. sarana*, *P. sophore*, *Barilius vagra*, *B. bendelisis*, *Salmostoma bacaila*, *S. punjabensis*, *Tor putitora*, *Channa punctata*, *C. striata*, *Glyptothorax cavia*,

Table 1: Relative abundance of different fish species from Changhoz Dam, Karak K.P.K. Pakistan collected during June 2009- January 2010

Order	Family	Scientific Name	Common Name	Catch Frequency	% of catch
Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	Gulfam	17	16.50
		<i>Labeo rohita</i>	Rohu	15	14.56
		<i>Hypophthalmichthys molitrix</i>	Silver carp	11	10.67
		<i>Crossocheilus latius</i>	Dogra	24	23.30
		<i>Barilius vagra</i>	Lahori chilwa	21	20.38
		<i>B. Pakistanicus</i>	Pakistani chilwa	13	12.62
Mastacembeliformes	Mastacembelidea	<i>Mastacembelus armatus</i>	Marmahi	2	1.94

Gagata cenia, *Ompok pabda*, *O. bimaculatus*, *Mystus bleekeri*, *Botia rostrata*, *Mastacembelus armatus*, *Notopterus notopterus*.

In the present study three new records from District Karak are *Crossocheilus latius*, *Barilius pakistanicus* and *Mastacembelus armatus*. It indicated that family Cyprinidae was represented by two more species whereas family Mastacembelidae was recorded for the first time from district Karak.

The Ichthyofauna of Changhoz dam was not very rich because the dam has newly been constructed and completed just four years back in March 2006. This is in accordance with the Koutrakis *et al.* [18] which showed that the reduced species diversity could probably be explained by the fact that the dried lagoon had recently been re-flooded, since environmental stress conditions influence the structure of biological assemblages. Further studies are required for finding out the changes and enhancement of fish diversity in the dam.

As the Changhoz Dam is located in the hilly area and far away from the access of the people, therefore, the water body is still safe from pollution and other human activities. Due to its large water volume it can supports a greater number and diversity of fish. It is, therefore, recommended that fisheries department, K.P.K. should pay due attention for the development of fish and fisheries in the reservoir. On the basis of the present study it is also recommended that some important species like *Cirrhinus mrigala*, *Catla catla*, *Ctenopharyngodon idella*, *Tilapia mosambica*, *Puntius ticto*, *Puntius sophore*, *Channa punctatus*, *Carassius auratus* etc. which are not found in Changhoz dam should be cultivated in it which could become a good source of revenue for the government and a sustainable income generating activity for the people of the area.

It has also been observed during the last year flooding that a great number of fish was washed down, therefore improvement in the design and construction is also recommended to avoid this type of loss again.

Further study is recommended about macroinvertebrate fauna, benthic fauna, aquatic vegetation and micro and macroflora of the Changhoz dam, Karak to fully understand the dynamics of this ecosystem.

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