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Exploring of fish fauna in the River Indus Hazara region Khyber Pakhtunkhwa, Pakistan

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Abstract

The main aim of the current study was to find out explore fishes of River Indus located in the Hazara region KP, Pakistan. Fishes of the River Indus were collected from the five selective sites of the River Indus from March, 2013 to February, 2016. Fishes collected and identified belong to 4 Orders, 8 Families, 19 Genera's and 26Species. From the present research, it can be concluded that River Indus is rich in the ichthyofauna especially Cyprinidae species. The study will be very useful in future for taxonomic and conservation point of view.

Keywords: Water, rivers, fish, family, identification, anthropogenic

1. Introduction

The river Indus is mainly fed by melting of mountain snow; flow is higher during the summer and the contribution from rainfall is very small. The mean annual flow and annual runoff at Dasu amounts to 2,100 m³/s respectively, but differences between summer and winter are large: 80 percent of the water flows between June and October. Physico-chemical conditions of river water changes between the summer and winter seasons. During summer, river water is very turbid and carries a high sediment load. All streams pass along steep gradients through rocky areas of high mountains, exhibiting variable cascades. At confluences with other tributaries and the Indus River they discharge gravel and sand from river bed erosion. The banks of some tributaries show patches of vegetation. Major sites selected for sampling were Daso, Pattan, Thakot, Judba and Bilani respectively. Fish are the most diverse groups; they have invaded almost every niche of the hydrosphere. They live in marine, brackish and freshwater and a few have even emerged upon the land. Some have become commensals or parasitic, while others live in caves. They are found from the Arctic to the Antarctic and some species carry out great migration that arrival those of birds. Some fish remain constantly in one environment other move from one place to another during their lifetime as they grow to maturity, or migrate seasonally [1]. Fish exhibits a great diversity in shape, size and color according to their habitat. Biodiversity is the variety of species in the ecosystem, or the variety of life on earth [2]. Many workers have been working on the diversity of fish fauna found in the various parts of the world, furthermore, some work had also made their contribution to the study of fish fauna found in freshwater resources of Pakistan. Hameed *et al* (2015) conducted studies on Sarki Lawaghar dam Takhte-Nasrati district, karak and reported 4 species [3]. In (2015) Hameed *et al* survey of Talai dam Bajawar Agency and reported 7 species [4]. Haseeb *et al* (2015) [5] were identified 11 species from Kohat Tanda dam also Haseeb *et al* (2016) [6] were reported 13 species with new records from Tanda dam Kohat, Hameed *et al* (2016) [7] The aim of the research work was to find out the fish fauna in the River Indus Hazara region because there was no such type of study conducted on River Indus Hazara region Khyber Pakhtunkhwa, Pakistan.

2. Materials and Methods

2.1 Fish Collection, Preservation and Identification

Fishes were collected from the various sites of River Indus with the help of a local fisherman using various types of catch-up instrument like hand nets, cast nets and hooks from March 2013-February, 2016. After collection proper photographs were taken from different angles for proper identification and then preservation with 10% formalin, since formalin decolorizes the fish color on long preservation.

Collected fishes were preserved and after the preservation these fishes were brought to the Research laboratory for proper identification. Fishes were properly identified in the laboratory by using keys of fish's identification Jayaram,

Mirza and Sadhu and Mirza [8-10]. All the fishes were preserved for longer time off period in a kettle jar by using 10% of formalin solution.

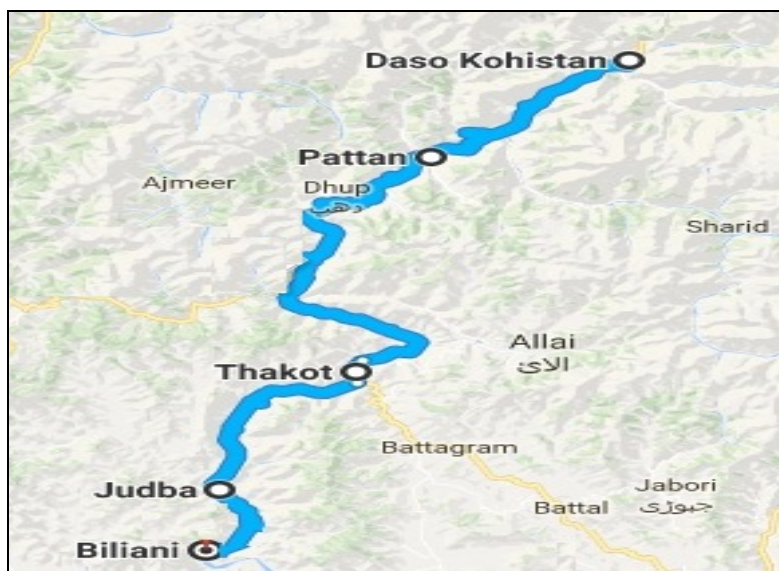


Fig 1: Map of River Indus KP, Pakistan.

3. Results

Fishes collected and identified from various sites of River Indus belongs to 4 Orders, 8 Families, 19 Genera and 26 Species as shown in the table 1. In the present research Cyprinidae was the richest Family which was represented by 16 Species (*Cyprinus carpio*, *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, *L. caeruleus*, *Hypophthalmichthys molitrix*, *H. nobilis*, *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus*, *Tor putitora*, *Garagotyla*, *Puntussophore*, *P. ticto*, *Barili Pakistanicus* and *B. vagra*); Bagridae consisting 3 species (*Rita rita*, *Mystus bleekeri* and *Sperata sarwari*); Schilbeidae were represented by only two species (*Clopiomanazirri* and *C. garua*) while Channidae, Cichlidae, Mastacembelidae, Siluridae and Sisoridae was consisting only one specie each (*Channa gachua*, *Oreochromis Mossambicus*, *Mastacembelus armatus*, *Wallago attu* and *Glyptothorax punjabensis*) respectively. From the current result, it can be concluded that family Cyprinidae was the richest one over all the families

recorded during the current study.

4. Discussion

During the current study in River Indus, 26 fish species were found up to the species level and there proper systematic classification is given in the table 1, respectively. The identified 26 species were belonged to 1 Class, 4 Orders, 8 Families, 19 Genera and 26 Species as shown in detail in table 1. In these 26 fish species family Cyprinidae was found the richest one over all the recorded families which comprising 16 species. Another study was conducted by Mirza (2006) on Allai Khoar Khyber Pakhtunkhwa, Pakistan during Summer. Three fish species were recorded which were *Schizothorax plagiostomus*, *Schistura naseeri* and *Glyptosternum reticulatum* respectively [11]. During the present study 26 species were recorded. Hence, from the current study we can say that River Indus water habitat is quite suitable for Cypriformes Order fish fauna.

Table 1: Fish fauna in River Indus of Hazara Division Khyber Pakhtunkhwa during March, 2013-February, 2016.

Order	Family	Genus Species
Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i> , <i>Catlacatla</i> , <i>Cirrhinus mrigala</i> , <i>Labeo rohita</i> , <i>Labeo caeruleus</i> , <i>Hypophthalmichthys molitrix</i> , <i>Hypophthalmichthys nobilis</i> , <i>Schizothorax plagiostomus</i> , <i>Schizothorax esocinus</i> , <i>Schizothorax labiatus</i> , <i>Tor, putitora</i> , <i>Garagotyla</i> , <i>Puntius sophore</i> , <i>Barilius pakistanicus</i> , <i>Barilivagra</i> , <i>Puntius ticto</i>
Siluriformes	Siluridae	<i>Wallago attu</i>
	Sisoridae	<i>Glyptothorax punjabensis</i>
	Bagridae	<i>Rita rita</i> , <i>Mystus bleekeri</i> , <i>Sperata sarwari</i>
	Schilbeidae	<i>Clopioma naziri</i> <i>Clupisoma garua</i>
Perciformes	Channidae	<i>Channa gachua</i>
	Cichlidae	<i>Oreochromis Mossambicus</i>
Synbranchiformes	Mastacembelidae	<i>Mastacembelus armatus</i>
Orders 04	Families 08	Genus 19 Species 26

5. Conclusion

From the current study it was concluded that the increase in the anthropogenic activities, illegal fishing and tourism industry in River Indus is threatening the fish fauna to become

declined. If the necessary fish conservation steps are not taken to save the fish fauna, it will result in the endangering of fish fauna in the river Indus Mansehra.

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