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Exploring of ichthyofauna in River Harrow Khyber Pakhtunkhwa, Pakistan

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Abstract
The research work was conducted on River Harrow KP, Pakistan. Duration of the current study was 3 years, i.e. from March, 2013 to February, 2016. For collection of fish fauna five sampling sites were selected. Fishes were collected with the help of various fish gars and identified belong to 3 Orders, 6 Families, 13 Genera's and 15 Species. In the present study Cyprinidae was the richest Family which was represented by 10 Species; Siluridae, Sisoridae, Bagridae, Schilbeidae and Mastacembelidae were represented by only one species, each respectively. From the present study, it can be concluded that River Harrow is rich in ichthyofauna. Furthermore, the river water was badly affected by anthropogenic pollution.

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

1. Introduction
The total length of River Haro is 54 km, originating from the hills of Moshkpuri. Five sites were selected for sampling, i.e., Akhora, Dhara, Sarral, Pambala and Kharala as shown in the figure 1. The upper reaches of the catchment area are afforested with pines and thick undergrowth, while the lower reaches are covered by bushes, shrubs and small trees. At Haripur, Khanpur dam has been constructed on Haro River. Down part of Haro River covers about 40 km area which is in Punjab province and has confluence with the main Indus River at Garyala site in Attock District. It has been estimated that the total number of all fishes species is 32,500 species [1]. Considering that freshwater may constitute less than 0.3% of available global water, it is remarkable that there are more than 15,000 freshwater fish species. While marine communities contain more species in total, freshwaters are far richer per unit volume of habitat. Here, freshwater fish species occur at one per 15 km³ of water (cf. One per 100,000 km³ of sea water). This reflects the productivity, physiographic diversity and geographical isolation of freshwater habitats [2]. Comprising approximately 25% of all vertebrates, freshwater fishes are an important component of global biodiversity [3]. Species richness is highest in the Indus river plains, the Kirthar Range and the Himalayan foothills, while the river systems of north-east Balochistan have the highest levels of endemism. Almost 800 species of fish have been recorded in Pakistan's coastal waters; however, no analysis of their population status and distributional range is available [4]. The aim of the current research work was to explore the ichthyofauna in River Harrow Khyber Pakhtunkhwa, Pakistan.

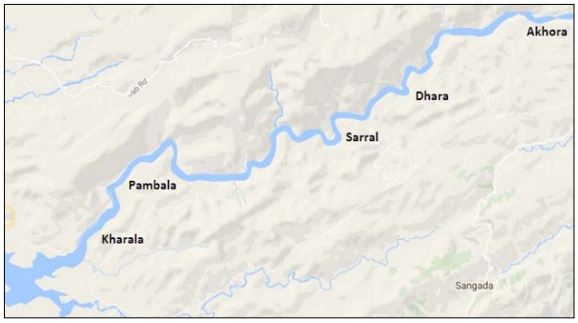

Fig 1: Map of River Harow KP, Pakistan

2. Materials and Methods

2.1 Fish Collection and identification

Fishes were collected from the various sites of river Dour with the help of a local fisherman using various types of catch-up instrument like hand nets, cast nets and hooks from March 2013-Febuary, 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 [5], Mirza and Sadhu [6] and Mirza [7]. All the fishes were preserved for longer time off period in a kettle jar by using 10% of formalin solution.

3. Results

Fishes were collected with the help of various fish gars and identified belong to 3 Orders, 6
Families, 13 Genera's and 15 Species as shown in detail in table 1. In the present study Cyprinidae was the richest Family which was represented by 10 Species (*Cyprinus carpio*, *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita L. caeruleus*, *Hypophthalmicthysmolitrix*, *Schizothorax plagiostomus*, *Garagotyla*, *Puntussophore* and *P. ticto*); Siluridae, Sisoridae, Bagridae, Schilbeidae and Mastacembelidae were represented by only one species each (*Wallago attu*, *Glyptothorax punjabensis*, *Ritarita*, *Clopisomanaziri* and *Mastacembelus armatus*) respectively.
From the current it can be revealed that River Harrow is rich of ichthyofauna and Cyprinidae was found the richest family. Further conservation management is required to safe the fish fauna for future record.

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

Order	Family	Genus, Species
Cypriniformes	Cyprinidae	*Cyprinus carpio* *Catla catla* *Cirrhinus mrigala* *Labeo rohita* *Labeo caeruleus* *Hypophthalmicthysmolitrix* *Schizothorax plagiostomus* *Garagotyla* *Puntussophore* *Puntius ticto*
Siluriformes	Siluridae	*Wallago attu*
	Sisoridae	*Glyptothorax punjabensis*
	Bagridae	*Ritarita*
	Schilbeidae	*Clupisoma naziri*
Synbranchiformes	Mastacembelidae	*Mastacembelus armatus*
Order 03	Family 06	Genus 13, Species 15

4. Discussion

During the current study in River Harrow 15 fish species were found up to the species level and there proper systematic classification is given in the table 1 respectively. The identified 15 species were belonged to one class (Actinopterygii); three orders (Cypriniformes, Siluriformes, Synbranchiformes); six families (Cyprinidae, Siluridae, Sisoridae, Bagridae, Schilbeidae, Mastacembelidae) nine genera (*Cyprinus*, *Catla*, *Cirrhinus*, *Labeo*, *Mastacembelus*, *Hypophthalmicthys*, *Schizothorax*, *Gara*, *Puntus*, *Wallago*, *Glyptothorax*, *Rita*, *Clopisoma*); and 15 species (carpio, catla, mrigala, rohita, caeruleus, molitrix, armatus, gotyla, sophore, ticto, punjabensis, attu, naziri, plagiostomous, rita) as shown in detail in table 1. In these 15 species, family Cyprinidae was found the most dominant comprising 10 species.
A study was carried out by Fida in (2016) on River Kunhar Mansehra Khyber Pkhtunkhwa, Pakistan and recorded 8 fish species belong to 3 orders, 3 families and 6 genera. The dominant fauna were found Cyprinidae. This show that Hazara region is more suitable for Cyprinidae family [8]. A study was carried out by Ahmad and Mirza (1963) on Kaghan Valley Mansehra Khyber Pakhtunkhwa Pakistan and identified three more species which comprising the Cyprinidae family dominant [9]. Mirza (1973) conducted study on Indus River near Ghazi and recorded 6 more species. Up till now, 35 species belonging to 23 genera, 10 families and 6 orders of the teleostean fishes have been recorded from the Hazara division. The obtained result also show that Cyprinidae was the richest family [10]. Ahmad in (1963) conducted a study on Hazara Division Khyber Pakhtunkhwa, Pakistan and 11 species of fishes were identified. Majority of fish fauna belong to family Cyprinidae and hence it was found the dominant family. From the obtained results it may be concluded that Hazara Division have rich fauna of Cyprinidae species [11]. Hence the current study revealed that out of 15 species 10 belong to Cyprinidae family *Cyprinus carpio*, *Catla catla*, *Cirrhinus mrigala*, *Labeo caeruleus*, *Hypophthalmicthysmolitrix* and *Schizothorax plagiostomus*) respectively. Hence, the fishes of the family Cyprinidae were dominant in the River Harrow KPK, Pakistan. Such wide distributions may be created to provide a favorable environmental condition for Cyprinidae family**.**

5. Conclusion

From the current it was concluded that an increase in the anthropogenic activities, illegal fishing and tourism industry in River Harrowisthreatening 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 Harrow Mansehra.

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