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Identification of ichthyo fauna in river Siran Khyber Pakhtunkhwa, Pakistan

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Abstract
A study was carried out to explore ichthyofauna in River Siran from March, 2013 to February, 2016. Five sampling sites were selected for the collection of the fish fauna. These sites were Jabori, Dader, Shinkiari, Khaki and Beer as shown in the figure 1. Fishes collected and identified belong to 4 Orders, 9 Families, 21 Genera's and 28Species. In the present study Cyprinidae was the richest Family which was represented by 16 Species; Bagridae consisting 3 species; Nemacheilidae and Schilbeidae were represented by only two species each, while Channidae, Cichlidae, Mastacembelidae, Siluridae and Sisoridae consisting only one specie each respectively. From the present study, it is concluded that River Siran is rich in ichthyofauna. Furthermore, the river water was badly affected by anthropogenic pollution and illegal fishing.

Keywords: Water, Rivers, Fish, Family, identification, anthropogenic

1. Introduction
The total length of River Siran is 130 km, originating from the hills of Musa ka Musala glaciers and enters to Tarbela Dam at Haripur. The Siran river catchment area is commonly known as, "Siran valley". It is situated between 34°33/35// and 34°44/30// North latitude, and between 73°13/38// and 73°22/40// East longitude. The climate of the tract is moist temperate with very marked seasonal periods of snow, rain and drought. Snowfall is considerable and occurs any time from half of November to the end of March. Snow often persists to the end of May. Most of the rainfall occurs during Monsoon, namely, July and August, between these two seasons of snow and rain in the spring and autumn months are periods of less rain and drought. More than 186 freshwater fish species have been reported from freshwater bodies of Pakistan [1]. In Pakistan, there are 193 freshwater fish species present these fishes arecategorized to class Actinoptergii, sub-class Teleostei, 3 cohorts, 6 super orders, 13 orders, 30 families and 86 genera [2, 3]. In Fish Base (2005), about 28,900 species were reported. The numbers of Freshwater fishes comprising till now are almost 13,000 species [4]. Biogeographically the distribution of strictly freshwater species and genera are 4,035 species (705 genera) in the Neotropical region, 2,938 (390 genera) in the Afrotropical, 2,345 (440 genera) in the Oriental, 1,844 (380 genera) in the Palaearctic, 1,411 (298 genera) in the Nearctic, and 261 (94 genera) in the Australian region respectively [5]. Fish assemblages may differ on the longitudinal gradient in streams according to various biological aspects such as species diversity, stress tolerance, habitat preferences, feeding behaviors and origin of species [6]. These variations depict the level and severity of degradation in stream health. In the Indian subcontinent, there are 2,500species of freshwater fishes that have been recorded; of which 930 are categorized as freshwater species [7] and remaining 1570are marine. Many fish species have become highly endangered, particularly in rivers where heavy demand is placed on freshwater. However, the impact of the anthropogenic activities, habitat degradation, exotic species introduction, water diversions, pollution and global climate change are the main causative agents for the aquatic species rapid decline. Some early contributions were that of Hamilton-Buchanan in 'The Fishes of the Ganges [8]. The main goal of the present was to explore pre-existing and new Ichthyo fauna in the River Siran Khyber Pakhtunkhwa Pakistan.

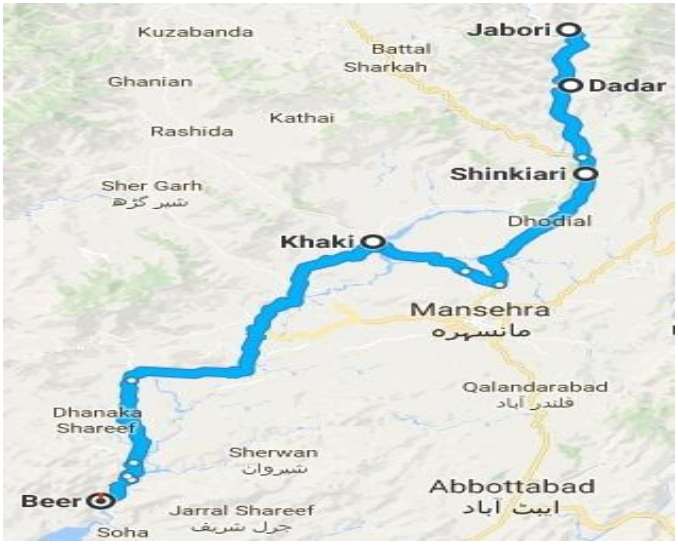

Fig 1: Map of River Siran KP, Pakistan

2. Materials and Methods

2.1 Fish Collection

Fishes were collected from the various sites of river Siran 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.

2.2 Fish Preservation and Identification

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 [9], Mirza and Sadhu [10] and Mirza [11]. All the fishes were preserved for longer time off period in a kettle jar by using 10% of formalin solution.

3. Results

Fishes collected and identified belong to 4 Orders, 9 Families, 21 Genera's and 28 Species as

Shown in detail in table 1. In the present study Cyprinidae was the richest Family which was represented by 16 Species (*Cyprinus carpio, Catla catla, Cirrhinus mrigala, Labeo rohita, L. caeruleus, Hypophthalmicthysmolitrix, H. nobilis, Schizothorax plagiostomus, S. esocinus, S. labiatus, Tor putitora, Garagotyla, Puntius sophore, P. ticto, Barilius pakistanicus* and *B. vagra*); Bagridae consisting 3 species (*Rita rita, Mystesblekeri* and *Sperata sarwari*); Nemacheilidae and Schilbeidae were represented by only two species each (Schistura nalbanti, Triplophysa kashmirensis and *Clopisoma nazirri, 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 it is reviled that River Siran is rich of ichthyofauna and further study is required to explore unexplored fauna.

Table 1: Exploring of Ichthyo fauna in River Siran Khyber Pakhtunkhwa Pakistan

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	Cyprinus	carpio
		Catla	catla
		Cirrhinus	mrigala
		Labeo	rohita
		Labeo	caeruleus
		Hypophthalmicthys	molitrix
		Hypophthalmicthys	nobalis
		Schizotharax	plagiostomou
		Shizothorax	esocinus
		Shizothorax	labiatus
		Tor	putitora
		Gara	gotyla
		Puntus	sophore
		Barilis	pakistanicus
		Barilis	vagra
		Puntius	ticto
	Nemacheilidae	Schistura Triplophysa	nalbanti kashmirensis
Suliriformes	Siluridae	Wallago	attu
	Sisoridae	Glyptothorax	punjanensis
	Bagridae	Rita Mystes Sperata	rita blekeri sarwari
	Schilbeidae	Clopisoma Clupisoma	nazirri garua
Perciformes	Channidae	Channa	gachua
	Cichlidae	Oreochromus	mossambicus
Synbranchiformes	Mastacembelidae	Mastacembelus	armatus
Order 04	Families 09	Genus 21	Species 28

4. Discussion

During the current study in River Siran Mansehra, 28 fish species were found up to the species level and there proper systematic classification is given in the table 1, respectively. The identified 28 species were belonged to one class, four orders, nine families, 21 genera and 28 species as shown in detail in table 1. The28 identified species were *Cyprinus carpio, Catla catla, Cirrhinus mrigala, Labeo rohita, L. caeruleus, Hypophthalmicthys molitrix, H. nobilis, Schizothorax plagiostomus, S. esocinus, S. labiatus, Tor*

putitora, Garagotyla, Puntius sophore, P. ticto, Barilius pakistanicus, B. vagra, Schistura nalbanti, Triplophysa kashmirensis, Wallago attu, Glyptothorax punjabensis, Rita rita, Mystesblekeri, Sperata sarwari, Clopisoma nazirri, C. garua, Channa gachua, Oreochromis Mossambicus, Mastacembelus armatus respectively. Akhtar in (1991) listed twenty five-species of freshwater fish from the Northern Areas of Pakistan. These 25 identified fish species belongs to various orders, Families and Genus but the Cyprinidae family was found riches one over all the families. Some species of the genus Schixothorax were found matching with the previous work after comparison the both study results [12]. Another survey was conducted by WAPDA (not dated) on Downstream of Tarbela Khyber Pakhtunkhwa Pakistan and recorded 12 fishes almost. In these recorded fish fauna only *Barilius vagra, Labeo spp, Puntius ticto, Schizothorax plagiostomus, Tor putitora, Mastacembelus armatus* were found to matching with the current study conducted on the River Siran [13]. A study was conducted by Ali *et al.* in (1980) on Indus River and its tributaries around Tarbela recorded 35 fish species belongs to various orders, families and genus. There are some fishes which are commercially considered highly valuable like *Tor putitora, Schizothorax* and *Channa spp*. Besides all these, fishes having small size are spreading throughout the water Family Cyprinidae was found richest one comprising more species over all the recorded families. Majority species of the current study were found close matching with the previous work after comparison of the both study results [14]. Hence the current study revealed that family Cyprinidae was dominant in the River Siran KP, Pakistan. The result shows that the environment of River Siran is suitable for Family Cyprinidae.

5. Conclusion

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

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