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Identification of fish fauna in River Kunhar, Mansehra, Khyber Pakhtunkhwa, Pakistan

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Abstract

A study was conducted on River Kunhar Mansehra from March, 2013 to February, 2016 to find out fish fauna. Different sampling sites were selected for the collection of the fish fauna. These sites were Jalkhnad, Naran, Kaghan, Balakot and Rara respectively. Fishes were collected and identified from the river and identified by using various keys and literature. Fishes collected and identified belong to 3 Orders, 4 Families, 7 Genera's and 9 Species. In the present research Cyprinidae was the richest Family which was represented by 4 Species; Nemacheilidae and Salmonidae were represented by only two species each while Sisoridae was consisting only one species respectively. From the present research, it is concluded that River Kunhar are rich in ichthyofauna. Furthermore, the river water was badly affected by the tourism industry, anthropogenic pollution and illegal fishing.

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

1. Introduction

The total length of River Kunhar is 166 Km, originates from Lulusar Lake below Babusar Top. It crosses Bata Kundi, Naran, Kaghan, Kawai, Balakot, Gari Habibullah and ultimately joins the river Jhelum at Rara. Major sites selected for sampling were Jalkhand, Naran, Kaghan, Balakot and Rara respectively. The latitude of the area is 34.024 north, longitude 73.025 east. It is in the Indus River watershed basin. The Kunhar River's confluence with the Jhelum River is outside Muzaffarabad, in the Azad Jammu and Kashmir province, Pakistan. As regards the precipitation, the area receives rainfall both in monsoon and in winter with snowfall and cold wind. The vegetation is mostly of moist temperature type. Gelatinous Mosses of Nostoc and tufts of Cladophora were also abundant in this habitat. Fish are cold blooded aquatic vertebrates typically with backbone, gills and fins and are primarily dependent on water as a medium in which they live. There are a number of fish species, differing in size, shape, habits, and habitats ^[1]. 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. Therefore, a considerable amount of literature was available about fish fauna from various parts of Pakistan, such as, Asmat et al (2014) ^[2] were reported 15 species from Barran dam Bannu, Haseeb et al (2015) ^[3] were identified 11 species from Kohat Tanda dam also Haseeb et al (2016) ^[4] were reported 13 species with new record from Tanda dam Kohat, Hameed et al (2016) ^[5] reported 10 species form Barganat dam North Waziristan Agency. The aim of the research work was to find out the identification of fish fauna in River Kunhar, Mansehra, Khyber Pakhtunkhwa, Pakistan.

2. Materials and Methods

2.1 Fish Collection

Fishes were collected from the various sites of river Kunhar 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.

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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 [6], Mirza and Sadhu [7] and Mirza [8]. 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 3 Orders, 4 Families, 7 Genera's and 9 Species as shown in the table 1. In the present research Cyprinidae was the richest Family which was represented by 4 Species (*Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus* and *Garagotyia*); Nemacheilidae and Salmonidae were represented by only two species each (*Schisturanalbanti*, *Triplophysa kashmirensis* and *Oncorhynchus mykiss*, *Salmotruttafario*) while Sisoridae was consisting only one specie (*Glyptothorax punjabensis*) respectively. From the present research, it is concluded that River Kunhar are rich in ichthyofauna. Furthermore, the river

water was badly affected by the tourism industry, anthropogenic pollution and illegal fish



Fig 1. Map of River Kunhar KP, Pakistan

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

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	<i>Schizothorax plagiostomus</i> <i>Schizothorax esocinus</i> <i>Schizothorax labiatus</i> <i>Garagotyia</i>	
	Nemacheilidae	<i>Schisturanalbanti</i> <i>Triplophysa kashmirensis</i>	
Siluriformes	Sisoridae	<i>Glyptothorax</i>	<i>punjabensis</i>
Salmoniformes	Salmonidae	<i>Oncorhynchus mykiss</i> <i>Salmotruttafario</i>	
Orders 03	Families 04	Genus 07	Species 09

4. Discussion

During the current study in River Kunhar, Nine fish species were found up to the species level and their proper systematic classification is given in the table 1, respectively. The identified Nine species were belonged to one class, three orders, four families, seven genera and nine species respectively as shown in detail in table 1. The identified fish species were *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus*, *Gara gotyla*, *Schistura nalbanti*, *Triplophysa kashmirensis*, *Glyptothorax punjabensis*, *Oncorhynchus mykiss*, *Salmo trutta fario* respectively. Family Cyprinidae found the dominant family over all the recorded families.

Recently, Fida (2016) [9] conducted a work on River Kunhar Mansehra Khyber Pakhtunkhwa, Pakistan and identified 8 fish species belong to 3 orders, 3 families, 6 genera and 8 species. The identified fish species were almost belong to family Cyprinidae, which were similar to the current study conducted on River Kunhar Mansehra Khyber Pakhtunkhwa, Pakistan. Thus it proved by the comparison of the two results that River Kunhar habitat is suitable for the Family Cyprinidae fishes. Another work was done by Mirza (2007) [10] on Upper and lower River Swat and Reported 45 species. These fishes belong to order Salmoniformes, Cypriniformes, Nemacheilidae, Perciformes, Chaniformes, Siluriformes respectively [9]. The current study conducted on River Kunhar comprising only 3 orders, i.e., Cypriniformes, Salmoniformes, Siluriformes which shows that the recorded orders of the current research comprising 50% similarities and 50% dissimilarities from each other. Similar, study was carried out by Rafiq and Javed (2002) [11] on the Upper Swat to find out

Ichthyo fauna. The Endemic fish fauna recorded on Upper River Swat were *Glyptosternum reticulatum*, *Crossocheilus diplocheilus*, *Racoma Labiata*, *Schizothorax plagiostomus* respectively. These fishes were found commonly in the Upper part of River Swat. The Migrant fish fauna found in Upper Swat, were *Labeo dew*, *Tor putitora*, *Puntius ticto*, *Puntius sophore*, *Puntius chola*, *Gara gotyla*, *Mastacembelus Armatus* respectively. Along the Endemic and Migrant fish fauna, some species of exotic fishes *Salmo trutta fario* and *Oncorhynchus mykiss* has been recorded from the Upper part of River Swat [10]. The species recorded during the current study conducted on River Kunhar were *Schizothorax plagiostomus*, *S. esocinus*, *S. labiatus*, *Gara gotyla*, *Schistura nalbanti*, *Triplophysa kashmirensis*, *Glyptothorax punjabensis*, *Oncorhynchus mykiss*, *Salmo trutta fario*. Hence the comparative results of the Upper Part of River Swat and Currently work on River Kunhar show that only *Schizothorax plagiostomus*, *Gara gotyla*, *Salmotruttafario*, *Oncorhynchus mykiss* fishes were found similar. Hence, the fishes of the family Cyprinidae were dominant in the River Kunhar Mansehra KP, Pakistan.

5. Conclusion

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

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