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Categorization of fish fauna from River Siran Khyber Pakhtunkhwa, Pakistan

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Abstract

The main aim of the current research was to find out fish fauna from River Siran Khyber Pakhtunkhwa, Pakistan. Time period of the current study was 4 years, i.e. March, 2013 to February, 2017. For a collection of Ichthyofauna, 5 sites were selected from River Siran which were Jabori, Dader, Shinkiari, Khaki and Beer respectively. All the fishes were collected by various fish gars. The collected fish species were identified with the help of various fish identification keys. A total of 28 fish species were recorded from all the selected sampling sites. These identified fish species comprising 4 Orders, 9 Families and 21 Genera respectively. The majority of fish species were recorded from the Khaki sampling station. Furthermore, Family Cyprinidae was found the richest family, which comprising 16 Species.

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Introduction

Knowledge about fisheries gives us useful information which is very helpful golobally in the future for ichthyologist in the field of fisheries. Among the vertebrates Ichthyofauna represents a wide range of biodiversity because more than 2200 species of fish are existed (Forest and Pauly, 1998). According to Helfrich and Neves (2009) population of marine fishes are more because saltwater covered 70% of the earth. In contrast the there are 8000 species of fresh water found because only 1% covered by freshwater Ichthyofauna. There are 193 freshwater Ichthyofauna found in Pakistan (Rafique and Khan, 2012; Rafique, 2007). The term biodiversity refers to the scientific study to know about the living things in an ecosystem (Rehman *et al.,* 2015).

The existence of Ichthyofauna is only possible due to water because fish breathe in water with gills (Moyle, and Cech, 1996). Information about Ichthyofauna of an area is very useful because it gives innovations for the ichthyologist. Fishes possess a unique position among the vertebrates on the earth aquatic habitat. There are about 40,000 types of vertebrates found out of which fishes 21723 fishes existed (Jayaram, 1981). On the earth's crust there are more than half of Ichthyofauna found in all the vertebrates. Fish is a cold blooded vertebrate and their body is covered by scales (Berra, 2011). Ichthyofauna is very useful and plays a key role to provide food to the peoples (Essetchi, 2003). Asmat *et al* in 2014, studied the diversity of fish fauna in the Barandam of district Bannu, Khyber Pakhtunkhwa province (KPK), and reported 15 species. Hameed *et al.* in 2016, examine the Ichthyofauna of dandy dam North Waziristan agency of FATA, KPK, Pakistan and documented 5 species. Hameed *et al.* 2016, conducted studies on Dargai dam and reported 5 species. Hameed *et al.* 2016 study the current status of fish diversity of Barganat dam and documented 10 species. Hameed *et al* 2015, conducted survey on the biodiversity of Ghandiali dam fishes and reported 6 species.

Haseeb *et al.* reported 13 species from a Tanda dam with new recorded and Zubia *et al.* documented 5 species from Damai stream.

Materials and methods

Study Area

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 (Zeb *et al.*, 2011). Major sites selected for sampling were Jabori, Dader, Shinkiari, Khaki and Beer.

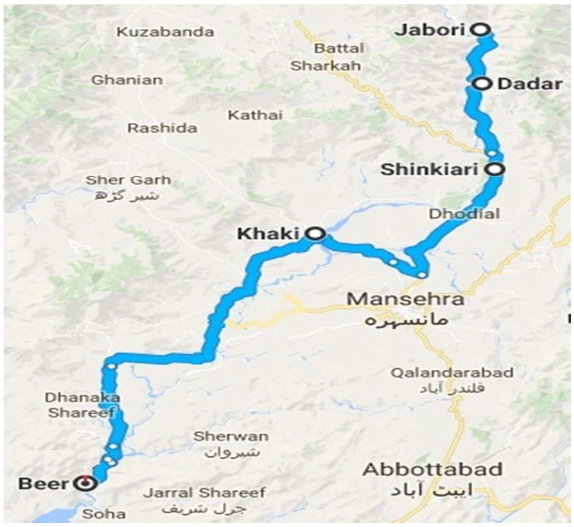

Fig. 1. Map of River Siran Khyber Pakhtunkhwa Pakistan (Usman *et al.,* 2017a).

Fish Collection

Fish collection was made from five selective sites of River Siran Mansehra. The duration of the current study was four years i.e. March 2013-Febuary, 2017. Fishes were identified at each sites with the help of local fishermen as they have a better idea about the presence and abundance of fish. The collection was made with the help of different nets and locally adopted devices. The mesh sized used to capture fish was from 0.5 mm to 2.8 cm.

Preservation

Fishes were preserved in 10% formalin or 70% Alcohol. Specimens prior to storage in 10% formalin were injected with the same strength of formalin into their belly.

Caring the collection

The preserved fishes were brought to the laboratory and attached a label to each jar, indicating the name of locality, date and time of collection.

Identification and classification

Identification and classification of fishes for scientific study was done through various taxonomic and systemic keys. For this purpose, the keys used are given below.

1. The fresh water fishes of Indian region (Jayaram, 1999).
2. Fishes of the Punjab, Pakistan Lahore (Mirza and Shundu, 2007).
3. Pakistan ki Taazapaniki Machliah (Mrza, 1990).
4. Inland fishes of India and adjacent countries (Talwar and Jhingran, 1991).

Results and discussions

Fishes were collected from River Siran sampling stations Khyber Pakhtunkhwa, Pakistan. Duration of the study was 4 years, i.e. March 2013 to February 2017. These selected sampling stations were Jabori, Dader, Shinkiari, Khaki and Beer respectively. With the help of local fisherman and fish gars all the Ichthyofauna was collected. Later on, all the collected Ichthyofauna were identified with the help of various fish identification keys. During the 4 years period, a total of 28 fish species were recorded from all the selected sampling stations. The recorded Ichthyofauna belongs to 4 Orders, 9 Families and 21 Genera respectively. Maximum collection of Ichthyofauna was carried out from Khaki site. Furthermore, Family Cyprinidae was found the richest family which comprising 16 Species.

Table 1. Fish fauna in River siran at Jabori site of Hazara region KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
		Cirrhinus	*mrigala*
		Labeo	*rohita*
		Hypophthalmicthys	*molitrix*
		Schizotharax	*plagiostomous*
			esocinus
			labiatus
		Puntus	*sophore*
		Barilis	*Pakistanicus*
	Nemacheilidae	*Schistura*	*nalbanti*
		Triplophysa	*Kashmirensis*
Siluriformes	Siluridae	*Wallago*	*attu*
	Sisoridae	*Glyptothorax*	*punjanensis*
	Bagridae	*Rita*	*rita*
	Schilbeidae	*Clopisoma*	*nazirri*
			garua
Perciformes	Channidae	*Channa*	*gachua*
Synbranchiformes	*Mastacembelidae*	Mastacembelus	armatus
Orders 4	Families 8	Genra 15	Species 18

Table 2. Fish fauna in River siran at Dadar site of Hazara region KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
		Cirrhinus	*mrigala*
		Hypophthalmicthys	*molitrix*
		Schizothara	*plagiostomou*
			esocinus
		Puntus	*sophore*
		Barilis	*pakistanicus*
	Nemacheilidae	*Schistura*	*nalbanti*
		Triplophysa	*kashmirensis*

Order	Family	Genus	Species
Suliriformes	Siluridae	*Wallago*	*attu*
	Bagridae	*Rita*	*rita*
	Schilbeidae	*Clopisoma*	*Nzirri*
Perciformes	Channidae	*Channa*	*gachua*
Synbranchiformes	*Mastacembelidae*	Mastacembelus	armatus
Order 04	Families 07	Genus 13	Species 14

Table 3. Fish fauna in River siran at Shinkiari site of Hazara region KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
		Catla	catla
		Cirrhinus	*mrigala*
		Hypophthalmicthys	*molitrix*
		Schizotharax	*plagiostomous*
		Gara	*gotyla*
	Nemacheilidae	*Schistura*	*nalbanti*
		Triplophysa	*Kashmirensis*
Suliriformes	Siluridae	*Wallago*	*attu*
	Bagridae	*Rita*	*rita*
	Schilbeidae	*Clopisoma*	*nazirri*
Synbranchiformes	*Mastacembelidae*	Mastacembelus	Armatus
Orders 3	Families 6	Genra 12	Species 12

Table 4. Fish fauna in River siran at Khaki site of Hazara region KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
		Catla	catla
		Cirrhinus	*mrigala*
		Labeo	*rohita*
			caeruleus
		Hypophthalmicthys	*molitrix*
			nobalis
		Schizotharax	*plagiostomous*
			esocinus
			labiatus
		Tor	*putitora*
		Gara	*gotyla*
		Puntius	*sophore*
			ticto
		Barilis	*vagra*
			Pakistanicus
Orders 1	Families 1	Genera 10	Species 16

Table 5. Fish fauna in River siran at Beer site of Hazara region KP, Pakistan.

Order	Family	Genus	Species
Cypriniformes	Cyprinidae	*Cyprinus*	*carpio*
		Catla	catla
		Cirrhinus	*mrigala*
		Labeo	*rohita*
		Hypophthalmicthys	*molitrix*
			nobalis
		Schizotharax	*plagiostomous*
			esocinus
		Tor	*putitora*
		Gara	*gotyla*
		Puntius	*sophore*
			ticto
		Barilis	*vagra*
			Pakistanicus
Orders 1	Families 1	Genera 10	Species 14

From the current survey, it can be concluded this site is very suitable for Ichthyofauna survival. Further necessary steps are necessary for their best growth like to stop illegal fishing and anthropogenic activities. Upper regions (Jacha and Mussa ka Mussla) of the river are too much cold that over here trouts fishes like Rainbow and Brown trout can easily survive due to high altitude.

A research work was conducted on River Indus at Hazara Division KP, Pakistan. The recorded Ichthyofauna has a place with 4 Orders, 8 Families, 19 Genera's and 26 Species (Usman *et al.*, 2017b). Another survey was directed to River Kunhar Mansehra to investigate Ichthyofauna. For fish sampling different sampling sites were selected which were (Jalkhad, Naran, Kaghan, Balakot and Rara). The collected Ichthyofauna was identified by different keys. The indentified Ichthyofauna including 3 Orders, 4 Families, 7 Genera's and 9 Species. Family Cyprinidae was found the largest one comprising 4 Species; Nemacheilidae and Salmonidae involving two species, each while Sisoridae comprising I species (Usman *et al.*, 2017c). Another research was conducted to find out fish fauna in water existing in the Hazara area Khyber Pakhtunkhwa, Pakistan. Amid of this study was to investigate Ichthyofauna. A total of 3311 fish species were recorded.

These fishes were identified by different keys. The recorded fish fauna comprising 6 Orders, 10 Families, 22 Genera and 30 Species. Family Cyprinidae was found the largest one containing by 16 Species; Bagridae comprising 3 species; Nemacheilidae, Siluridae and Salmonidae by only two species, each while Schilbeidae, Channidae, Mastacembelidae and Cichlidae included only a solitary sort of each (Usman *et al.*, 2016). Another investigation was carried out by Rehman *et al.* (2015a) on Darwazai Dam Tehsil Lachi District Kohat Khyber Pakhtunkhwa, Pakistan and recorded 7 species. Another research work was done by Rehman *et al.* (2015b) on Talai dam and recorded 7 sorts of fishes. In the present investigation 28 species of fishes were recorded which comprising 4 Orders, 9 Families and 21 Genera respectively. The results of the present study show close similarities with the previous work done in Hazara Rivers after comparison. The reason of the similarities might be due to the same habitat and same climatic factors. The results of the current study were dissimilar when compared with the previous work done by Rehman *et al.* in various rivers in various times. This variation reason may be due to change in the climatic factors or due to the variation in the land topography condition. The collected fish species were identified with the help of various fish identification keys. A total of 28 fish species were recorded from all the selected sampling sites. These identified fish species comprising 4 Orders, 9 Families and 21 Genera respectively. The majority of fish species were recorded from the Khaki sampling station. Furthermore, Family Cyprinidae was found the richest family, which comprising16 Species.

Conclusion

From the current it was concluded river Siran water condition is too much suitable for the survival of Ichthyofauna survival. Furthermore, this river provides a habitat for the local fish fauna. Due to the fishing of local peoples this river might be affected because of an awareness of legal way of fishing. Some peoples using electric current for the fishing in this river which destroys all the aquatic life.

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