



## Fish Biodiversity of District Karak Khyber Pakhtunkhwa Pakistan

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### Abstract

A survey on the fishes of District Karak K.P.K Pakistan was conducted from January 2012 to January 2014. Karak being an arid area does not have a river hence the fish fauna is only present in the small rain filled dams like, Changhoz dam, Sharki dam, Zebi dam, Sarki lawagher dam and a natural water body Dhand Eidal Khel etc. A total of (21) fish species were collected from a total catch of (1794) belonging to 4 different orders 4 families and 14 genera. Family Cyprinidae was seemed to be the richest one and represented by 16 species viz, *Cyprinus carpio*, *Labeo rohita*, *Labeo calbaso*, *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*, *Ctenopharyngodn idella*, *Puntius ticto*, *P sophore*, *Hypophthalmichthys molitrix* *Barilius vagra*, *Barilius pakistanicus*, *Crossocheilus latius*. *Crossocheilus diplocheilus*, *Cyprinion watsoni* and *Aspidoparia morar*, another notable family was Channidae represented by 3 species viz, *Channa punctatus*, *Channa straitus*, *Channa gachua*, family Siluridae and Mastacembelidae is represented by single species *Ompok pabda* and *Mastacembelus armatus* respectively. Fishes found in this region is of great economic importance and people of the area get maximum benefits as much as possible.

**Keywords:** Biodiversity, changhoz, K.P.K, sharki, dhand didal khel etc.

### Introduction

Fishes are the Poikilothermic, aquatic chordate with appendages developed as fins, whose chief respiratory organs are gills and whose body is usually covered with scales Berra<sup>1</sup>. Fishes have formed an important item of human diet from time immemorial and their diet provides proteins, fat and vitamins A and D phosphorous and other elements etc, having a good taste and are easily digestible Ashok<sup>2</sup>.

Aquatic biodiversity is very important phenomenon because it gives us idea about the life inside the water. That's way studying the ichthyodiversity of an area is the first effort to understand the aquatic ecosystem of the area. Fishes live in almost every type of aquatic environment, ranging from Antarctic water to the hot springs. Fishes can also tolerate a wide range of salinity as well. Ali<sup>3</sup> Ichthyodiversity refers to variety of fish species; it could refer to alleles or genotypes within fish population to species of life forms within a fish community Shinde et.al<sup>4</sup> According to Khan and Hasan<sup>5</sup> fisheries plays a key role in boosting the economy of country and prosperity of that area. Identification of fish fauna is also a very important feature of studying a water body. A valuable contribution to the study of Ichthyofauna has been made by the researcher like McClelland<sup>6</sup> Chandana et al<sup>7</sup> Talwar and Jhingran<sup>8</sup> Bhat and Hegde<sup>9</sup>. Qureshi<sup>10</sup> Jayaram<sup>11</sup> and Lagler et al<sup>12</sup>.

There is no great work present regarding freshwater fishes of

Karak. Khan and Hasan<sup>5</sup> worked on the fishes of Changhoz Dam Karak and identified 7 species of fishes. Ilyas<sup>13</sup> worked on Zebi dam, District Karak and identified 12 species of fishes namely *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita*, *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*, *Ctenopharyngodn idella*, *Puntius ticto*, *P sophore*, *Hypophthalmichthyes molitrix* *Channa puntatus*, and *Channa straitus*. Shahjehan and Khan<sup>14</sup> reported 26 fish species belonging to 8 families from Baran dam Bannu the adjoining district of Karak. Hussian et al.<sup>9</sup> recorded 6 species from river Swat. Yousaf<sup>15</sup> recorded 20 species from river Swat. Now a day's great work has been done in the field of aquatic sciences and lot of information are available from Europe, Japan, India, and other parts of the world in published form on internet whereas Pakistan lags far behind in identifying the complete biodiversity.

**Study Area:** Karak, a drinking water scarcity zone, is located some 140 km from Peshawar on the main Indus Highway between Peshawar and Karachi. It is located at 33°7'12 North latitude 71°5'41 East latitude. Karak is the most literate district in Pakistan Besides its education it is also enriched city of plenty deposits of oil, gas, uranium and salt in country and play important role in the country economy. Between 1940 and 1982 it was part of District Kohat, but on July 1, 1982, it has been upgraded is an independent district. The topography of Karak consists of ranges of broken hills, and this district lies some 600-1400 meter above sea level.

## Material and Methods

Fishes were collected from different standing water bodies of district Karak like Changhoz dam, Sharki dam, Zebi dam, Dand Eidal Khel Lake, and Teri toi, etc with the help of local fisherman using different types of catch nets and hooks with the regular intervals. The collection was made from different sites of the water to avoid missing of species. Immediately after capturing the fishes were directly preserved in 70% alcohol or 10% formalin solution, larger fishes were given injection of formalin in their abdomen and other parts of the body to avoid bacterial contamination. After collection the fishes were brought to the lab for identification. The maristic and morphometric characters were studied and the fishes were identified up to species level with the help of using different types of following books and fish keys. Fishes of the Punjab, Pakistan Mirza and Sandhu<sup>25</sup>, Fishes of the world Nelson<sup>26</sup>, The freshwater fishes of the Indian region Jayaram<sup>11</sup>, Inland Fishes of India and Adjacent Countries Talwar and Jhingran<sup>8</sup>, Pakistan ke Taza Pani ke Machlianin (Urdu) M. R. Mirza<sup>27</sup>.

## Results and Discussion

Present survey was conducted for two years from January 2012 to January 2014, in the present study 21 species of 14 different genera 4 family and 4 orders were recorded from the study area (District Karak) with a total catch of 1794 specimens. Cyprinid fishes are one of the most important groups found in this area comprising 90% of the total diversity of fishes. The diversity and relative abundance of the fishes is shown in table 1.

The species are in abundance in Sharki and Zebi dam due to its larger water volume among other lentic water habitats, that's way most of the species are collected from that area. Other water has normal distribution of fish species throughout the year.

In the present survey from January 2012 to January 2014 following (21) fish species were collected from a total catch of (1794), belonging to 4 different orders 4 families and 14 genera. *Cyprinus carpio*, *Labeo rohita*, *Labeo calbaso*, *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*, *Ctenopharyngodon idella*, *Puntius ticto*, *P. sophore*, *Hypophthalmichthys molitrix* *Barilius vagra*, *Barilius pakistanicus*, *Crossocheilus latius*. *Crossocheilus diplocheilus*, *Cyprinion watsoni* and *Aspidoparia morar*, another notable family was *Channa punctatus*, *Channa straitus*, *Channa gachua*, *Ompok pabda* and *Mastacembelus armatus* respectively.

Previously Khan and Hasan<sup>5</sup> worked on the fishes of Changhoz dam Karak and recorded 7 species viz, *Cyprinus carpio*, *Labeo rohita*, *Barilius vagra*, *Barilius pakistanicus*, *Hypophthalmichthys molitrix*, *Crossocheilus latius* and *Mastacembelus armatus*. All the recorded species from Changhoz dam were present in the present survey.

Another notable previous work on the same district was done by Ilyas<sup>13</sup> on Zebi dam, District Karak who reported 12 species of fishes namely *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita*, *Carassius auratus*, *Catla catla*, *Cirrhinus mrigala*,

**Table-1**  
**Relative abundance of Fish species from District Karak for year of 2012 and 2014**

S.N	Order	Family	Genus	Species	Catch
1	Cypriniformes	Cyprinidae	<i>Cyprinus</i>	<i>C. carpio</i>	51
2	-	-	<i>Labeo</i>	<i>L. rohita</i>	38
3	-	-	<i>Labeo</i>	<i>L. calbaso</i>	27
4	-	-	<i>Carassius</i>	<i>C. auratus</i>	76
5	-	-	<i>Catla</i>	<i>C. catla</i>	36
6	-	-	<i>Cirrhinus</i>	<i>C. mrigala</i>	88
7	-	-	<i>Ctenopharyngodon</i>	<i>C. idella</i>	67
8	-	-	<i>Puntius</i>	<i>P. ticto</i>	187
9	-	-	<i>Puntius</i>	<i>Sophore</i>	121
10	-	-	<i>Hypophthalmichthys</i>	<i>H. molitrix</i>	96
11	-	-	<i>Barilius</i>	<i>B. vagra</i>	176
12	-	-	<i>Barilius</i>	<i>B. pakistanicus</i>	132
13	-	-	<i>Crossocheilus</i>	<i>C. latius</i>	162
14	-	-	<i>Crossocheilus</i>	<i>C. diplocheilus</i>	123
15	-	-	<i>Cyprinion</i>	<i>C. watsoni</i>	76
16	-	-	<i>Aspidoparia</i>	<i>A. morar</i>	34
17	Channiformes	Channidae	<i>Channa</i>	<i>C. punctatus</i>	52
18	-	-	<i>Channa</i>	<i>C. straitus</i>	42
19	-	-	<i>Channa</i>	<i>C. gachua</i>	29
20	Siluriformes	Siluridae	<i>Ompok</i>	<i>O. pabda</i>	65
21	Mastacembeliformes	Mastacembelidae	<i>Mastacembelus</i>	<i>M. armatus</i>	116

*Ctenopharyngodon idella*, *Puntius ticto*, *P. sophore*, *Hypophthalmichthys molitrix*, *Channa punctatus*, and *Channa straitus* similarly all the fishes reported by Ilyas<sup>13</sup> were also present in our survey.

However much work is being done on the other district of Province, Hasan et al<sup>16</sup> worked on the fishes collected from the different streams of Bajaur Agency and reported sixteen (16) fish species in which Eight (8) species viz, *Carassius auratus*, *Puntius ticto*, *Barilius vagra*, *Barilius pakistanicus*, *Crossocheilus diplocheilus*, *Channa punctatus*, *Channa gachua*, and *Mastacembelus armatus* were found in the present study, Butt<sup>17</sup> reported 94 species of fishes from the whole province of K.P.K Similarly Mirza et al<sup>18</sup> reported 13 species of fishes from river Kurram. Nisar<sup>19</sup> worked on the fishes of Tanda Dam Kohat and reported 23 species among which 7 species of *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita*, *Barilius Pakistanicus*, *Hypophthalmichthys molitrix*, *Crossocheilus latius* and *Mastacembelus armatus* were identified during present survey.

A notable work is also done in India the neighbor country. Archana<sup>20</sup> reported 39 species of fish fauna from Yeshwant sagar reservoir Indore, India, Rankhamb<sup>21</sup> studied the Ichthyofauna of Godavari River and reported 26 fish species from there. Similarly Saha and Bordoloi<sup>22</sup> worked on the fish fauna of two beels of Goalpara District, Assam, India and collected 59 fish species belonging to 40 genera 19 families and 8 orders. Nagma and Khan<sup>23</sup> reported thirty six (36) fish species belonging to (6) different orders from District Bijnor Western Uttar Pradesh India and Thirumala et.al<sup>24</sup> reported thirty three (33) fish species from Bhadra Reservoir of Karnataka, India where in both results Family Cyprinidae of order Cypriniformes is seemed to be dominant as mentioned in our present survey. From the previous studies it is revealed that some species like *Barilius vagra*, *Labeo rohita*, *Hypophthalmichthys molitrix* and *Cyprinus carpio* are distributed abundantly throughout the province as compared to the others.

In comparison during the present study the most abundant species in the dams were *Cyprinus carpio*, *Crossocheilus latius*, *Barilius vagra* and *B. pakistanicus*. Moreover some fishes are the resident species of the dams and found throughout the study period. These fishes include *Cyprinus carpio*, *Barilius vagra*, *Labeo rohita*, *Puntius* species and *Barilius* species. The existence of resident species throughout the study period may be due to the reason that they can tolerate both the lower and higher temperature recorded in the dam. While the absence of most species like *Rita rita*, *Garra gotyla*, *Schizothorax* species etc, in the reservoirs as compared to the other parts of Khyber Pakhtoon Khwa are due to either environmental conditions or no one has tried to introduce or cultivate the seeds or the fingerling of species in the reservoir.

## Conclusion

To conclude, it can be said that the Ichthyofauna of this region

is not so rich due to the introduced species and rain filled lentic habitats. The water bodies of district Karak is located in the hilly area and far away from the access of people, so the water body is still safe from heavy pollution and other human activities. This water bodies can supports a greater number of fish species if proper stocking and care is done. It is also observed that during rainy season a large number of fries, fingerling and adult fishes are swept away with overflowing water. Government should pay due attention for the fisheries development in the reservoir. The fingerlings of new fish species should be introduced in the reservoir to enhance the fish production in the region to provide cheap and best quality proteins to the people of the area.

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