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# The Declining Factors of Fish fauna of Barganat dam FR Bannu, Khyber Pakhtunkhwa, Pakistan

**Arshad Abbas[1]*, Muhammad Arsalan[1], Bilal Abbas[2],Zeeshan Qamar[2],Sahar Aziz[3],Waheed Ali Panhwar[4],Safiullah Khan[5],Haleema Sadia[6], Shahid Raza[7],Asma Irshad[8], Nadeem Sarwar[9], Irfan Irshad[10],Uzma Ghani[11], Zaib Un Nisa[12], Zulqurnain[13]**

[1] Department of Zoology GPGC Karak KP Pakistan
[2] Department of Genetics Hazara University Mansehra
[3] Lahore College for Women University Lahore Pakistan
[4]Department of Zoology, Shah Abdul Latif University Khairpur Mirs Sindh Pakistan.
[5]Lecturer Government College NO.1. D.I. Khan.
[6]Department of Biotechnology, University of Information Technology, Engineering and Management Sciences Quetta
[7]Department of Food Science & Technology, UCP (University of Central Punjab, Lahore)
[8]Department of Computer Science Bahria University, Lahore campus, Pakistan.
[9]National Centre of Excellence in Molecular Biology, University of the Punjab, Lahore.
[10]Assistant professor Department of pathology Uvas, pattoki campus.
[11]Department of Biotechnology, Women University of Azad Jammu & Kashmir, Bagh, AJK.
[12]College of Earth and Environmental Sciences, University of the Punjab Lahore, Pakistan.
[13]Department of Zoology GC University, Faisalabad, Punjab, Pakistan.
Corresponding Author's: juliaabbas114@gmail.com

**ABSTRACT**

*The main Purpose of the research was to find out that what are factors of declining of fish fauna of Barganat dam located in FR Bannu KP, Pakistan. During the survey from January 2018- August 2018, total of 04 species were identified, including Hypophthalmichthys molitrix, Labeo rohita, Catla catla and Cyprinus carpio belongs to 1 order Cyprini formes and 1 family Cyprinidae moreover all the species have 1 common class that as Actinopterygii. Whereas Hameed, et al who worked on the same dam in the year 2016 and identified 10 species namely Barilius vagra, Cyprinu scarpio, Puntiussa rana, Cirrhinus mrigala, Ctenopharyn godonidella, Labeo rohita, Hypophthalmichthys molitrix, Oreochromis niloticus, Oreochromis aureus, Tor tor. The present study reveals that Barganat dam environment suits the family Cyprinidaelike most of the KP dams. But the main emphasis is on that why the number so much reduced in the duration of these 2 years.*

***Keywords:*** *Fishes, fauna, Cyprinidae, Barganat dam FR Bannu KP, Pakistan.*

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## INTRODUCTION

Biodiversity is of great importance in biological sciences. It clarifies the importance and value of living things in the ecosystem[1]. Fishes are the most distinctive group of vertebrates and almost absorb every niche of aquatic ecosystem. There are at least 40,000 species of vertebrates; out of which 21,723 species belongs to super class Pisces[2]. Fishes varies greatly in their structure, habitat and mode of life. In spite of other greatly systematized vertebrates, fishes are more diverse[3]. Fishes are found to be live in water bodies only[4]. Fishes live almost in every type of aquatic environment, ranging from Antarctic cold water to the hot springs. Marine fishes are more diverse because saltwater covers about 70% of the earth and only 1% of the whole earth constitute the freshwater which act is a habitat for about 8,000 species of fishes. Fishes can also tolerate great range of salinity as well. There are about 193 species belonging to class Actinopterygii, subclass Teleostei, 3 cohorts, 6 suborders, 13 orders, 30 families and 86 genera in

Pakistan[5-9]. Fishes are the Poikilothermic, aquatic chordate with appendages developed as fins, whose main respiratory organs are gills and their body is usually covered with scales [10]. Fishes have formed an important item of human diet from time immemorial and their diet provides human with proteins, fat and vitamins A and D phosphorous and other elements etc. Fishes have good taste and are easily digestible[11]. 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. The purpose of the research was to find out that why fish fauna of Barganat dam FR Bannu KP, Pakistan decreased from 10 species[1] to only 4 species according to present work in the duration of just 2 years.

## STUDY AREA

Barghanthai reservoir is a small village located at distance of approximately 10km from Latambar Karak. While going from Latambar towards Bannu after 5km turn to right hand and then going on the road after traveling another 5km you will reach Barghanthai reservoir and Barganat dam. It is located in between mountains and it lies in FR Bannu. According to local peoples the dam started at 2008 and completed in 2010. The dam covers the area of 1 sq km i.e 1km from each side approximately. The main source of dam water is River Kurram as seen in the Figure: 1

## MATERIAL AND METHODS

### Fish Collection and Preservation

Fishes were collected from different sites of Barganat dam, from January 2018- August 2018, with the of local fisherman through various types catching nets like hand nets and cast nets but mostly hooks were used for fish catching. Immediately after capturing the fishes were directly preserved in 70% alcohol or 10% formalin solution, larger fishes were given injection of formalin in different parts of the body to avoid bacterial contamination. Also to find out the declining factors of fishes we collect information's from the local peoples about the factors that reduce the fish's population and also take water and sand from different sides of the river for checking the physiochemical properties of water to find out whether water properties causes the fishes to reduce or some other factors.

### Identification

After preservation these fishes were properly identified in a research laboratory. Fishes were properly identified in the research laboratory using fish's keys of identification [12-16].

## RESULTS AND DISCUSSION

The present survey was conducted from April 2017- September 2017, during this time period total of 04 species were identified and collected, including *Hypophthalmichthys molitrix, Labeo rohita, Catla catla and Cypinus carpio* belongs to 1 order *Cypriniformes*,1 family *Cyprinidae* and all the species have 1 common class that as *Actino pterygii*. The present study reveals that Barganat dam environment suits the family Cyprinidae like most of the KP dams. The diversity and relative abundance of fishes are given in the table 1. According to[1]other family *Cichlidae* species were also present but now they are not present because of some harmful factors.

The study of Barganat dam shoes the abundance of family *Cyprinidae.* According to the list of IUCN, *Cypinus carpio* was marked as endangered species[8]. Environmental conditions such as droughts may also effect on the distribution of family *Cyprinidae* fishes as described by Lachner and Jenkins[17]. However much better research is being done on the other district of Province, *Hasan et al* worked on the fishes collected from the different streams of Bajaur Agency and reported sixteen (16) fish species[18]. Butt reported 94 species of fishes from the whole province of K.P.K [19]. Similarly Mirza *et al* identified 13 species of fishes from river Kurram[20]. Nisar study on the fishes of Tanda Dam Kohat and collect 23 species among which 2 species*, Cyprinus carpio, Labeo rohita* were the part of the present research [21]. Another attempt was done by Tahir *et al*, in 2016 when they reported 6 species in Ghol dam, 5 of these 6 species belonging to family *Cyprinidae* and order *Cypriniformes.* And the species were *Labeo rohita, Hypophthalmichthys molitrix, Catla catla, Cirrhinus mrigala, Tor tor* and their Genus were *Labeo*, *Hypophthalmichthys, Catla, Cirrhinus* and *Tor* respectively[11] Only a single specie *Oreochromis niloticus* Genus *Oreochromis* family *Cichlidae* and order *Perciformes* does not belonging to family *Cyprinidae*[2]. Thus the abundance of cyprinid species indicates that Barganat dam environment and climatic conditions favors the growth and reproduction of these cyprinid species.

**Declining Factors of Fish Fauna**

**Physio-chemical Factor**

When the collected sand and water of Dam were tested in a laboratory it was found that it contain a bit of salt in high concentration which is not so surprising because this region contain big reservoirs of salts and found no other threatening chemical for fish life.

**Inlet and Outlet**

when we surrounds the Dam around we found that there is no proper inlet and outlet for incoming and exiting water and when the water level rises during rainy season the overflow also threw lots of fishes along with water to the dry land, this is one of the major cause of decrease in the number.

**Overfishing**

As the native peoples are poor and uneducated so they came to dam on daily basis and hunting there all the day for food and for selling.

**Pollution**

As this dam is located in between the beautiful mountains and location so people from all over Kpk arrange tours(study tours usually) and picnic with friends and families and also bring food things in a plastic bags and other matter of usage and on leaving they threw all these harmful things into the dam which aid in water pollution.

**Migratory Fishes**

Some species were dropped into the dam initially which were migratory fishes so due to no way out they were attacked by the predatory species or catch by the fisherman so after little time they were vanished.

**Government Care**

As like many dams of Pakistan initially just after it was built the dam was regularly supplied with seeds (small fishes) on duration of 2months but as like other departments of Pakistan corruption invades everything and government servants can't fulfill their duties which lead to the declining of fish fauna.

**Table 1**: The diversity and relative abundance of fishes

| S.N | Class | Order | Family | Genus | Specie | Captured |
|---|---|---|---|---|---|---|
| 1 | *Actinopterygii* | *Cypriniformes* | *Cyprinidae* | *Hypophthalmichthys* | *H. molitrix* | 86 |
| 2 | *Actinopterygii* | *Cypriniformes* | *Cyprinidae* | *Labeo* | *L. rohita* | 103 |
| 3 | *Actinopterygii* | *Cypriniformes* | *Cyprinidae* | *Catla* | *C. catla* | 143 |
| 4 | *Actinopterygii* | *Cypriniformes* | *Cyprinidae* | *Cypinus* | *C. carpio* | 66 |

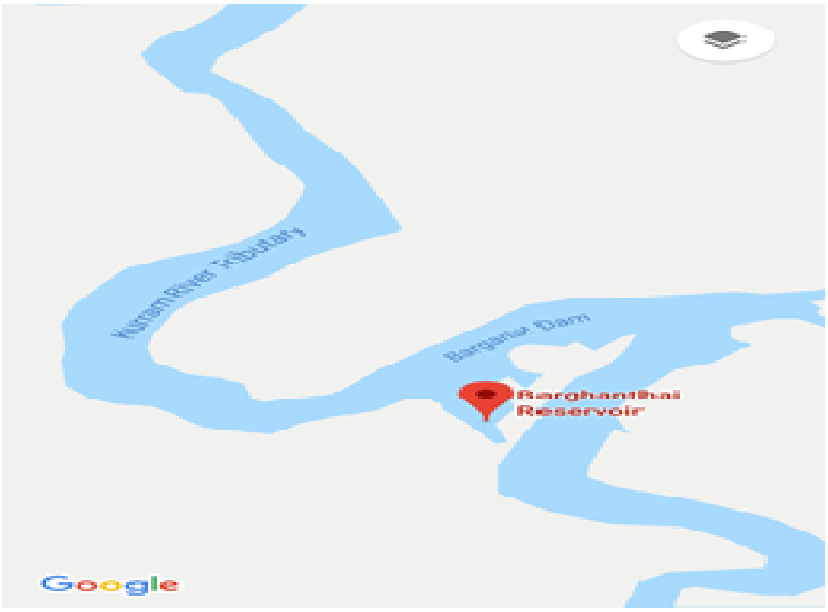


**Figure 1:** Google map view of Barghanthai reservoir and Barganat dam.

**Figure 2:** Different sites view of Barganat dam FR Bannu KP, Pakistan

## CONCLUSION

From the present research work we came to know that if these threatening and vulnerable conditions persist for another two years than it is assumed that the family *Cyprinidae* which is the only living family left maybe vanished like other six species[1].So government is advised to release seeds (term used for newly hatched fish) on monthly basis to increase fish number primarily, secondarily making of legislation to control the pollution and also to take charges of hunting and to make proper inlet and outlet for escaping fishes if these steps were not taken maybe in the near future there would have left no fishes.

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