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Preliminary survey of fish fauna of Gomal Zam Dam South Waziristan agency, KPK, Pakistan

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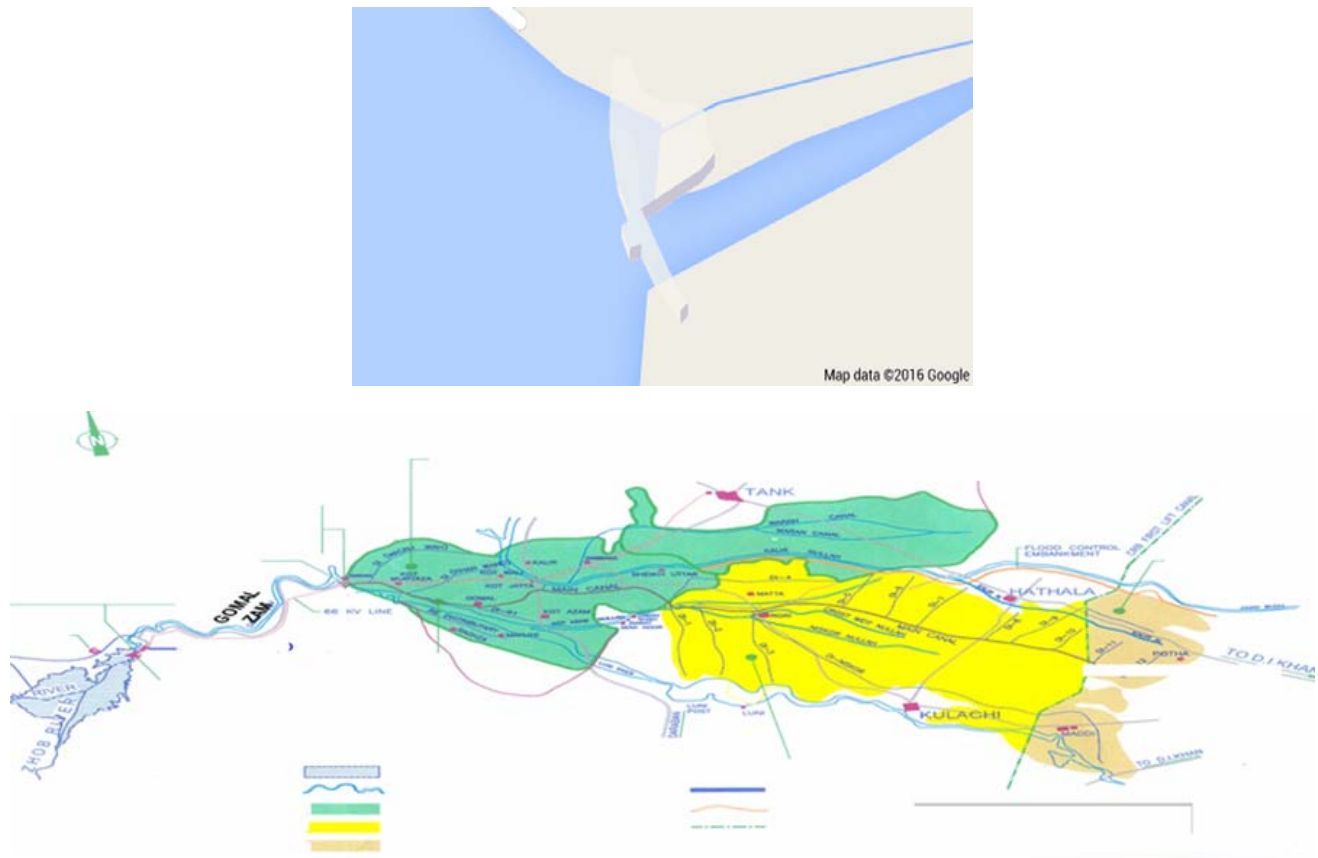
Abstract

Gomal Zam Dam is a multi-purpose gravity dam in South Waziristan Agency of Federally Administered Tribal Areas, Pakistan. The dam impounds the Gomal River, a tributary of the Indus River, at Khjori Kach, where the Gomal River passes through a narrow ravine. The height of Gomal zam dam is 433ft or 133meter while length 758ft or 231meter and coordination are 32°05'55"N 69°52'53"E. The purpose of the dam is irrigation, flood control and hydroelectric power generation. The survey was conducted from June 2014 to June 2015 during which about seven species were identified as *Ctenopharyngodon idella*, *Labeo rohita*, *Hypophthalmichthys molitrix*, *Hypophthalmichthys nobilis*, *Oreochromis niloticus*, *Cyprinus carpio*, and *Tor tor* which belongs with order *Cypriniformes*, *perciformes* family *Cyprinidae* and *Cichilidae* which shows abundance of Cyprinidae species. From the obtained study it may be concluded that Gomal Zam dam environment are more favorable for cyprinidae species as compared to other species.

Keywords: Gomal Zam Dam, Fishes, Waziristan Agency

1. Introduction

Gomal Zam Dam is a multi-usage dam, situated at Khajuri Kachin South Waziristan Agency of Federally Administered Tribal Areas (FATA) from about 100 kilometers from Tank in Tank district of Khyberpakhtunkhwa province, Pakistan. The dam impounds the Gomal River, a branch of the Indus River, where the Gomal River passes through a deep gorge ravine as shown in Figure 1. The purpose of the dam is irrigation; flood control, fish cultivation and hydroelectric power generation [1]. Fish are cold-blooded vertebrates, gills for breathing underwater, and paired fins for swimming. They live underwater and are dependent on water for dissolved oxygen, support, food, reproduction and shelter. Fish influences human life in a number of ways. It is a rich source of food and playing a predominant role in overcoming the nutritional difficulties including Proteins, fat and vitamins. It also provides several by products like fish meal, fish glue and fish oil etc [2]. Fish not only provide food but boost up the economy of many countries of the world as well [3]. Fisheries sector is providing employment opportunities to a number of people [4]. Moreover it plays a major role in second trophic level of aquatic systems [5]. Fishes are the keystone species which determine the distribution and abundance of other organisms in the ecosystem they represent and are good indicators of water quality and aquatic ecosystem. Nearly 20% of the world's freshwater fish fauna is already extinct or is on the verge of extinction [6]. The main factor that threatens marine fish biodiversity globally is fishing [7]. The aquatic biodiversity of world is changing and getting depleted alarmingly fast as a result of extinctions caused by habitat loss, pollution, introduction of exotic species, over exploitation and other anthropogenic activities [8]. A number of reviews have shown that habitat loss and degradation, water withdrawal, overexploitation and pollution, and the introduction of non-native species are the leading causes of freshwater species decline and ecosystem degradation [9]. According to Jayaram [10], of the total 40,000 species of vertebrates, 21, 723 are fishes. Of these, about 58 percent are marine, 41 percent are freshwater species, and 1 percent move back and forth between salt- and fresh water. The aim of the research work was to find out the diversity fish fauna of Gomal Zam dam.



Map. Showing Gomal Zam dam

2. Material and Methods

The fish collection was done thrice a month, on every 10th and 30th of the month from June 2014 to June 2015 with the help of hand nets, and simple hooks. The samples were fixed in 10 percent buffered commercial grade formalin directly or after Diversity of Edible Fishes at Gomal Zam dam, Khyber Pakhtunkhwa Pakistan. Intraperitoneal injection of 10 percent formalin (in case of specimens larger than 15 cm) and were then transferred into 70 percent alcohol. All possible efforts were made in order to collect maximum number of species. Identification was made after consulting several standard keys and literature such as Fishes of the Punjab ^[11], Freshwater fishes of the Indian Region ^[12], Inland fishes of India and adjacent countries ^[13] and Pakistan ki Taza Pani ke Machliyan ^[14].

3. Results and Discussion

The study was performed on Gomal Zam dam, situated in South Waziristan Agency of Federally Administered Tribal Areas (FATA), Pakistan. The survey was conducted from June

2014 to June 2015 during the survey of Gomal Zam dam about seven species were identified upto species level which were *Ctenopharyngodon idella*, *Labeo rohita*, *Hypophthalmichthys molitrix*, *Hypophthalmichthys nobilis*, *Oreochromis niloticus*, *Cyprinus carpio*, and *Tor tor* which belongs with order *Cypriniformes*, *perciformes* family *Cyprinidae* and *Cichlidae* which shows abundance of *Cyprinidae* species show in table 1. Hameed *et al* in 2011 ^[15] conducted study in Dandy dam North Waziristan from July 2010 to June 2011. During the present study about five species were identified which are *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Cirrhinus cirrhosus* and *Tor tor*. Hameed *et al* in 2011 ^[16] conducted fish diversity survey on Dargai Pal Dam South Waziristan Agency, Pakistan during the period of June 2010 to July 2011 total 5 species were identified which were belong from family *Cyprinidae*. These five species were *Cyprinus carpio*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Cirrhinus cirrhosus*; *Tor tor*. In the present study *cyprinidae* species may be found in rich in Gomal Zam dam as well as all the others dam in miranshah.

Table 1: Taxonomic positions of Gomal Zam Dam Fishes

S\No.	Kingdom	Phylum	Class	Order	Family	Genus	Species
1	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Ctenopharyngodon</i>	<i>idella</i>
2	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Labeo</i>	<i>rohita</i>
3	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Hypophthalmichthys</i>	<i>molitrix</i>
4	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Hypophthalmichthys</i>	<i>nobilis</i>
5	Animalia	Chordata	Actinopterygii	Perciformes	Cichlidae	<i>Oreochromis</i>	<i>niloticus</i>
6	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Cyprinus</i>	<i>carpio</i>
7	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	<i>Tor</i>	<i>tor</i>

4. Conclusion

From the current survey it may be concluded that Gomal Zam dam of Waziristan FATA are suitable for cyprinidae species.

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