



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2016; 4(2): 332-334
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Received: 28-02-2016
Accepted: 29-03-2016

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Diversity of Tanda Dam fishes with new records from district Kohat, KPK, Pakistan

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Abstract

Tanda Dam is a small Dam located in Kohat district of Khyber Pakhtunkhwa (KPK) province of Pakistan. This Dam is most often use for irrigation, fisheries purpose and picnic. An Ichthyofaunal study was conducted on Tanda Dam district Kohat, KPK, Pakistan from September 2015 to March 2016. During the survey about 13 species were identified which are *Aspidoparia morar*, *Pethia conchonius*, *Catla catla*, *Salmophasia bacaila*, *Cirrhinus mrigala*, *Ctenopharyngodon idella*, *Labeo rohita*, *Hypophthalmichthys molitrix*, *Hypophthalmichthys nobilis*, *Lepidocephalus guntea*, *Anguilla Anguilla*, *Ompok pabda*, *Xenentodon cancila*. The richest family was family Cyprinidae in which 9 species were recorded and the others four species belonging to the families Cobitidae, Anguillidae, Siluridae, and Belontiidae respectively. Thus in Tanda Dam Cyprinidae species were the ruler of the whole dam.

Keywords: Tanda dam, fishes, Kohat district

Introduction

The term “biological diversity” is defined by UNDP [1] in 1992 as: “The variability among living organisms from all sources including, in teralia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.” Biodiversity is essential for stabilization of ecosystem and protection of overall environmental quality for understanding intrinsic work of all species on the earth [2]. While Ichthyodiversity refers to the variety of fish species; depending on background and scale, it could refer to alleles or genotypes within fish population to species of life forms within a fish society and to species or life forms across aqua regimes [3]. Fish fauna play a prime role in the aquatic system nourishment. It affects the aquatic system status and composition. Fish fauna provides momentum for sustainable management of any aquatic systems [4]. The Ichthyofauna is an important feature of fishery prospective of aquatic bodies. The distribution of fish species vary due to different geographical and geological surroundings [5]. A fish is any member of a paraphyletic group of organisms that consist of all gill-bearing aquatic craniate’s animals that lack limbs with digits. Fishes are one of the most important groups of vertebrates, which benefit human being in various ways. Fish is very important dietary animal protein source in human nutrition [6]. Fish flesh contains all the essential amino acid and minerals viz., iodine, phosphorus, potassium, iron, copper and vitamin A and D in desirable concentrations. It serves as valuable ingredient to a healthy diet because of its low carbohydrate and unsaturated fat contents. It is often recommended by doctors to heart patients since it is an excellent source of Omega 3polyunsaturated fatty acids (N-3 PUFAs) [7]. N-3 PUFAs consumption is linked to the development of brain, nervous tissue and visual function in infants and reduces incidence of coronary heart disease [8]. The Catalog of Fishes established by Eschmeyerin 2005 [9] provided an estimate of 27,300 valid fish species, with a prediction of about 31,500 species when all inventories are completed [10]. In September 2005, 28,900 species were already listed in Fish Base. Nelson in 2006 suggested a total of almost 28,000 species (freshwater and marine), which is 51% of the 54,711 then recognized living vertebrate species. The eventual number of extant fish species may be projected to be close to, conservatively, 32,500 [11]. At the global scale, the fresh and brackish water fish belong to 207 families and 2,513 genera. The aim of the research work was to find out the diversity of fish fauna of Tanda Dam district Kohat.

Study Area

Kohat valley is bounded on the north by Peshawar and Nowshera districts, on the east by Attock, on the south by Mianwali of the Punjab province and Karak district and on the west by

Hangu district and Orakzai agency, respectively. The total area of the Kohat district is about 2545 km².^[2, 1] Tanda Dam is a small Dam located in Kohat district of Khyber Pakhtunkhwa (KPK) province of Pakistan. This Dam is most often use for irrigation, fisheries purpose and picnic. The Tanda Lake was designated a Ramsar site on July 23, 1976, as it considered an important wetland for winter and passage migrants especially who stop off here. Such as Black Storks, grey herons, egrets, tufted duck, coot too name but a few. Local wildlife specialists are also trying to encourage Cranes to use this site as they fly over this way and stop over on a nearby river where many are



A photo view of Tanda Dam, district Kohat

Materials and Methods

Fish Sampling: Fish samples were collected randomly from the different regions of Tanda Dam with the help of local fisherman using different types of nets namely hand nets, cast nets and hooks during the period from September 2015 to March 2016. Immediately photographs were taken prior to preservation with 10% formalin, since formalin decolorizes the fish color on long preservation.

Fish Preservation and Identification:

After collection and photography, all samples were preserved and transferred into the laboratory of department of Zoology of

Kohat University of Science and Technology (KUST), district Kohat. In the laboratory, each fish sample was identified up to species level and identification of the species was done mainly on the basis of the color pattern, specific spots or marks on the surface of the body, shape of the body, structure of various fins etc, by using different systemic and identification keys^[11, 12].

Kohat University of Science and Technology (KUST), district Kohat. In the laboratory, each fish sample was identified up to species level and identification of the species was done mainly on the basis of the color pattern, specific spots or marks on the surface of the body, shape of the body, structure of various fins etc, by using different systemic and identification keys^[11, 12].

Results and Discussion

In the present study, about thirteen species were identified and their systematic representation was recorded in the Table-1. These thirteen species were belonging to four order, five family and thirteen genera, as shown in Table-1.

Table 1: Fish species found in Tanda Dam along with their local and scientific names.

S/No	Order	Family	Genus	Species	Common Name (English)	Local name
1	Cypriniformes	Cyprinidae	Aspidoparia	<i>Aspidoparia morar</i>	Aspidoparia	Chilwa
2	Cypriniformes	Cyprinidae	Pethia	<i>Pethia conchonius</i>	Rosy barb	Darra
3	Cypriniformes	Cyprinidae	Catla	<i>Catla catla</i>	Catla	Theila
4	Cypriniformes	Cyprinidae	Salmophasia	<i>Salmophasia bacaila</i>	Large razorbelly minnow	Qundar
5	Cypriniformes	Cyprinidae	Cirrhinus	<i>Cirrhinus mrigala</i>	Mrigal carp	Mori
6	Cypriniformes	Cyprinidae	Ctenopharyngodon	<i>Ctenopharyngodon idella</i>	Grass car	Grass carp
7	Cypriniformes	Cyprinidae	Labeo	<i>Labeo rohita</i>	Rohu	Rohu
8	Cypriniformes	Cyprinidae	Hypophthalmichthys	<i>Hypophthalmichthys molitrix</i>	Silver carp	Silver
9	Cypriniformes	Cyprinidae	Hypophthalmichthys	<i>Hypophthalmichthys nobilis</i>	Big head carp	Big head or Ghatsarye
10	Cypriniformes	Cobitidae	Lepidocephalus	<i>Lepidocephalus guntea</i>	Scavenger Loach	Gaduwa or cutter
11	Anguilliformes	Anguillidae	Anguilla	<i>Anguilla anguilla</i>	Eel fish	Baam or Marmai
12	Siluriformes	Siluridae	Ompok	<i>Ompok pabda</i>	Pabdah or catfish	Papta
13	Beloniformes	Belonidae	Xenentodon	<i>Xenentodon cancila</i>	Needlefish	King Machli or Tota Machli

In current study, 13 species were collected belonging to 4 orders and 5 families. The richest family was family Cyprinidae in which 9 species were recorded and the rest of four species belonging to the families Cobitidae, Anguillidae, Siluridae, and Belonidae respectively. According to Abdul Haseeb *et al.*^[12] eleven fish species were identified, from Tanda dam, district Kohat, Khyber Pakhtunkhwa in 2015, which were belonging to four orders, five families and eleven genera. Among them, seven species were belonging to family Cyprinidae, while the remaining four species were belonging to families Anguillidae, Belonidae, Cobitidae and Siluridae,

respectively. Hameed *et al.*^[13] recorded six species from Ghandiali Dam, District Kohat in 2015, which were belonging to two orders, two families, five genus and six species. Among them five species were belonging to family cyprinidae and only one specie belong from Hypophthalmidae. A descriptive study was taken by Hameed *et al.*^[14] on Darwazai Dam Tehsil Lachi District Kohat, in which they reported seven species, in these seven species five were belonging with family Cyprinidae, order Cypriniformes while one specie belong from order Anguilliformes family Anguillidae and one specie belong with order Siluriformes and family Siluridae. During

the survey of Ghandiali Dam about six species were identified by Hameed *et al.*,^[15] which were belonging to two orders, two families, five genus and six species. About five species were belong to family cyprinidae and only one specie belong from Hypophthalmidae. For the first time a study was conducted on Ghurzandi Dam by Hameed *et al.*,^[16] during the study about five species were identified, 3 were belonging from Cyprinidae family order Cypriniformes, one belong from order Anguilliformes family Anguillidae and one belong with order Siluriformes and family Siluridae.

Conclusion

From the obtained study it may be concluded that environmental condition were favorable for cyprinidae species in all dams of Kohat especially Tanda Dam is the best for survival of cyprinidae species.

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