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Ichthyofaunal diversity of Muzaffargarh and Taunsa Punjab (TP) link canals, Punjab, Pakistan

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Abstract

The present study was carried out to find out the ichthyofaunal diversity of two canals i.e. Muzaffargarh and Taunsa Punjab linked canal of Punjab, Pakistan during the period of January to December 2015. A total 7 species were found out to be identified in which four were belong to one family cyprinidae, while the other three were belong to the different three families, cichlidae, channidae and poeciliidae tropica.

Keywords: Muzaffargarh, Taunsa Punjab linked canals, ichthyofaunal diversity.

1. Introduction

Biodiversity refers to the extent, diversity and distribution across biological scales ranging through genetics and life forms of populations, species, communities and ecosystems [1]. Biodiversity directs the lifestyle of living organisms to act in response to changes in the environment and provides the ecosystem goods that support the welfare of human, e.g., cleaning of the water and recycling of the nutrients etc [2,3,4].

Fishes are one of the major important essentials in the aquatic habitat and play a vital role in the economy of many nations because they have been constantly using as a food resources in the diet of many natives [5]. Fish are excellent indicators of aquatic biodiversity and health because they:

- Live in the water all their life, unlike many invertebrates
- Represent a broad spectrum of community tolerances from very sensitive to highly tolerant and respond to physical and chemical stressors in characteristic response patterns
- Are easy to collect with the right equipment, and are relatively easy to identify in the field
- Live for several years so can reflect both short and long term changes
- Have large ranges and are mobile, so are less affected by natural microhabitat differences than smaller organisms
- Rely on the presence and healthy populations of other aquatic organisms to survive
- The sampling frequency for trend assessment is less than for short-lived organisms
- Fish, particularly species such as barramundi, are highly visible and valuable components of the aquatic community to the public.

Muzaffargarh canal is irrigation and is located in Punjab, Pakistan. The estimate terrain elevation above sea level is 113 meters at Latitude: 29°43'22.83" and Longitude: 70°52'50.85". This canal leaves from head Taunsa barrage and spread in the district Muzaffargarh using for the purpose of irrigation.

Taunsa Punjab (TP) Link Canal is also use for irrigation purposes and is 2.351 million acres (951,400 hectares) linked the Indus River with river Chenab. The estimate terrain elevation above sea level is 137 meters and Latitude: 30°36'0" while Longitude: 70°48'0.01.

2. Material and methods

2.1 Samples collection

Fish samples were collected randomly from different regions of Muzaffargarh and Taunsa Punjab canals of Punjab, Pakistan by using small meshed cast nets, scoop nets and hooks. Samples were collected monthly during one year time period from January to December 2015.

2.2 Sample preservation

After collection all samples were preserved in ice and later transferred to the laboratory for the proper identification. Each sample was placed in a separate labeled plastic jar and preserved in 10% formalin solution for long term. [6, 7, 8]

3. Results and discussion

A study was taken to investigate the biodiversity of fish fauna of the two canals (Muzaffargarh and tp canals) of Punjab, Pakistan. During the study period, 7 species were found in both of the canals; more than 50 samples of the species were collected from different regions of the canals and were identified properly as 7 species. Details of the 7 species are

given in the table below. Among these 7 species 4 were belong to family cyprinidae, one belong to each cichlidae, channidae and poeciliidae tropica.

The 4 species belong to cyprinidae includes *C.idella*, *L.rohita*, *H.molitorix*, *H.nobilis*, while species belong to family cichlidae, channidae and poeciliidae tropica are *T.baloni*, *C.argus*, *P.sphenops* respectively. Thus results of the present study revealed that larger number of species in the two canals belong to the family cyprinidae while fish composition belong to other species were least. The study also indicates that the environmental conditions of the two canals are more suitable for the growth of cyprinid and many other fish species.

Table 1: Systematic Positions of the Two Canals

S/No.	Kingdom	Phylum	Class	Order	Family	Genus	Specie
1	Animalia	Chordate	Actinopterygii	Cypriniformes	Cyprinidae	Ctenopharyngodon	<i>C.idella</i>
2	Animalia	Chordate	Actinopterygii	Cypriniformes	Cyprinidae	Labeo	<i>L.rohita</i>
3	Animalia	Chordate	Actinopterygii	Cypriniformes	Cyprinidae	Hypophthalmichthys	<i>H.molitorix</i>
4	Animalia	Chordate	Actinopterygii	Cypriniformes	Cyprinidae	Hypophthalmichthys	<i>H.nobilis</i>
5	Animalia	Chordate	Actinopterygii	Perciformes	Cichlidae	Tilapia	<i>T. baloni</i>
6	Animalia	Chordate	Actinopterygii	Perciformes	Channidae	Channa	<i>C. argus</i>
7	Animalia	Chordate	Actinopterygii	Cypriniformes	Poeciliidae tropica	Poecilia	<i>P.sphenops</i>

4. Conclusion

Thus, it had been concluded from the obtained results that Muzaffargarh and Taunsa Punjab linked canals are good source of data for fish diversity, particularly cyprinid species, but little work has been done on this site. Therefore, there is a need of concentration for the development of fish culture in this area so that to fill gaps, increase food resources and income of local people.

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