INNSPUB

International Journal of Biosciences | IJB |
ISSN: 2220-6655 (Print) 2222-5234 (Online)
http://www.innspub.net
Vol. 13, No. 2, p. 271-275, 2018

RESEARCH PAPER OPEN ACCESS

Fish fauna of River Zhob and Anambar

Baz Gul*[1], Dr. M. Iqbal[2], Dr. Ghulam Rabbani[3], Dr. Sanaullah Khan[4]

[1]*Department of Zoology , University of Baluchistan, Quetta, Pakistan*

[2]*Chairperson, Department of Zoology, University of Baluchistan, Quetta, Pakistan*

[3]*Assistant Professor, Zoology Department, University of Baluchistan, Quetta, Pakistan*

[4]*Associate Professor, Department of Zoology, University of Peshawar, Peshawar, Pakistan*

Key words: Fish fauna, Zhob, Anambar, Cyprindae, Sisoridae, Noemachelidae, Cobitidae, Mastacembelidae, Identification of fishes

http://dx.doi.org/10.12692/ijb/13.2.271-275 Article published on August 30, 2018

Abstract

A survey of river Zhob and Anambar (Baluchistan) at six (6) different localities viz. Brunj, Viahla, Narazai, Mir Ali Khel, Badenzai and Deragai for fish fauna and Limnological analysis was carried out from March, 2016 to August, 2016. Collection of fish and water samples were made about 15 day interval. A total of nineteen (19) species were recorded. Family Cyprinidae was represented by thirteen (14) species viz. *Cyprinion watsoni, Baurilius paksitanicus, B. vagra, Labeo dero, L. dyochielus, Cirrhinus mrigala, Schizothorax plagiostomus, Crossocheilus deplocheilus, Garra gotyla, Salamostoma bacaila, Schizocypris brucie, Tor zhobensis* and *Tor putitora,* while, family sisoridae was represented by *Glyptothorax naziri* and *G. punjabensis* family Noemacheilidae by *schistura punjabensis* and *S. corica*; Cobitidae by *Botia lahachata* and Mastacembelidae by *Mastecembelus armatus*, single species each. All these species were recorded from all six localities. Regarding Physical parameters of river Zhob and its environment, Air temperature ranged between 23.0°C to 33.0°C, water temperature ranged between 19.7°C to 27.5°C. While speed of water 2.08km/h, Depth of river ranged between 1.0m to 3.5m.

* **Corresponding Author:** Baz Gul ✉ lajwar007@gmail.com

Introduction

In past, fish are caught for enjoyment rather than for sustenance (Sneddon, 2007), however fish represents an important part of a healthy diet. Three quarter of the earth' surface is covered by the sea, and that may of the fresh water of land teem with fish life, this superiority of numbers are easier to understand. The surface of the great oceans, their middle layers, the abyssal depth and shore region. Fish meat is similar to other meat in its nutrient composition, although its flesh as more water as compare to other animal.

Pakistan as fortunate for having a vast and extencive expense of both marine and inland fisheries resources. These resources support a wide variety of economic activity as well as nutritional significance and still possesses a larger potential for development. The general characteristics of inland fisheries resources in pakistan are dominated by the indus river which flows from northern mountain of kpk, falls into the indian ocean in sindh. The Purpose of the study is to determine the percentage composition of the species present in the River Zhob. Their Feeding habits based on these knowledge we can develop the Farming of these species on commercial scale. Fisheries are not an economic activity of this district the department is under charge of assistant director of fisheries who is stationed at loralai, after the completion of subakzai dam. In Order To Enhance the food requirement of human being it is necessary to concentrate on the population of fishes because it is easy to make fish farming to full fill the meat requirements of human beings. Many works have been done but no Proper steps were taken regarding the economy of this district.

Materials and methods

Study Area

A survey for fish fauna and limnological analysis of River Zhob and Anambar (Baluchistan) was carried out from March, to August, 2016, at 6 different localities of river. No field work was carried out during the month of June due to engagement in the laboratory. The fishes were mainly caught by cast nets and hooks. After collection the fishes were at once preserved in 10% formalin in large plastic Jars or bottles. Each bottle was labeled with date and site of collection and later identified with the help of keys.

Identification of Fishes

The identification of fish was carried out by the help of keys such as:

1. "Inland fishes of India and Adjoining countries". Vol I & II by Talwar and Jhingran, (1991).
2. "A contribution to the fishes of Lahore" by Mirza, (1982).
3. "A key to identification of fresh water fishes of Baluchistan" by Mirza and Omar, (1984).
4. "Paksitan Ki Taaza Pani Ki Machlian". (in urdu) by Mirza, (1990).

Morphometric measurements were taken, as a general rule, from the left side of fish. All measurement were straight line projection between two reference points i.e. they were never taken along the curve of fish's body. Therefore, used needle dividers to measure distance, which can be read nearest to 0.1mm by laying the extended divider on a good quality millimeter scale.

Temperature

Air and water temperature were measured with the help of mercury thermometer. Air temperature was taken in shadow, while water temperature was noted by dipping the bulb of thermometer in water for five minutes.

Color of Water

Water color was determined through vision at various spots.

Odour and taste of water

Taste and odor of the water was determined directly through drinking and smell.

Width of River

The width of river was determined by measuring right angel to long axis.

Speed of Water

It was determined by the following formula

$V = S/t$

Where V = speed of water
S = Distance in meter covered by wooden piece from "A" to "B"
T= Time in second required for covering distance "S".

Estimation of pH
pH of water was determined by pH paper.

Analysis
The chemical analysis indicated that in the water of river Zhob pH ranged between 7.5 to 8.0; conductivity ranged between 81.7 to 128.9µ/cm Salinity: 0.44 to 0.61 ppm; Ca^{++}32.4 to 36.7 ppm; Mg^{++} 22.7 to 27.2 ppm: Cl^{-} 33.5 to 40.2 ppm; HCO_3 21.2 to 24.8 ppm at six localities. Total dissolved solids also ranged between 0.20.

Results
A survey of river Zhob and Anambar (Baluchistan) at six (6) different localities viz. Brunj, Viahla, Narazai, Mir Ali Khel, Badenzai and Deragai for fish fauna and Limnological analysis was carried out from March, 2016 to August, 2016. Collection of fish and water samples were made about 15 day interval.

Water samples were taken at about 45 cm below surface layer in sterile recipients, both for chemical and microbiological surveys. The bacterial analysis was done within 4 hours after collection. For chemical analyses, the samples were subsequently stored at 4°C for as short a time as possible before analysis to minimize physical and chemical changes. These analyses were conducted within 48 hours of collection.

Following are the percentage composition of the most common species:
Family Cyprindae 89.5%
Famliy Sisoridae 4.41%
Family Noemachelidae 2.08%
Family Cobitidae 3.63%
Family Mastacembelidae 1.55%

Fish species were caught and identified and their morphometric measurements were made. Fish collection at each site, was sorted out for different species regarding their number, feeding behavior and habits. Some morphological observation for each species were also recorded.

A total of nineteen (19) species were recorded. Family Cyprinidae was represented by thirteen (14) species viz. *Cyprinion watsoni, Baurilius paksitanicus, B.vagra, Labeo dero, L. dyochielus, Cirrhinus mrigala, Schizothorax plagiostomus, Crossocheilus deplocheilus, Garra gotyla, Salamostoma bacaila, Schizocypris brucie, Tor zhobensis* and *Tor putitora,* while, family sisoridae was represented by *Glyptothorax naziri* and *G. punjabensis* family Noemacheilidae by *schistura punjabensis* and *S. corica*; Cobitidae by *Botia lahachata* and Mastacembelidae by *Mastecembelus armatus*, single species each. All these species were recorded from all six localities.

Regarding various species abundance during the catch, among family Cyprinidae, *Schizocypris brucie* was the most abundant species having a total percentage of 19.17%. it was followed by *Tor putitora* having 16.06%, *Tor zhobensis* having 10.37%, *Cyprinion watsoni* 7.77%, *Labeo dyocheilus*, 6.22%, *Slamostoma bacaila*, 6.22%, *Barilius pakistanicus* and *Labeo dero* 5.18% each, *Garra gotyla*, 4.66% *Barilius vagra*, 3.11% and *Cirrhinus mrigala*, *Schizothorax plagiostomus* and *Crossocheilus deplocheilus*, 1.55%, each. Family Sisoridae represented by *Glyptothrax naziri*, 2.59%, and *Glyptothrax punjabensis* 1.55% followed by *Schistura punjabensis*, 1.04% and *Schistura corica*, 1.04%. Family Cobitidae represented by *Botia lohachata*, 3.63% followed by Mastacembelidae represented by *Mastacembelus armatus*, 1.55%. (Table-1).

The chemical analysis indicated that in the water of river Zhob pH ranged between 7.5 to 8.0; conductivity ranged between 81.7 to 128.9 µ/cm Salinity: 0.44 to 0.61 ppm; Ca^{++}32.4 to 36.7 ppm; Mg^{++} 22.7 to 27.2 ppm: Cl^{-} 33.5 to 40.2 ppm; HCO_3 21.2 to 24.8 ppm at six localities. Total dissolved solids also ranged between 0.20–0.42 ppm while the amount of dissolved Oxygen was calculated to be in the range of 9.0 to 9.5 ppm. However, averaged ranges are summarized in (Table 3).

Regarding Physical parameters of river Zhob and its environment, Air temperature ranged between 23.0°C to 33.0°C, water temperature ranged between 19.7°C to 27.5°C. While speed of water 2.08km/h, Depth of river ranged between 1.0m to 3.5m. (Table 4-11).

Discussion

During the study period from March, 2016 to August, 2016 a total of six (6) localities of river Zhob and Anambar were explored for fish fauna from which total of 19 species were collected viz. Schizocypris brucie, Tor putitora, T. zhobensis, Cyprinion watsone, *Labeo dyocheilus,* L. dero, Barilius pakistanicus, Garra gotyle, Barilius Bagra, Crossocheilus deplocheilus, Cirrhinus marigala, Schizothorax plagiostomus, Salmostoma bacaila, Botia lohachata, Schistura punjabensis, S. corica, Glyptothorax naziri, G. punjabensis and Mastacembelus armatus. It was observed that some species were distributed more abundantly as compared to others. Moreover, some species were found throughout the study period and these may be called the resident species of the river.

Reports of fish fauna of Baluchistan dates back to Day, (1880) reporting 9 species among which *Cyprinion watsoni* species is recorded in the present study period from the Zhob river (APP.I) while Zugmayer, (1912) reported 8 species from Baluchistan (App.II), from those none of the species is reported in the survey, similarly Mirza and Naik (1965, b) reported twenty two species from Sibi district which include eight (8) species reported in the present survey (Ap.5). While another survey conducted by Mirza and Naik (1966) recorded six species from Loralai where two species viz. *Schizcypris brucei* and *Labeo dero* and two species of genus *Glyptothorax* are also recorded from river Zhob in the present study (App 4).

References

Ahmad M. 1949. Inland fisheries of Pakistan, Sind coast. Pak. J. Sci. **1,** 109-114.

Ahmad N. 1963. Freshwater fish fauna of West Pakistan. Agric. Pakistan **14,** 77-82.

Ahmad N. 1966.West Pakistan fisheries manual. Government printing press, West Pakistan, Lahore 1-129.

Akram M. 1975. A nematode from the marine fish of Karachi coast. Sindh Univ. Res. Jour. (Sci. Ser) **9,** 89-91.

Ali SS. 1993. An introduction to fresh water biology. Published by University Grant Commission, Islamabad.

Ammanullah and Quraishi MR. 1967. A field key to identification of fishes, order perciforms. Agric. Pak **18,** 377-398.

Ansari MAS. 1963. Preservation and curing of fish in West Pakistan. Agric. Pakistan **14,** 21-25.

Bagenal T. 1978. Method for assessment of fish production in fresh water. I.B.P. handbook No. 3, Blackwell scientific publications, London.

Baloch ME, Schneider JG. 1801. Systema ichthyologiae Berlin.

Banarescu P, Mirza MR. 1970. *Noemacheilus lindbergi*, a new loaches from Afghanistan and West Pakistan, Senckenberg. Biol **46,** 265-269.

Bennet GW. 1970. Management of lakes and ponds. IInd addition. Van Nostrand Reinholt Co. London.

Bhatti HK. 1916.Skeleton of *Rita rita*. M.Sc. thesis, Zoology Deptt. Punjab University.

Bhutta MS, Khan D. 1970.A new subfamily of fish Tramatodes. Pak. J. Zool. 2: 163-165.

Bilqess FM. 1974 Helminth parasites of a fish *Otolithus argenteus* (C and V) from Karachi coast. Sindh Univ. Res. J, **8,** 57-66.

Boyd CE. 1978. Water quality in warm water fish ponds. Agril. Expt. Stn. Auburn University pp. 359.

Brassi ME, Mottran RF. 1987.Human nutrition, 4th Edition, Edward, Arnold, Balt, Maryland, USA.

Butt JA, Nawaz M. 1977. Two new records of fish from D.I. Khan, KPk, Pakistan. Pakistan, J. Zool **9,** 248.

Butt JA. 1978. Low cost farm ponds for fish culture and irrigation. Proc. Int. Sem. On low cost farm, structure for rural development, Fac. Engineering, Univ. Peshawar.

Butt JA. 1986. Fish and Fisheries of Khyber Pashtunkhwa. Pakistan. Biologia (special supplement), Lahore, Pakistan 21-34.

Chattopadhyay GN. 1998. Chemical analysis of fish pond, soil and water, Daya Publishing House, Delhi.

Chaudhri B. 1918. History of Indian Ichthyology. 5th Indian science congress, Lahore. J. Proc. Asiat. Soc. Bengal.

Cuvier G, Valenciennes A. 1837. History of naturelle des poisons, 2nd vols. Paris.

Day F. 1880. On the fishes of Afghanistan. Proc. Zool. Soc. London. 224-232.

Ellis MM. 1937. Detection and measurement of stream pollution. Bull **22,** U.S. Bureau of fisheries.

Goldman CR, Horm AJ. 1983. Limnology. McGraw Hill Inc. London pp. 464.

Greenwood PH. 1963. A history of fisheries. London Ernest Benn Limited, London.

Gunther A. 1889. Fishes. (in). The zoology of the Afghan delimitation commission, Trans. Linn. Soc. London **5,** 106-109.

Halver JE. 1972. Fish nutrition. Academic press New York San Francisco London. P. 713.

Hora SL. 1919. Fishes of Lahore, M.Sc thesis, Zool. Deptt. Punjab University, Lahore.

Jenkins JT. 1910. Note on fish from India and Persia, with description of new spp. Rec. Indian Mus **5,** 123-140.

Lloyd RE. 1908. Illustration of the Zoology of H.M. Indian Marine surveying streamer "investigator". Calcutta.

Lone KP. 1983. Inland fisheries and aquaculture in Pakistan. Agric. Res. Council, Islamabad.

Mckee JE, Wolf HW. 1963. Water quality criteria. State of Clalif. State water quality control board. Pub no. 3-A Sacramento pp 548.

Mirza MR. 1962. Taxonomy of the hill stream fishes of Kaghan and Swat 1-72 (M.Sc. Zoology thesis, Punjab University, Lahore).

Mirza MR. 1965. Fish fauna of Kalat District and its zoogeograpical significance. Pakistan, J. Sci. Res **17,** 242-251.

Mirza MR. 1966. Schizothoracinae of Quetta division. Pakistan, J. Sci. Res. **18,** 26-29.