

Diversity of freshwater fishes in Poonch River Mahseer National Park, Azad Jammu and Kashmir, Pakistan

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SUMMARY

The Azad Jammu and Kashmir is an area of high biodiversity, but very little is known about diversity of freshwater species. This research is conducted to examine the fish diversity of Poonch River Mahseer National Park, situated in Azad Jammu and Kashmir, Pakistan. The surveys are conducted from March 2020 to December 2020. Total 33 species are documented from Poonch River Mahseer National Park. Diversity indices showed that fish diversity of the Poonch river is rich (i.e. Richness, 7.203) and diverse, (i.e. Shannon-Weiner index =3.293, Simpson index=0.955). Evenness (i.e. 0.8161) is documented high. The research showed that the density of many fish species has decreased.

Keywords: Fish, Diversity, Mahseer, Evenness

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INTRODUCTION

Researches of freshwater fishes in Pakistan have been limited on commercial fisheries and to the major rivers i.e. Sutlej (Ahmad *et al.*, 2017), Ravi (Hussain *et al.*, 2015), Chenab (Altaf *et al.*, 2015), Jhelum (Khan *et al.*, 2011) and Indus (Muhammad *et al.*, 2018). Zoologist noted that more than 27,977 fish species are documented in the world (Nelson, 2006), almost 786 marine (Mirza and Alam, 2000) and approximately 171 freshwater fishes are identified from Pakistan (Mirza, 2004).

Complete image of the fish fauna in Poonch River Mahseer National Park still require researchers concentration. Furthermore, there are severe threats to the fish fauna of this region due to deforestation, global warming as well as illegal hunting for food and ethnomedicine. Populations of marine and freshwater fishes in are constantly declining due to lots of factors i.e., deforestation, agricultural intensification, pollution, alteration in flow of water through damming and diversion. Distribution and diversity of fish is closely linked with various factors i.e., food availability, depth of water, topography, breeding sites, water physicochemical properties and water current. Therefore, it was necessary to study diversity of fish constantly in various ecosystem of Pakistan. This research was planned to examine

the diversity of fish of Poonch River Mahseer National Park, Azad Jammu and Kashmir, Pakistan to addition more information concerning diversity of fish.

MATERIALS AND METHODS

METHODOLOGY

Data are collected between March 2020 to December 2020; from Poonch River Mahseer National Park, Azad Jammu and Kashmir, Pakistan. Data are collected through questionnaire from fisherman and Government employers.

STUDY AREA

The entire length of the “Poonch River Mahseer National Park” (PRMNP) is 92 km. Poonch River and its tributaries have been declared as the “Poonch River Mahseer National Park”. The total area consists of the “Poonch River Mahseer National Park” is 2250 ha. The “Poonch River Mahseer National Park” is warm water river (Negi, 1991; Brown *et al.*, 2019).

STATISTICAL ANALYSIS

The statistical analysis is done with statistical software (i.e. Past 3.2 version) to know the indices of fish of Poonch River Mahseer National Park (Hammert *et al.*, 2001).

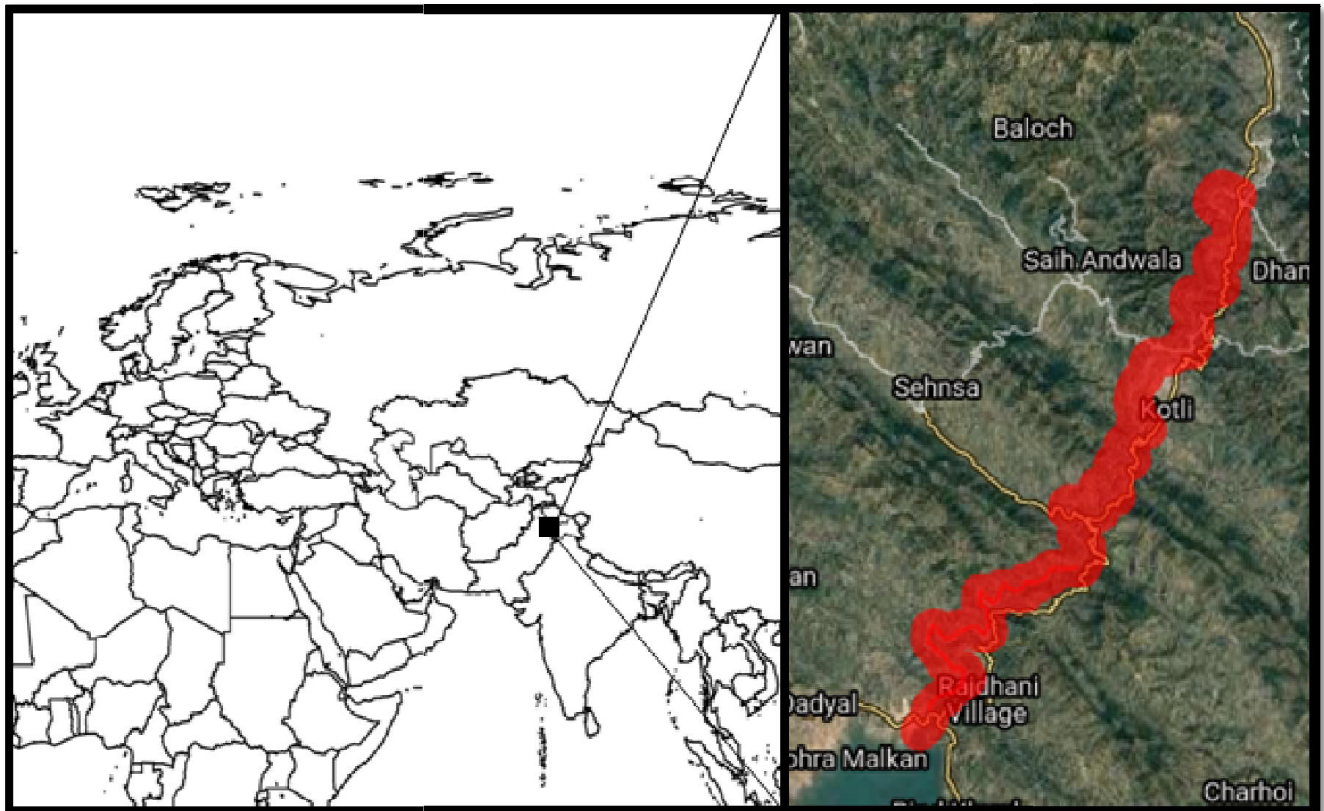


Figure 1: Map of study area.

RESULTS AND DISCUSSION

During the survey 33 species of fishes were observed. Shannon-Weiner Index (H') is recorded as 3.293, Simpson (S) is recorded as 0.955, while Evenness Index was noted as; 0.8161 and Richness was as; 7.203 in the study area (Table 4.2). Altaf *et al.* (2011) identified the 33 species from the head Qadirabad. Khan *et al.* (2011) is reported 50 species from the river Ravi and 30 species from the river Jhelum.

Top abundant fishes of the study area are as; Pakistani Labeo (R.A= 8.24), Flat-head catfish (8.24), Mahaseer (7.06), Snow-trout (7.06), Garua Bachwaa (7.06), Kalbans (5.88), Kashmir Catfish (3.53), Pabdah Catfish (3.53), Silver hatchet chela (2.35) and Large razorbelly minnow (2.35) (Figure 2).

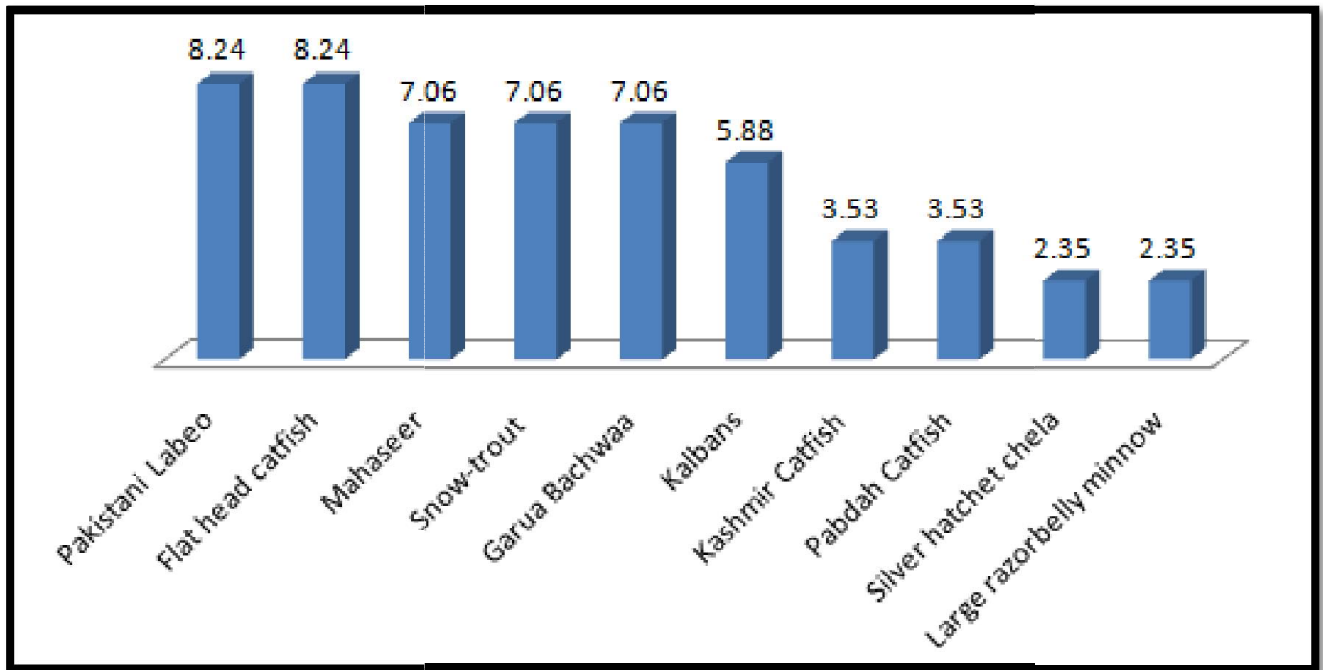


Figure 2: Top ten fishes of study area with relative abundance.

According to IUCN, status of fishes show that 25 species of fishes are “Least concern”, 2 species “are “Near Threatened”, 2 species are “Vulnerable: 1 species is “Critically Endangered”, 1 species is “Endangered” and 2 species are not evaluated by IUCN till now (Figure 3).

REFERENCES

- Ahmad, Q.A., M. Abrar, S. Hussain, Z. Farooq, M.A. Iqbal. 2017. Studies on fresh water ichthyofauna of river Satluj at syphon Mailsi, Punjab, Pakistan.
- Altaf, M., A. Javid, A.M. Khan, A. Hussain, M. Umair, Z. Ali. 2015. The status of fish diversity of river Chenab, Pakistan. *The Journal of Animal & Plant Sciences*. 25: 564-569.
- Altaf, M., A.M. Khan, M. Umair, M. Irfan, M. Munir, Z. Ahmed. 2011. Ecology and diversity of freshwater fishes of head Qadirabad, Gujranwala. *Punjab Univ J Zool*. 26: 1-7.

- Brown, C., V. Zakaria, A. Joubert, M. Rafique, J. Murad, J. King, J. Hughes, P. Cardinale, L. Alonzo. 2019. Achieving an environmentally sustainable outcome for the Gulpur hydropower project in the Poonch River Mahaseer National Park, Pakistan. *Sustainable Water Resources Management*. 5: 611-628.
- Hammert, Q., D.A.T. Harper, P.D. Ryan. 2001. Past paleontological statistical software package for education and data analysis. *Palaeontol. stat.*: 4.
- Hussain, A., M. ASHRAF, M. ALTAF, W.A. KHAN, M. Akmal, J. Qazi. 2015. Relative diversity and threats to commercially important fishes of the Ravi, Pakistan. *Biologia*. 145-149.
- Khan, A., Z. Ali, S. Shelly, Z. Ahmad, M. Mirza. 2011. Aliens; a catastrophe for native freshwater fish diversity in Pakistan. *J Anim Plant Sci*. 21: 435-440.
- Mirza, M., S. Alam. 2000. Ichthyoregions of Indus River, Lahore. *Sci Int*. 12: 143-149.
- Mirza, M.R. 2004. Freshwater fishes of Pakistan, (Urdu). Urdu Science Board.
- Muhammad, H., Z. Iqbal, S. Saleemi. 2018. Diversity and distribution of fish fauna of Indus River at Taunsa Barrage in Punjab, Pakistan. *Pakistan J Zool*. 49: 155-161.
- Negi, S.S. 1991. Himalayan rivers, lakes, and glaciers. Indus Publishing.
- Nelson, J.S. 2006. *Fishes of the World*. John Wiley & Sons, Inc., Hoboken, New Jersey. Canada.

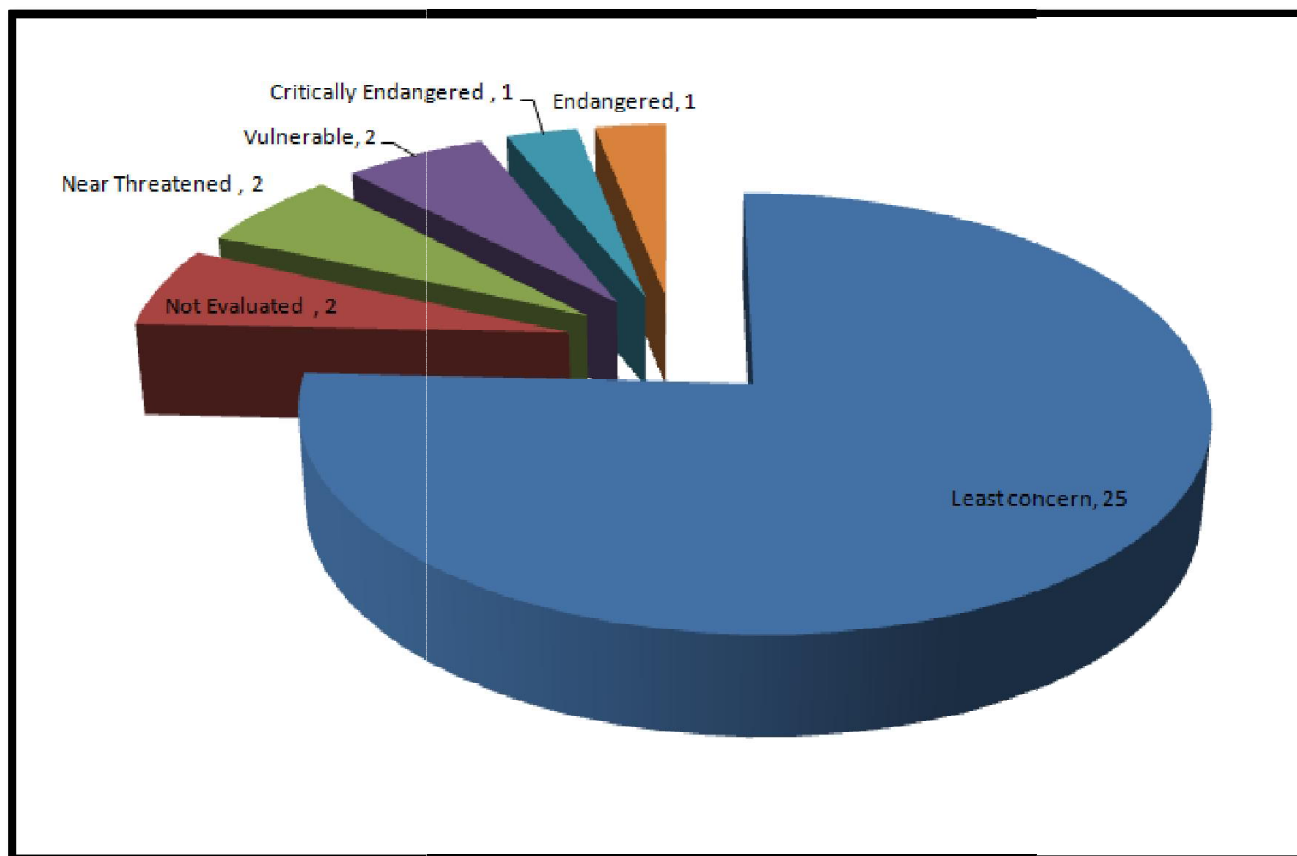


Figure 3: Status of fishes in the study area.

Table 1: Fishes of river Poonch, Azad Jammu and Kashmir, Pakistan

Sr.	Common Name Scientific Name	Family	Relative Abundance	Status
1	Silver hatchet chela <i>Chela cachius</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
2	Large razorbelly minnow <i>Salmophasia bacaila</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
3	Morar <i>Aspidoparia morar</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
4	Pakistani Baril <i>Barilius pakistanicus</i> Mirza and Sadiq, 1978	Cyprinidae	1.18	NE
5	Flying Barb <i>Esomus danricus</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
6	Reba Carp <i>Cirrhinus reba</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
7	Indus Lotak <i>Cyprinion watsoni</i> (Day, 1872)	Cyprinidae	1.18	LC
8	Kalbans <i>Labeo dero</i> (Hamilton, 1822)	Cyprinidae	5.88	LC
9	Pakistani Labeo <i>Labeo dyocheilus</i> (McClelland, 1839)	Cyprinidae	8.24	LC
10	Cotio Fish <i>Osteobrama cotio</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
11	Swamp Barb <i>Puntius chola</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
12	Spotfin Swamp Barb Fish <i>Puntius sophore</i> (Hamilton, 1822)	Cyprinidae	1.18	LC
13	Two spot Barb Fish <i>Puntius ticto</i> (Hamilton, 1822)	Cyprinidae	2.35	LC
14	Mahaseer Fish <i>Tor putitora</i> (Hamilton 1822)	Cyprinidae	7.06	EN
15	Gangetic Latia <i>Crossocheilus latius</i> (Hamilton, 1822)	Cyprinidae	1.18	LC
16	Gotyla Fish <i>Garra gotyla</i> (Gray, 1830)	Cyprinidae	2.35	LC
17	Snow-trout <i>Schizothorax richardsonii</i> (Gray, 1832)	Cyprinidae	7.06	VU
18	Gora Chela Fish <i>Securicula gora</i> (Hamilton, 1822)	Cyprinidae	1.18	LC
19	Common Carp <i>Cyprinus carpio</i> Linnaeus, 1758	Cyprinidae	2.35	VU
20	Garua Bachwaa <i>Clupisoma garua</i> (Hamilton, 1822)	Schilbeidae	7.06	LC
21	Butter Catfish <i>Ompok bimaculatus</i> (Bloch, 1794)	Siluridae	2.35	NT
22	Flat head catfish	Sisoridae	8.24	LC

	<i>Glyptothorax pectinopterus</i> (McClelland, 1842)			
23	Elongate glass-perchlet <i>Chanda nama</i> Hamilton, 1822	Channidae	2.35	LC
24	Himalayan glassy perchlet <i>Parambassis baculis</i> (Hamilton, 1822)	Channidae	1.18	LC
25	Indian glassy fish <i>Parambassis ranga</i> (Hamilton, 1822)	Channidae	2.35	LC
26	Pakistani Loach <i>Botia almorhae</i> Gray, 1831	Botidae	2.35	LC
27	Dwarf Snakehead <i>Channa gachua</i> (Hamilton 1822)	Channidae	1.18	LC
28	Heart Throat Catfish <i>Glyptothorax cavia</i> (Hamilton, 1822)	Sisoridae	2.35	LC
29	Kashmir Catfish <i>Glyptothorax kashmirensis</i> Hora, 1923	Sisoridae	3.53	CR
30	Nazir Catfish <i>Glyptothorax naziri</i> Mirza and Naik, 1969	Sisoridae	2.35	NE
31	Indian gagata <i>Gagata cenia</i> (Hamilton, 1822)	Sisoridae	2.35	LC
32	Pabdah Catfish <i>Ompok pabda</i> (Hamilton, 1822)	Siluridae	3.53	NT
33	Spiny Eel <i>Mastacembelus armatus</i> (Lacepède, 1800)	Mastacembelidae	1.18	LC

Table 2: The diversity indices of the study area.

Diversity Indices	Values
Species	33
Simpson (S)	0.955
Shannon (H')	3.293
Evenness (E)	0.8161
Margalef (R)	7.203

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Authors' contributions: Altaf has designed this project, collected data and written this article.