



Fish fauna of river Ujh, an important tributary of the river Ravi, District Kathua, Jammu

V. Rathore and S. P. S. Dutta

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Abstract

Fish survey of river Ujh, an important clean water tributary of the river Ravi, in Kathua district, has revealed the presence of 42 fish species belonging to 5 orders, 10 families and 27 genera. Fish fauna is dominated by Cypriniformes (27 species), followed by Siluriformes (10 species), Synbranchiformes (2 species), Perciformes (2 species) and Belontiiformes (1 species). Fishing methods commonly employed include cast net, rod and hook, pocket net, poisoning, hand picking, stick, sickle and simple cloth. Fish diversity is fast depleting due to over exploitation, illegal fishing methods and fishing during breeding season. There are great prospects of increasing fish production in this river by stocking various carps in seasonal Ujh barrage at village Jasrota.

Keywords: Fish fauna, river, fish diversity

Introduction

Riverine fish resources are fast depleting due to lack of fish resource information and over exploitation. Sustainable exploitation of water bodies require detailed analysis of fish fauna inhabiting lotic waters and scientific management through regular monitoring and proper check on fishing pressure, including unscientific fishing methods. Fish survey of lotic and lentic water bodies of district Kathua, including river Ujh, has earlier been made by Joshi *et al.* (1978), Dutta and Kour (1999) and Dutta *et al.* (2001 and 2006). During the detailed hydrobiological survey of river Ujh, some new fish records were seen and have been enlisted. Fishing methods commonly employed have also been described. This will provide basic information to the State Fishery Department to explore the possibilities of restoring fish in this non polluted water body, particularly in Ujh barrage

Topography of river Ujh

The river Ujh catches the snowmelt water from the wide area in the middle Himalayas close to the source of river Tawi in Bhaderwah. Close to Mandili, the river enters the Siwalik and

passes through narrow valley, deepens more and more to assume the character of gorge. Further down, at Panjtirthi, the valley widens and four streams *viz.* Bhini, Dangara, Sutar and Talin join the Ujh. The Bhini is perennial and the remaining three streams are seasonal. It ultimately joins the river Ravi in Pakistan and the length of the river in the district is 65 km. In the vicinity of Jasrota village, a reservoir has been constructed. Water of this reservoir is used for irrigation to some parts of Kathua district. Migratory population from other states collects water for consumption at various places, along the river.

Material and Methods

Fish collection and identification

Fishing Methods:

Cast net: It is conical in shape and forms a circle when spread out. The foot rope, along the circumference of the net, has small iron or lead weights attached all around at about 10-15 cm intervals. Each weight is cylindrical, 4 cm long and 2 cm in diameter. A string or line passes from the centre and is held in the hand for operating the net. The central line (rope) branches out into several lines and also into sub-branches, finally connected to the free edge of the net. The

Author's Address

Department of Environmental Sciences,
University of Jammu, Jammu
E-mail: duttasps@gmail.com

edges of the net are folded inwardly and are fixed by twines to form pockets. The fisherman operates the net, while in water. A man holds the net so that it can be skillfully thrown out on water to land horizontally and enclosed (entraps) the fish as it sinks. The mesh size of the net is 2-5 cm and the diameter of the net is 5 meters.

Rod and hook: In this method, a baited metallic hook is tied to a wooden stick through a thread. Bait commonly used for attracting fish are flour pills, earthworms, blood of sheep and goat and intestine of chicken. A small wooden float is also attached to the thread. Baited rod is kept in pool section of the river. Attracted by the bait, the fish engulfs the hook and is then taken out of water and collected. The movements of the fish are indicated through a float.

Pocket method:

1. Single pocket net
2. Multiple pocket net

A rectangular sheet of plastic cement bags, having one or more pockets, is formed by sewing cement bag sheets and is connected to a rectangular frame of wooden sticks. Inside the pockets some wooden pieces are placed in such a way as to keep the pockets open. The net is suspended through a rope near the outlet of barrage in the evening. Fishes jump from pools located at the base of outlet of barrage and enter into the open pockets of the net. Once inside the pocket, the fish is unable to escape. **Fish Poisoning:** Some people mix DDT or bleaching powder in a bucket of water and is poured in shallow pools. After poisoning fishes start floating and are collected.

Simple cloth: In this method, a rectangular bed sheet/ladies dupatta is hauled through water in pools by two persons. Periodically, the cloth is brought to the surface and fishes are collected.

Miscellaneous methods: Some people use sticks in concrete areas, under the bridges, to collect fish. As soon as a fish is seen moving downstream, along with water currents, it is struck with a wooden stick and is immediately collected. In the barrage area, near Jasrota, gates are raised and people collect fish from shallow pits by hands.

Some people strike fish with a stick, sickle and metallic rods. Some people collect fish from depressions and strike it on the bottom. Fishes die and are collected immediately. Dead fishes were

preserved in 10% formaldehyde solution and identified (Hamilton, 1822; Day, 1897; Mishra, 1962; Dutta and Malhotra, 1984; Talwar and Jhigran, 1991; and Jayaram, 1999).

Results and Discussion

Fish survey of river Ujh, an important tributary of the river Ravi, in Kathua district, has revealed the presence of 43 fish species, belonging to 5 orders, 10 families and 27 genera.

Super-class	: Gnathostomata
Class	: Actinopterygii
Sub-class	: Neopterygii
Division	: Teleostei
Sub-division	: Euteleostei
Super-order	: Ostariophysii
Order	: Cypriniformes
Sub-order	: Cyprinoidei
Family	: Cyprinidae
Sub-family	: Danioninae (= Rasborinae)

1. *Salmostoma bacaila* (Ham. Buch.)
2. *Salmostoma panjabiensis* (Ham. Buch.)
3. *Aspidoparia morar* (Ham. Buch.)
4. *Barilius vagra vagra* (Ham. Buch.)
5. *B. bendelisis* (Ham. Buch.)
6. *Rasbora rasbora* (Ham. Buch.)
7. *Esomus danricus* (Ham. Buch.)
8. *Danio devario* (Ham. Buch.)

Sub-family: Cyprinine

9. *Tor tor* (Ham. Buch.)
10. *T. putitora* (Ham. Buch.)
11. *Puntius sophore* (Ham. Buch.)
12. *P. chola* (Ham. Buch.)
13. *P. ticto* (Ham. Buch.)
14. *P. conchoniis* (Ham. Buch.)
15. *Cirrhinus mrigala* (Ham. Buch.)
16. *C. reba* (Ham. Buch.)
17. *Labeo dero* (Ham. Buch.)
18. *L. dyocheilus* (Mc. Cll.)
19. *L. pangusia* (Ham. Buch.)
20. *Catla catla* (Ham. Buch.)

Sub-family: Garrinae

21. *Crossocheilus latius diplocheilus* (Hekel.)
22. *Garra lamta* (Ham. Buch.)
23. *G. gotyla* (Gray)



- Family:** **Balitoridae**
Sub-family : **Nemacheilinae**
 24. *Acanthocobitis botia* (Ham. Buch.)
- Family :** **Cobitidae**
Sub-family : **Botinae**
 25. *Botia almohare* (Gray)
 26. *Botia birdi* (Chaudhari)
- Sub-family :** **Cobitinae**
 27. *Lepidocephalichthys guntea* (Ham. Buch.)
- Order :** **Siluriformes**
Family : **Bagridae**
Sub-family : **Bagrinae**
 28. *Aorichthys seenghala* (Sykes)
 29. *Mystus bleekeri* (Day)
 30. *Mystus vittatus* (Bloch)
- Family :** **Siluridae**
 31. *Ompok bimaculatus* (Bloch)
 32. *Wallago attu* (Bloch and Schneider)
- Family :** **Amblycipitidae**
 33. *Amblyceps mangios* (Ham. Buch.)
- Family :** **Sisoridae**
 34. *Bagarius bagarius* (Ham. Buch.)
 35. *Glyptothorax pectinopterus* (Mc. Cl.)
 36. *G. stoliczkae* (Steind)
 37. *G. telechitta telechitta* (Ham. Buch.)
- Super-order :** **Acanthopterygii**
Order : **Beloniformes**
Sub-order : **Belonidei (= Exocoetoidei)**
Family : **Belonidae**
 38. *Xenentodon cancilia* (Ham. Buch.)
- Order :** **Synbranchiformes**
Sub-order : **Mastacembeloidei**
Family : **Mastacembelidae**
 39. *Mastacembelus armatus* (Lac.)
 40. *Macrognathus pancalus* (Ham. Buch.)
- Order :** **Perciformes**
Sub-order : **Channoidei**
Family : **Channoidae**
 41. *Channa punctatus* (Bloch.)
 42. *C. orientalis* (Schneider)

Commercially important fishes occurring in river Ujh are *Tor tor*, *T. putitora*, *Catla catla*, *Cirrhinus mrigala*, *C. reba*, *Labeo dero*, *L. dyocheilus*, *L. pangusia*, *Aorichthys seenghala*, *Wallago attu* and *Bagarius bagarius*. Other fish species are on great demand by migratory population from Bihar, Orissia, Madhya Pradesh etc.. *Channa* spp. are sold live in the market and are highly preferred by Bengalis. Ichthyofaunistic study of river Ujh has shown the dominance of Cypriniformes (27 spp.) followed by Siluriformes (10 spp.), Synbranchiformes and Perciformes (2 spp., each) and Beloniformes (1 sp.). Dominance of Cypriniformes, as seen during the present study, is in accordance with the observations of Das and Nath (1966a; 1971), Tilak (1971) and Dutta *et al.* (2003) for river Tawi and its tributaries, Dutta (1978) for Gadigarh nullah, Dutta (2003) for Poonch district, Dutta *et al.* (2001) and Sharma and Dutta, 2012 for river Basantar, Dutta *et al.* (2002a) for Rajouri district, Dutta *et al.* (2002) for the river Chenab, Joshi *et al.* (1978) and Dutta *et al.* (2006) for various tributaries of the river Ravi *viz.*, Tarnah nullah and Kathua khad, Dutta and Fayaz (2003) for Doda district, Dutta and Kour (2005) for various lotic and lentic water bodies of Kathua district, Guglani (2000) for various districts of Jammu province *viz.*, Poonch, Rajouri, Kathua, Udhampur, Doda & Jammu and Koul (2000) for Behlol nullah, Jammu. Dominance of Cypriniformes from neighbouring states *viz.*, Himachal Pradesh (Tilak and Hussain, 1977; Sharma and Tandon, 1990; Johal, 1998) and Punjab (Dhingr and Vashist, 1967; Johal and Tandon, 1981 and Singh, 2005) is also on record. Fish diversity in river Ujh is poor in comparison to the findings of earlier workers for various tributaries of the river Ravi in Jammu district. Dutta *et al.* (2001a) studied the hydrobiology of river Basantar and reported the presence of 59 fish species belonging to 6 orders, 15 families and 41 genera. Sharma and Dutta (2013) resurveyed the fish fauna of river Basantar and observed 35 fish species belonging to 5 orders, 10 families and 25 genera. Present low fish diversity in river Ujh is because of less tributaries in the catchment area, fast flow of water, absence of deeper pools and regulated flow of water downstream the barrage. Fish fauna of the river Chenab, draining Doda, Udhampur and Jammu districts, has low diversity of 28 fish species, (Dutta *et al.*, 2002). However,



qualitatively, cold water *Schizothorax richardsonii*, *Schizothoraichthys progastus*, *S. esocinus*, *Noemacheilus corica*, *Triplophysa yasinansis*, *Glyptothorax kashmirensis*, *G. garhwali* and *Glyptosternum reticulatum* reported by these workers (op. cit.) from the river Chenab have not been seen in river Ujh. Absence of these fishes from river Ujh is because of cold water preference by *Schizothorax*, *Schizothoraichthys* and *Glyptosternum* species. Fish fauna of river Ujh is more diversified, when compared with other tributaries of river Ravi viz., Kathua khad (12 spp. belonging to 4 orders, 6 families and 11 genera) and Tarnah nullah (16 spp. belonging to 2 orders, 4 families and 12 genera) in Kathua district (Joshi *et al.*, 1978 and Dutta *et al.*, 2006) and is because of the seasonal water flow in these nullahs. Fish diversity in river Ujh is also more in comparison to the findings of Shekhar (1990) from Neeru nullah, Bhaderwah (*Schizothorax richardsonii* and *Glyptothorax reticulatum*), Koul (2000) for Behlol nullah (21 spp. belonging to 4 orders, 7 families and 14 genera), Jammu and Dutta (2014) from some cold water tributaries of the river Chenab in Kishtwar, Doda and Ramban districts (13 species belonging to 3 orders, 4 families and 11 genera). Earlier, Dutta *et al.* (2001b and 2003) analysed the fish fauna of river Tawi and its tributaries and noticed the existence of 96 fish species belonging to 7 orders, 20 families and 52 genera. Fish fauna of river Tawi is more diversified in comparison to the present record of 43 fish species from river Ujh. There is total absence of fishes belonging to orders Osteoglossiformes (*Notopterus notopterus*, *Chitala chitala*), and Cyprinodontiformes (*Gambusia affinis*) in river Ujh. Fish species belonging to order Cypriniformes (*Securicula gora*, *Barilius shacra*, *B. modestus*, *Chela cadius*, *C. laubuca*, *Brachydanio rerio*, *Amblypharyngodon mola*, *Cyprinus carpio communis*, *C.C.specularis*, *Neolissocheilus wyandensis*, *N. hexastichus*, *Osteobrama cotio cotio*, *Puntius sarana sarana*, *P. terio*, *Labeo bata*, *L. boga*, *L. boggut*, *L. calbasu*, *L. gonius*, *L. microphthalmus*, *L. rohita*, *Schizothorax richardsonii*, *Crossocheilus latius dinlocheilus*, *Nemacheilus corica*, *Acanthocobitis moreh*, *Schistura prashadi*, *S. prashari*, *S. puniabensis*, *S. montanus*, *S. rupicola*),

Siluriformes (*Rita rita*, *Mystus cavasius*, *Pseudeutropius atherinoides*, *Clupisoma garua*, *Eutropiichthys murius*, *E. vacha*, *Gagata cenia*, *Glyptothorax cavia*, *G. garhwali*, *G. puniabensis*, *Heteropneustes fossilis*), Synbranchiformes (*Monopterusuchia* and *Macroganthurus aral*), and Perciformes (*Chanda nama*, *Parambassis ranga*, *Badis badis*, *Nandus nandus*, *Glossogobius giuris*, *Colisa fasciatus*, *Channa marulius*, *C. striatus*), seen in river Tawi, are also absent from river Ujh. Greater diversity of fish fauna in river Tawi is because of its longer length, more catchment area, entry of cold and warm water seasonal and perennial tributaries (Ramnagar, Barmeen, Dudhar, Birhun, Devak, Jhajjar, Nagrota, Behlol, Ghomanasa, Eak nullah, Sehi stream etc.) and diversified habitat along its length. In the upper catchment, upstream Chenani, the river has fast flow, coarse bottom and is highly suitable for cold water fishes. Downstream Udampur, the river Tawi has well marked pools and turbulent zones and the area is suitable for the growth of diversified warm water fishes. Moreover, a large number of small spring fed streams, and springs having rich diversified biota (Kumar, 1987) including fish, meet river Tawi at various places along its length. The overall diversity of fish fauna in river Ujh is low as compared to the river Tawi, Jammu, and Basantar river, Samba, and may be attributed to:- Coarse bottom, comparatively fast flow and low presence of soft sediments; absence of pools; poor diversity and density of macrophytes; and presence of barrage and irregular flow of water downstream the barrage, during certain months. Fish diversity and density in river Ujh can be increased by:- Regular monitoring of fishing methods and checking illegal fishing methods like poisoning and fishing of small sized fishes. Complete restrictions on fishing during fish breeding season viz. May-August. Check on unnecessary issuing of fishing licences to the fishermen by State Fishery Department. This should be based on the stock available in any water body. There are great prospects of increasing fish production by releasing larvae of various fish species at selected places. In the barrage area, at village Jasrota, some experiments on carp stocking can be undertaken by the State Fishery Department. Development of fish sanctuaries at selected places and total ban on fishing in such areas.



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