



STUDIES ON ICHTHYOFAUNAL DIVERSITY OF KALI SINDH RIVER NEAR JETPURA VILLAGE, JHALAWAR, RAJASTHAN, INDIA

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Fish samples were collected from Kali Sindh River near Jetpura village, Jhalawar during 2018 to evaluate the composition of fish faunal diversity. 18 fish species belonging to cypriniformes order were recorded from the area of study followed by 4 spp. of order siluriformes, 2 species of perciformes and 1 species each of osteoglossiformes and beloniformes order. In all 26 species of fishes were recorded from the river.

Key words: Fish, Kali Sindh, River, Diversity.

Lakes and reservoirs in India constitute the single largest inland fishery resources both in terms of size and production potential. Fisheries in India is a very important economic activity and a flourishing sector with varied water resources and potentials. The country has shown continuous and sustained rises in fish production since, independence. The total fish production during 2017-18 is appraised to be 12.60 million metric tonnes, of which approximately 65% is from inland segment and about 50% of the total production is from culture fisheries and constitutes about 6.3% of the worldwide fish production (Anon., 2019 I).

Rajasthan state located in the western part of India has an extensive area of 3, 42,239 km², constituting 11% of the total geographical area of India. The state is gifted with four major River basins viz. Chambal River basins, Mahi River basin, Luni River basin and Ghaggar River basin. Approximately seventy River join these major River systems with large number of tanks, ponds and reservoirs during monsoon season variable in natural recruitment of fish and other aquatic fauna all over the State (Anon., 2019 II).

The Kali Sindh is a vital river of Rajasthan and Madhya Pradesh states. It is a part of the Ganges Basin. The Kali Sindh initiates from Bagli area in Madhya Pradesh and its tributaries are Niwaj, Parwan, Ahu, Kuwari and Betwa Rivers. Kali Sindh flows through almost whole area of Jhalawar district of Rajasthan to join the Chambal, Rajasthan's largest river in Kota district of Rajasthan. Kalisindh Dam is a concrete gravity dam built across Kali Sindh River near Jetpura village which is 16 km from Jhalawar city of Rajasthan. It is built mainly for providing water for irrigation to adjacent villages, control yearly floods in Kali Sindh River and uplift water for Kalisindh Thermal Power

Station. The dam has the maximum number of gates (33) amongst all dams in Rajasthan. Present study was carried out at Kali Sindh Dam near Jetpura village (N 24° 28.853' E 076° 13.524') of Jhalawar district of Rajasthan.

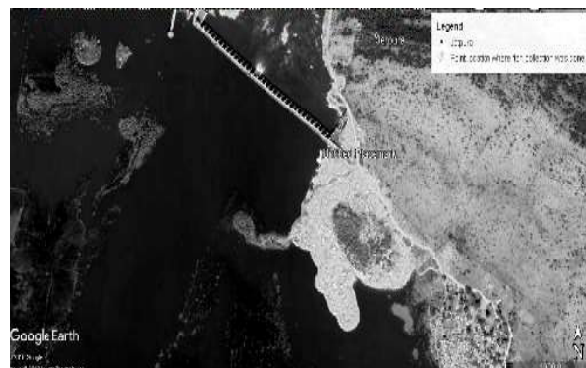


Fig.1 : Showing study area (Source: Google earth)

MATERIALS AND METHODS

Fishes were collected using random method with the help of cast and gill nets mainly. Hand net, scoop net, drag net and baited hooks were also used. The fishes were also examined from fishermen's catch at landing sites. After catch, fishes were immediately transferred to 5-10% formaldehyde solution. Care was taken that fins remained stretched. In the laboratory, fishes were washed with water to eliminate the mucous and unnecessary stuff and subsequently were preserved in 5-10% formaldehyde solution in the containers after identification and labeling. Morphological characters of the fishes viz. color, spots, bands etc. were also recorded in the field. The Fishes were identified following Talwar and Jhingran (1991), Jayaram (1999)

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and www.fishbase.org version (02/2018). Nature of stream flow was decided according to the norms given by Gordon et al. (1992) whereas, nature of the stream bottom was accounted according to the criteria given by Armontrout (1999).

OBSERVATIONS AND DISCUSSION

Exhaustive work pertaining to fish faunal diversity of Rajasthan is done mainly by Hora and Mathur (1952), Datta et al. (1970), Johal et al. (1993) and Mohan and Ramkishor (2013), whereas Dubey and Mehra (1962), Sharma and Johal (1982), Sharma and Johal (1984), Gupta and Kulshreshta (1985), Johal and Sharma (1986), Juyal and Chaudhary (2003), Srivastava, (2007), Sharma and Choudhury (2007) and Banyal and Kumar (2013, 2015I,II,III,IV, 2016, 2017 I and II, 2018 and 2019) have done noticeable work in enhancing our knowledge regarding fish fauna of southern and south eastern part of the state.

Dubey and Mehra (1962) described 71 species whereas, Banyal and Kumar (2015I) have recorded 54 species of fish from Rajasthan portion of River Chambal. Banyal and Kumar (2017 II and 2019) have also recorded 21 species of fish from "Bisalpur Reservoir" part of Banas River and 34 species of fish from Mahi River in Rajasthan state.

Gupta and Kulshreshta (1985) have documented 57 species of fish from Jhalawar district, whereas Banyal and Kumar (2015 IV) have reported 9 spp. of fish from Kalisindh River at Gagron area of Jhalawar district of Rajasthan but, comprehensive information on fish fauna from Kali Sindh River is very meager and inconsistent. Keeping in mind importance of Kali Sindh River from commercial fisheries point of view the river was surveyed in the year 2018-2019 at Kali Sindh Dam near Jetpura village of Jhalawar district of Rajasthan to ascertain the details of fish faunal diversity in order to prepare data base for better management of the river for all the stakeholders.

Kali Sindh is an intermittent and spring fed river. At the point of study, the river was having extensive amount of water due to construction of dam. Whereas, downstream to dam the river was having isolated pools only. The bottom of the river consisted of rocks, boulders, cobbles, gravels and sand. Run and pools were the main habitats observed in the river.

During present study 26 species of fishes belonging to 5 orders and 6 families were identified from the said river.

List of the fishes with classification is as follows:

Class: Actinopterygii

Order: Cypriniformes

Family: Cyprinidae

Genus: *Salmophasia* Swainson

1. *Salmophasia bacaila* (Hamilton, 1822)

Genus: *Rasbora* Bleeker

2. *Rasbora daniconius* (Hamilton, 1822)

Genus: *Osteobrama* Heckel

3. *Osteobrama cotio* (Hamilton, 1822)

Genus: *Puntius* Hamilton

4. *Puntius sophore* (Hamilton, 1822)

Genus: *Pethia* Pethiyagoda et al.,

5. *Pethia ticto* (Hamilton, 1822)

Genus: *Systemus* McClelland

6. *Systemus sarana* (Hamilton, 1822)

Genus: *Catla* Valenciennes

7. *Catla catla* (Hamilton, 1822)

Genus: *Cirrhinus* Cuvier

8. *Cirrhinus mrigala* (Hamilton, 1822)

9. *Cirrhinus reba* (Hamilton, 1822)

Genus: *Labeo* Cuvier

10. *Labeo boggut* (Sykes, 1839)

11. *Labeo calbasu* (Hamilton, 1822)

12. *Labeo rohita* (Hamilton, 1822)

13. *Labeo bata* (Hamilton, 1822)

Genus: *Garra* Hamilton

14. *Garra gotyla* (Gray, 1830)

15. *Garra mullya* (Sykes, 1839)

Genus: *Devario* Heckel

16. *Devario devario* (Hamilton, 1822)

Genus: *Amblypharyngodon* Bleeker

17. *Amblypharyngodon mola* (Hamilton, 1822)

Genus: *Tor* Gray

18. *Tor tor* (Hamilton, 1822)

Order: Siluriformes

Family: Bagridae

Genus: *Sperata* Holly

19. *Sperata seenghala* (Sykes, 1839)

Genus: *Mystus* Scopoli

20. *Mystus cavasius* (Hamilton, 1822)

Genus: *Wallago* Bleeker

21. *Wallago attu* (Bloch & Schneider, 1801)

Family: Sisoridae

Genus: *Gagata* Bleeker

22. *Gagata cenia* (Hamilton, 1822)

Order: Osteoglossiformes

Family: Notopteridae

Genus: *Notopterus* Lacepede

23. *Notopterus notopterus* (Pallas, 1769)

Order: Beloniformes

Family: Belonidae

Genus: *Xenentodon* Regan

24. *Xenentodon cancila* (Hamilton, 1822)

Order: Perciformes

Family: Ambassidae

Genus: *Chanda* Hamilton

25. *Chanda nama* Hamilton, 1822

Genus: *Parambassis* Bleeker

26. *Parambassis ranga* (Hamilton, 1822)

18 cyprinid species were recorded from the area of study followed by 4 spp. of catfishes, 2 spp. under perciformes, 1 sp. of Osteoglossiformes and 1sp. under beloniformes order. As per IUCN (2018) status 24 spp. are under least concern category, 1 in near to threatened category [*Wallago attu* (Bloch & Schneider, 1801)] and 1 in data deficient category i. e. *Tor tor* (Hamilton, 1822).

Knowledge of fish faunal diversity of a water body is an important aspect for its sustainable as well as economical management. Moreover, knowledge of fishery resources, their availability and distribution in aquatic water resources is essential for their proper utilization [Mohan, et al. (2013) and Banyal & Kumar (2015I, II, III, IV, 2016, 2017 I & II, 2018 & 2019)]. Present account of 26 spp. of fishes from Kali Sindh River shows that the river has good potential from fish faunal perspective. It is further recommended that over fishing of important game fishes such as *Tor tor* (Hamilton, 1822) should be restricted for fisherman. Moreover, fishing should be banned during breeding season and critical water level should also be maintained particularly in the deep-water pools because these

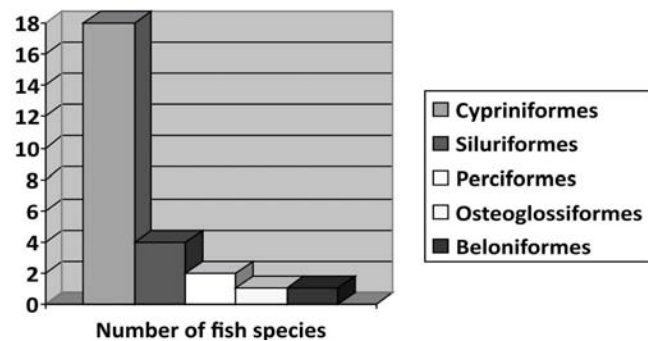


Fig. 2 : Chart showing order wise composition of fish spp.

hot spots play a vital role in spawn dispersal as proved by Waltham et al. (2014). In this context necessary steps should be taken to minimize anthropogenic activities in and around the river. Regular monitoring of the physico-chemical and biological parameters of the river water should also be done to prevent any adverse impact on river ecology. Agencies working in this region should also spread conservation information, education and practices to fishermen and other stakeholders about the danger of annihilation of the species and the need for its conservation. This will go a long way towards protecting and preserving the fish species in this important river of Rajasthan state.

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