

Fish Diversity in Paddy Fields and Canals of Janjgir Tehsil, District Janjgir-Champa, (C.G.), India

Dr. Ramesh Kumar Tamboli

*Asst. Professor of Zoology,
Kirodimal. Govt. Arts & Science College, Raigarh, Chhattisgarh*

Abstract

Chhattisgarh state is situated at the center of the India. It is a tropical climate state popularly known as 'Bowl of the rice'. District Janjgir-Champa is leading rice producing zone of the state. The soil is Kanhar with good water retention property. Before last two decade the farmers are taking only single crop of rice but after providing good irrigation facilities by Hasdo-bango irrigation project a network of irrigation canals were established and farmers are producing double crop of rice. During the monsoon the paddy fields are prepared for sowing the first crop and the paddy is harvested mostly till November. During this period rice fields were filled with running as well as stagnant water. A number of inland culture fish farming programs are going on but no investigations on capture fishes have been made in the area regarding their fish diversity. During the monsoon season these captured fishes are spread in the paddy fields nearby. During monsoon and before harvesting the paddy crop, the farmers and villagers collect these fishes from the paddy fields and canals by using local contrivances like net, choriya and dheer. The farmers and the people of this area are aware about these fishes as they are economically very important for them. Investigation, identification of these fishes are very important, thus there is an urgent need for proper investigation and documentation of this fish diversity. The present study is made to identify the fish fauna of the paddy fields and other related canals of the Janjgir. The survey was made during the monsoon period, August 2019 to November 2019 and August 2020 to November 2020. During the present survey 22 species of freshwater fishes were identified and they belonging to 15 genera, 11 Families of class Teleostomi.

Keywords: Fish diversity, Paddy fields, canals

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I. Introduction

District Janjgir-Champa of Chhattisgarh state is blessed with plentiful natural resources in the form of river, tanks, ponds, irrigation canals and seasonal streams. The water bodies are extensively productive and are helpful in natural rearing of the captured fisheries. During the monsoon season these fishes are spread in the rice cultivating fields for shelter, feeding and breeding due to their up and down stream migratory behavior. Farmers, local people and fisherman collect these fishes from the paddy fields and irrigation canals by using local contrivances. The collected fishes are used for human consumption and marketing while some villagers preserved them by hay drying process and sell them throughout the year. The running water in paddy fields provide friendly ecosystem for survival and growth of these migratory fishes. Present survey is an attempt to study and documentation of fish diversity of paddy fields and canals.

II. Material And Methods

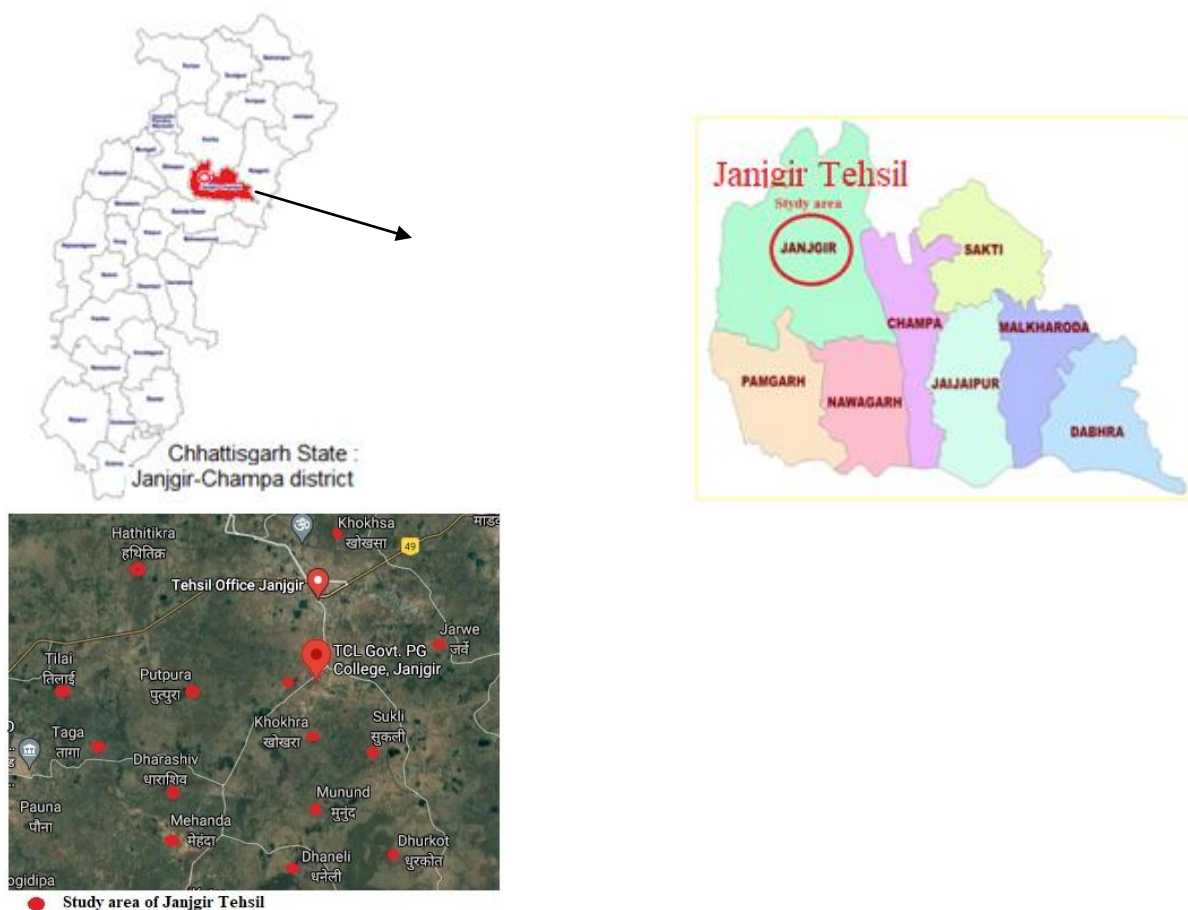
The present investigation on fish diversity is carried out on the paddy fields and irrigation canals of Janjgir tehsil from August 2019 to November 2019 and August 2020 to November 2020. Fourteen leading areas were selected for study of fish diversity in paddy fields based on irrigation facilities through the canals, natural seasonal streams and approachability. The fishes were collected with the help of farmers, fisherman, villagers and other local people during morning, noon and evening by using nets and local contrivances like choriya and dheer. The collected fishes were cleaned and photographed with NIKON DSLR 3200 camera by using macro lens and preserved in 10% formalin. The fishes were brought into the lab for studies. The taxonomic character, morphometric and meristic counts were studied and fishes were identified with the help of standard keys of Day (1878), Ken Schultz, Talwar and Jhingaran (1991), Jhingaran (2005), K.C. Jayaram, (2010).

III. Study Area And Sampling Sites

For the study of fish diversity in paddy fields, fourteen leading rice producing areas were selected. For the study of fish diversity in paddy fields and canals, the areas selected are Janjgir, Khokhra, Sukli, Munund, Dhurkot, Dhaneli, Mehanda, Dharashiv, Taga, Tilai, Kuthur, Hathitikra, Khokhsa and Jarwe. The fishes were collected from about 2 to 3 km radius of each study site. (Table-1).

Table -1: Fishes studied in paddy fields & streams during August 2019 to November 2019 and August 2020 to November 2020

S.No.	Family	Local name	Scientific name	Source	Fin Formula
1	Anabantidae	Rukh chagha	Anabas testudineus	Paddy fields	D.17/10;P.15;V.1/5;A.11;C.17;L1.29;Ltr.4/9
2	Centropomidae	Chandani	Chanda nama	Paddy fields, canals	D.1/7/1/13;P.12;V1/5;A3/14;C.17 Scales very minute and deciduous
3		Mongri	Chanda ranga	Paddy fields, canals	D.1/7/1/17;P.13;V.1/5;A3/17;C.17 Scales very minute and deciduous
4	Channidae	Karajiya	Channa gachua	Paddy fields, canals	D.36;P.15;V.6;A.23;C.12;L1. 42;Ltr.4/7
5		Khoksi	Channa punctatus	Paddy fields, canals	D.29;P.17;V.6;A.22;C.12;L1.35;Ltr.5/7
6		Bhunda	Channa striatus	Canals	D.41;P.17;V.6;A.25;C.13;L1.58;Ltr.7/10
7	Claridae	Kewai	Clarias batrachus	Paddy fields, canals	D.67;P.1/8;V.6;A.47;C.17;Barbels 4 pairs
8	Gobidae	Ghesra	Glossogobius giuris	Paddy fields, canals	D.6/1/9;P.20;V.1/5;A1/8;C.17;L1.35;Ltr.12
9	Heteropneustidae	Singhi	Heteropneutes fossilis	Paddy fields, canals	D.6;P.1/7;V.6;A.64;C.19; barbels 4 pairs
10	Cobitidae	Gimna	Lepidocephalichthys guntea	Canals	D.8(2/6);P.8;V.7;A.7(2/5);C.16;L1.115; Barbels 4 pairs
11	Bagridae	Tangna	Mystus tengara	Paddy fields, canals	D.1/7/0;P.1/8;V.6;A.13(3/10);C.19; Barbells 4 pairs
12		Tengna	Mystus cavasiys	Canals	D.1/7/0;P.1/9;V.6;A.11(3/8);C.16; Barbels 4 pairs
13	Mastacembelidae	Baam	Mastacembelus armatus	Paddy fields, canals	D.38/80;P.25;A.3/77
14		Baam	Mastacembelus puncalus	Paddy fields, canals	D.24/32;P.19;A.3/33;C.12.
15		Baam	Macrognaathus aculeatus	Paddy fields, streams	D.20/47;P.19;A.3/48;C.15; Vert.18/30.
16	Cyprinidae	Dadia	Esomus danricus	Paddy fields, canals	D.8(2/6);P15;V.9;A.8(3/5); C.13;L1.32; Ltr.6/3; Barbels 2 pairs
17		Bata	Labeo bata	Canals	D.11-12(2-3/9-10);P.18;V.9;A.7(2/5);C.19; L1.37-38;Ltr.7/6-7; Barbels 1 pair.
18		Sarna	Puntius sarana	Canals	D.11-12(3/8-9);P.15;V.8-9;A.8(3/5);C.19; L1.33-34; Ltr. 6½/6; Barbels 2 pairs.
19		Kotri	Puntous ticto	Paddy fields, canals	D.11(3/8);P.13;V.9;A.8(3/5);C.19;L1.25; Ltr.5½ /6½.
20		Kotri	Puntius sophore	Paddy fields, canals	D.11(3/8);P.16;V.9;A.8(3/5);C.19;L1.25-26; Ltr.5½ /5½.
21		Dadu	Rasbora daniconius	Canals	D.9(2/7);P.15;V.9;A.7(2/5);C.19;L1. 31; Ltr.5½ /4½.
22	Belonidae	Sodhia	Xenentodon cancila	Canals	D.16-17;P.11;V.6;A.17;C.15.



IV. Result And Discussion

During the present investigation 22 species of freshwater fishes were identified representing to 11 families and 15 genera of class Teleostomi. During the rainy season large number of fishes migrated from irrigation canals and streams to paddy fields for feeding and breeding. The fishes representing the families are Anabantidae, Cetropomidae, Channidae, Clariidae, Cyprinidae, Gobiidae, Heteropneustidae, Cobitidae, Bagridae, Mastacembelidae and Belonidae. The genus are Anabas, Chanda, channa, Clarias, Esomus, Glossogobius, Heteropneustes, Lepidocephalichthys, Mystus, Mastacembelus, Macrognathus, Labeo, Puntius, Rasbora and Xenentodon. The species are A. testudineus, C. nama, C. ranga, C. gachua, C. punctatus, C. striatus, C. batrachus, G. giuris, H. fossilis, L. guntea, M. cavasius, M. tengara, M. armatus, M. puncalus, M. aculeatus, E. danricus, L. bata, P. sarana, P. ticto, P. sophore, R. daniconius, X. cancila, (Table-1)

V. Conclusion

The migratory behavior of fishes from streams and canals to paddy fields is significant for dispersal of species from one aquatic habitat to other for feeding, breeding and shelter. Most of the migratory fishes are the weed fishes and some of them are predatory in nature. Agricultural practices, and other anthropogenic activities making the fish life more difficult by giving the slime chances of survival. During monsoon period the paddy fields of the Janjgir tehsil exhibit a good number of fish diversity represented by 22 species of fishes belonging to 15 genera and 11 families. Air breathing fishes are dominant in paddy fields than the others due to high tolerance ability.

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