

Diversity of Ichthyofauna In River Galgibaga, Canacona, Goa.

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ABSTRACT

The Ichthyofauna is an important aspect of biodiversity potential of water body. The distribution of fish species is variable due to diverse geomorphological and geochemical conditions. Various hypotheses involving time, spatial heterogeneity, competition, predation, stability and productivity have been proposed to explain gradients in diversity. The Galgibaga is an estuarine river, which discharges into the Arabian Sea near Maxem. Very meager information is available about biodiversity of Goan rivers, mainly of Galgibaga known for its Olive Ridley Turtles nesting, hence present investigation is carried out to analyze the biodiversity of the river Galgibaga. 27 species belonging to 17 families were reported during the study period. Out of which Mugil Kelaartii, Pitol, Cyprinodon dispar, Mugil parsia, theapon jarbuaa were more abundant throughout the study period. Entroplus suratensis, caranx carangus, tonki, Scorpeana haplodactylus, tetradon leopardus scaber, Barbus chrysopterus, pseudorhombus arsius, Stromateus cinereus and Trypaunchen vagina were observed less during the study period.

(KEY WORDS: Biodiversity, Estuarine, Galgibaga, Ichthyofauna, Maxem.)

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I. INTRODUCTION.

Goan food is considered incomplete without fish. In India potential fish culture is yet to be exploited. Inland fisheries play an important role in providing the nutritional food security to the growing population. Rivers, Lakes, Reservoirs and other inland water bodies are most important resources in addition to the fish farming. Habitat loss and environmental degradation due to anthropogenic activities have dangerously affected the fish faunal diversity. Knowledge of existing species diversity helps in understanding the current status and future plans for Ichthyofaunal conservation. Therefore, there is an urgent need for studying the Ichthyofaunal diversity of our water bodies. Considerable studies on ichthyofaunal diversity have been carried out during the last few decades. (Krishna and Piska, 2006, Mishra et al., 2003, Sarkar and Benerjee, 2000, Patra et al., 2011, Acharjee, M. L. and Barat, S. 2013). Besides forming the most nutritive diet for human beings fishes are also very useful bio-indicators of the water quality. (Peter 1987). In Indian freshwaters more than 1600 species of fishes have been reported. (Salaskar and Yergi 2004) In the present investigation an attempt has been made to analyze the ichthyofaunal diversity of River Galgibaga at Canacona, Goa.

II. MATERIALS AND METHODS

Fishes collected from different selected localities through random nettings using dragnets, nylon gill nets and also from fish landing sites directly from fisher men's nets during July to June. Once collected they were preserved in 10% formalin and identified. Physico chemical parameters such as Temperature, pH, Dissolved oxygen, Total hardness, Total alkalinity, Calcium, Magnesium of Galgibaga River during the study period were estimated.

III. RESULTS

Ichthyofaunistic survey of river Galgibaga has revealed the presence of 25 species of 17 families. Out of which Mugil Kelaartii, Pitol, Cyprinodon dispar, Mugil parsia, theapon jarbuaa were more abundant throughout the study period. Entroplus suratensis, caranx carangus, tonki, Scorpeana haplodactylus, tetradon leopardus scaber, Barbus chrysopterus, pseudorhombus arsius, Stromateus cinereus and Trypaunchen vagina were observed less during the study period.

IV. DISCUSSION

Fishes are very important human diet ingredients from ancient periods and are primarily caught for this purpose. Fish diet provides proteins, fat contents, vitamin A, Vitamin D and large amounts of Phosphorus which are easily digestible by human as compared to other animal sources. Millions of human being suffers from hunger and malnutrition and fishes are a rich source of food to tide over nutritional deficiencies of man. In India fresh water bodies occupies an area of 1.37 million hectares in which more than 2, 44,000 hectares are under

fish cultivation. In Goa, Canacona is one of the richest aquatic resources that include marine as well as fresh water bodies comprising Galgibaga River, Talpona River, Canacona River, Tarir River, Loleim River etc. Further there is a great scope for developing fisheries in this region. Estuaries receive fresh water discharges during the south west monsoon months of July to October, where water volume discharged are so great that all estuaries will become fresh water dominant during post – monsoon months of November – February, owing to the banking of the fresh water in the flood tide over the ebb tide is maximum and the estuaries become more or less gradient dominant exhibiting fluctuations in salinities.

Pawar et al (2007) recorded 26 speceis of fish from Pethwadadas dam taluka Kandhar in Nanded district Maharashtra. Lohar P.S. and S.K.Borse (2003) noted presence OF 24 fish species belonging to 16 genera and 7 families, Dutta ,S.P.S and F.A.Fayaz (2003) reported 20 species of fish from 14 genera and 4 families.

Varieties of fishes are caught in the river Galgibaga which includes 25 species belonging to 17 families under 7 orders. During rainy season most of the fishes of Galgibaga migrate from sea to river. *Trypaunchen vagina*, *Sciaena coiter*, *Stromateus cinereus*, *caranx carangus*, *Tonki* are found in the months of june , july. All these are marine fishes and often enter the estuaries during rainy season. *Stromateus cinereus* is an excellent table fish, much relished and highly priced.(Day,1958).Fishes like *Etroplus suratensis*, *Pristipoma furcatum* are found in less abundance during post – monsoon, one of the reason may be their less breeding capacity where as *Mugil parsia* , *Mugil kelaartii*, *Cyprinodon dispar*, *Therapon jarbua* are found throughout the year and in greater number since their breeding capacity is high. Compare to *Barbus arulius*, *Barbus chrysopterus*, *Macrones Sps*, *Sillago sihama*. *Mugil parsia*, *mugil kelaartii* have marketing price.

Macronis Sps. nutritive value is comparable to some of the quality fishes but due to their odd appearance, scalelessness of the body, lacking in good flavor the catfish find acceptance mostly among the low income group. *Tetrodon leopardus*, *Scorpaenopsis oxycephala* are found in the month of November – December, whereas *Gobius sps*, *Platycephalus scaber* are found during July – August. The fluctuations in the availability of fishes are due to various physic- chemical factors of the river body. Water color of this river was clear (colourless) throughout the year except monsoon i.e., in the month of July& August influencing the transparency and turbidity of river water. The taste of the river water was a bit salty, water temperature ranged from 27⁰ C to 29⁰C which is favorable to different types of aquatic organisms including fishes to survive and also to spawn. Neutral pH, Alkalinity (235-360 mg/l) and dissolved oxygen concentrations (4.00 – 6.6 mg/l.) of Galgibaga River are very good for fish habitat. During the study period the Calcium and Magnesium observed is 28.93 mg/l to 44.88 mg/l and 32.96 mg/l and 163.91 mg/l respectively. The water hardness is due to the presence of multivalent metal ions which come from minerals dissolved in the water during the study period ranged between 122mg/l – 180mg/l which was favorable for organisms hence Galgibaga River can be a major site for fishing industry.

Table 1. Physico chemical parameters during the Study period in Galgibaga River, Canacona, Goa.

Parameters	General permissible level (WHO standards)	Rainy season	Winter season	Summer season
Temperature in ⁰ C	20-28	27.0	26.1.	29.0
pH	7 – 8.5	6.8	7.2	7.3
Dissolved oxygen(mg/l)	6.8-7.5	4.00	4.6	6.6
Total hardness (mg/l)	100-500	122	168	180
Total Alkalinity(mg/l)	30-500	235 .00	355.00	360.00
Calcium(mg/l)	75-200	28.93	34.46	44.88
Magnesium (mg/l)	30-150	32.96	54.06	163.51

Table 2. Ichthyofauna of River Galgibaga, Canacona, Goa.

Scientific Name	July	Aug ust	Septe mber	Octobe r	Nove mber	Decem ber	Janu ary	Februa ry	March	April	May	June
<i>Cyprinodon dispar</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Platycephalus scaber</i>	+++	***	***	***	xxx	xxx	xxx	---	---	---	---	+++
<i>Caranx carangus</i>	***	xxx	xxx	xxx	***	***	***	+++	+++	+++	***	***
<i>Barbus chrysopterus</i>	+++	***	***	***	+++	+++	+++	+++	+++	+++	***	***
<i>Barbus arulius</i>	***	***	+++	+++	+++	+++	+++	+++	+++	+++	***	***
<i>Chatoessus chacunda</i>	+++	***	***	***	****	***	***	+++	+++	---	---	---
<i>Etroplus suratensis</i>	+++	***	xxx	xxx	xxx	xxx	xxx	***	***	xxx	xxx	xxx

<i>Tetradon leopardus</i>	+++	+++	***	***	***	XXX	XXX	XXX	XXX	***	***	***
<i>Trypaunchen vagina</i>	+++	+++	***	***	***	***	XXX	XXX	XXX	***	+++	+++
<i>Gobius sps.</i>	***	XXX	XXX	***	***	***	***	***	XXX	XXX	XXX	XXX
<i>Gobius giurinus</i>	***	XXX	***	***	***	***	***	XXX	XXX	***	***	***
<i>Mugil parsia</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Mugil kelaartii</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Therapon jarbua</i>	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++	+++
<i>Ambassis commersonii</i>	+++	+++	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	***	***
<i>Gerres filamentous</i>	+++	+++	+++	***	***	***	+++	+++	+++	+++	***	***
<i>Pristipoma furcatum</i>	***	***	***	***	***	***	XXX	XXX	XXX	XXX	XXX	XXX
<i>Pseudorhombus arsius</i>	+++	+++	+++	***	***	***	***	***	***	***	***	+++
<i>Macronis sps</i>	+++	+++	+++	+++	+++	+++	***	***	***	***	***	***
<i>Sciaena coitor</i>	+++	+++	***	***	***	***	***	***	***	+++	+++	+++
<i>Stromateus cinereus</i>	+++	***	***	***	***	***	***	***	+++	+++	+++	+++
<i>Scatophagus argus</i>	+++	+++	+++	***	***	***	XXX	XXX	XXX	XXX	XXX	***
<i>Scorpaena hapledactylus</i>	---	---	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	---
<i>Scopaenopsis oxycephala</i>	---	---	---	---	---	---	---	XXX	XXX	XXX	---	---
<i>Sillago sihama</i>	XXX	XXX	XXX	***	***	***	***	***	***	---	---	---

Index: More - +++, Moderate : ***, Less :XXX, Absent : ---

V. CONCLUSION

From the present study it is evident that river Galgibaga is rich in fish diversity, however, various anthropogenic factors due to increased tourism related activities such as water sports, wind surfing, waste discharges from adjacent areas causing great disturbance in the river ecology resulting potential threat to the fish diversity

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