



## Fish Diversity in Krishna River Basin Almatti, Basavana Bagewadi Taluk, Karnataka

Prof. R. G. Vastrad<sup>1</sup>, Prof. K. G. Hiremath<sup>2</sup>

<sup>1,2</sup>Associate Professor, Department of Zoology, Mgv College, Muddebihal, Dist: Vijayapur Karnataka, India.

Emails: Rgv1465@gmail.com<sup>1</sup>, krvastrad@gmail.com<sup>2</sup>

### Abstract

From September 2023 to January 2024, the fish fauna of the Krishna River in Karnataka was examined in relation to physicochemical parameters. Agriculture and fisheries both use the river's water. Gillnets with multiple mesh sizes and standardised dimensions were utilised to collect different species of fish. There were 14 fish species identified, representing 3 orders and 4 families. Of the fish families, the Cyprinidae has eleven species, while the Channidae, Ambassidae, and Claridae have one species each. The family Cyprinidae contributed the most species. The pond's greater trophic status, which is explained by human pressure, is indicated by the limnological parameters.

**Keywords:** Fishfauna, Water Quality & Krishna River Basin

### 1. Introduction

Fishes are incredibly diverse in terms of their biology, morphology, and habitat (Harmer, 1999). All levels of biological organisation can be evaluated ecologically using fish; methods for doing so are available for ecosystems, populations, individuals, organs, cells, and molecules (Harris, 1995). In addition to these advantages, fish are regarded as an essential, high-protein food source in the aquatic environment (Sukla and Upadhyay, 2000; Shah Nawaz Ahmad et al., 2011). Worldwide, there are roughly 450 families of freshwater fish. India is home to about 40 of these warm freshwater species. There are species of commercial importance in about 25 of these families. There are roughly 544 endemic species in warm water. Freshwater fishes are a poorly researched group since the majority of the material that is available comes from a small number of well-studied locales, and knowledge about distribution, population dynamics, and hazards is lacking (Zooreach organisation 2010; Sabuj Kumar Chaudhuri 2010). Thus, in order to strengthen our country's economy on a scientific foundation, it is necessary to study fish diversity. In light of this, the current investigation has been conducted. [1-4]

#### 1.1. Materials and Methods

**Study Area:** Some important features of the Krishna River Basin are given in Table 1

1. The River has a maximum depth of 50 ft.
2. This water body is located in Basavana Bagewadi Taluk, in Vijayapur district of Karnataka state.
3. This River is under the control of KBJNL, UK Project.
4. This water body is seasonal and receives water from rain water and surrounding areas.
5. The water is used for agriculture and fish culture.

**Table 1 Important Features of Krishna River Basin, Almatti, Karnataka Location Basavana Bagewadi Taluk, Karnataka**

|                 |   |
|-----------------|---|
| Location        | Almatti, Basavana Bagewadi Taluk, Karnataka |
| Max, Depth      | 50ft  |
| Min, Depth      | 03ft  |
| Source of Water | Rain Water, Surface Run off                 |
| Utilization     | Fisheries, Agriculture, Power Production    |

With the assistance of neighbourhood fishermen, the fish were gathered between September 2023 and January 2024. For taxonomic analysis, the fish were kept in a 10% formaldehyde solution. Fish

identification was done with the use of conventional literature (Talwar and Jhingran, 1991; Jayaram, 1999). Water samples were taken between the hours of eight and ten in the morning, and they were then sent right away to the lab for additional examination. A mercury thermometer was used to test the water's temperature on-site, and a pH meter was used to assess the acidity. Trivedy and Goel (1986) and APHA (1998) recommended techniques for

laboratory analysis of the remaining parameters were followed. [6–10]

## 2. Results and Discussion

A total of 14 fish fauna represented by 11 genera, 4 families of 3 orders were recorded in Krishna River Basin. Among fish families Cyprinidae consists of 11 species and Channidae, Ambassidae, Clarridae with 01 species each.

**Table 2 Fish Diversity in Krishna River Basin, Almatti, Basavana Bagewadi Taluk, Karnataka**

| Sl. No   | Species   | Population Status | Biodiversity Status (IUCN, 1994) |
|----------|---|-------------------|----------------------------------|
| <b>A</b> | <b>Order: Cypriniformes      Family: Cyprinidae</b> |                   |                                  |
| 1        | Catla Catla   | Common            | VU                               |
| 2        | Cirrhinus Mrigala                                   | Fairly Common     | LR-nt                            |
| 3        | Cyprinus Carpio                                     | Common            | LR-Ic                            |
| 4        | Labeo Rohila  | Common            | LR-nt                            |
| 5        | Labeo Fambriatus                                    | Fairly Common     | NA                               |
| 6        | Labeo Calbasu                                       | Fairly Common     | LR-nt                            |
| 7        | Puntius sp  | Rare              | LR-nt                            |
| 8        | Salmostoma untrahi                                  | Common            | NA                               |
| 9        | Cirrhinus falungee                                  | Common            | LR-nt                            |
| 10       | Ctenopharyngodon idella                             | Fairly Common     | NA                               |
| 11       | Hypophthalmichthys molitrix                         | Common            | NA                               |
| <b>B</b> | <b>Order: Perciformes      Family: Channidae</b>    |                   |                                  |
| 12       | Channa Punctatus                                    | Fairly Common     | VU                               |
| <b>C</b> | <b>Order: Perciformes      Family: Ambassidae</b>   |                   |                                  |
| 13       | Ambassis Kopsii                                     | Common            | NA                               |
| <b>D</b> | <b>Order: Siluriformes      Family: Clarridae</b>   |                   |                                  |
| 14       | Clarias Batrachus                                   | Rare              | VU                               |

The family Cyprinidae contributed the most species. Two introduced species include Ctenopharyngodon idellus (Valenciennes) and Cyprinus carpio (Linnaeus). Table 2 provides a fish checklist, and Table 3 shows the fish abundance. The river water's pH was alkaline, ranging from 7.4 to 7.8. The temperature of the water varied between 24 and 35°C, with a total hardness of more than 50 mg/l. The river water falls into the soft category. The range of free carbon dioxide was 10–18 mg/l. The range of dissolved oxygen content was 4.03–5.61 mg/l. The nature of the tank is mesotrophic, according to water quality indicators. All of the fish species that have been identified thus far are highly significant

commercially and economically. In Govindsagar Reservoir in Himachal Pradesh, Kumar (1990) recorded 51 fish species belonging to 9 families, nearly all of which were important for commercial fishing. The majority of fish species that have been documented are predatory by nature, according to the current fish study. The bulk of the reservoirs in the state of Karnataka are home to a high population of predatory fish species, as noted by Sukumaran and Das (2005). In their 2011 study, Shahnawaz Ahmad et al. examined the fish variety in Shimoga's Sogane and Santhekadur tanks, finding roughly 17 different species represented by 4 orders, 11 families, and 14 genera. In both tanks, the family Cyprinidae had a



dominant position over the other fish groups. According to the IUCN (1994) assessment of biodiversity, of the 14 species, 5 are classified as lower risk—near threatened (35.71%), 3 are vulnerable (21.44%), 1 is classified as lower risk—least concern (7.14%), and the remaining 5 (35.71%) are classified as not assessed. The majority of the fish species found in the Krishna River Basin were found to be widely distributed in the lotic habitats of the Western Ghats, according to the current study on fish fauna in the area. Fishes of the cyprinid family dominated this body of water. Fishing operations are conducted all year round, with the wet season producing lower catches than the winter and summer seasons. The development of scientific fishing standards and quotas will be crucial to the preservation of the river and its biodiversity. Fishermen should learn the right techniques of fishing, and the fish farming community should have access to adequate training facilities. Fishing of fry, immature, and spawn should be avoided. Large-scale provision of subsidy financing facilities could contribute to high fish production yields. Therefore, in order to accomplish the objectives of sustainable fishery development and leave the resources in good condition for future generations, each and every individual must take an active role in them. As a result, the current study demonstrated that cyprinid fishes are the more dominant group compared to other fish species, a finding that is corroborated by Singh et al (2006).

#### Conclusion

The present study showed the record of 14 freshwater fish species from Krishna River Basin of Karnataka. This investigation indicates that this water body has low fish diversity due to human activities and surface run off, which needs to formulate sustainable strategies to explore and save fish species. Hence, it is suggested to regularly monitor this River in order to conserve fish fauna. Table 2 shows Fish Diversity in Krishna River Basin, Almatti, Basavana Bagewadi Taluk, Karnataka. [11-14]

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