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Fish Diversity in Budki Medium Irrigation Tank, Shirpur, District Dhule, Maharashtra, India

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ABSTRACT

The current study was conducted on aquatic vertebrate animals with a focus on fishes found in Budki Medium Irrigation tank (aam) in Dhule district, Maharashtra, from January 2009 to December 2010. The dam is primarily used for irrigation, drinking water, domestic purposes, and fishing. During the investigation, 21 different types of fish were discovered.

Keywords: Budki M.I. Tank, *Labeo rohita*, *Catla catla*, *Cirrhinus mrigala*, *Wallago attu*, *Puntius ticto*.

INTRODUCTION

Fish are cold blooded vertebrates (backboned) animals. They spend their entire lives in water and breathe through their gills. They consist of approximately 30,000 to 40,000 species that differ greatly in shape, size, habits, and habitat. Fish have been known to exist in India since three millennia B.C., according to Hora. Fish remains with cut marks, indicating their use as sustenance, were discovered during excavations at Mohenjodero and Harappa during the ancient development, which continued from 2500 to 1500 B.C., according to Nath. While Aristatls (384-327 B.C.) is credited with founding Ichthyology, King Somesara, the son of King Vikramadity VI, was the first to chronicle the common sport fish of India in the book Manasoltare, which was published in 1127 A.D. *Chondrichthyes* and *Osteichthyes* are two different types of fish found in India. *Chondrichthyes* contains 131 species in the Indian subcontinent, divided into 67 genera, 28 families, and 10 orders, while *Osteichthyes* has 2,415 species in the Indian subcontinent, divided into 902 genera, 226 families, and 30 orders. The average annual landings of Indian *Chondrichthyes* are 33,442 tonnes, with 15,537 tonnes coming from the east coast, 17,605 tonnes from the west coast, and the rest from the Andaman and Nicobar Islands and the Lakshadweep Islands [1].

In Maharashtra freshwater fish fauna is divided into six orders and there are 160 species in 25 families. Fresh water contains 41.24% of all known fish species. Fish food contains proteins, fat, and vitamins A and D; it has a pleasant taste and is easily digestible [2].

According to Nelson, there are roughly 21,723 different types of fish in the globe, divided into 4,044 genera, 445 families, and 50 orders, compared to 21,450 tetrapods. They include 8,411 freshwater species and 11,650 marine water species. According to Mittermeier and Mittermeier, India is a megabiodiversity country, ranking ninth in terms of freshwater megabiodiversity. As per World Conservation Monitoring Centre (WCMC), the fish population in India accounts for 11.72% of the species, 23.96% of the genera, 57% of the families, and 80% of the world's fishes. The cold freshwater ecosystem accounts for 73 (3.32%) of the 2200 species already listed, 544 (24.73%) to the warm water environment, the salty waters ecology acquired 143 (6.50%) and the marine ecosystem obtained 1440 (65.45%). This region's remarkable diversity can be attributed to a number of factors, including the geomorphology and tectonics of the area. The area's hills

and undulating valleys produce a huge number of torrential hill streams that flow into enormous rivers and finally join the Ganga Brahmaputra Barak Chindwin Kolodyne Gomati Meghna system [3].

MATERIALS AND METHODS

Study area

The Budki Dam is a medium sized irrigation tank located near village Budki, Taluka-Shirpur, Maharashtra, at the confluence of the Ambad and Sossniyanallahs. It is about 1 km north of village Budki Taluka-Shirpur, Maharashtra. It was built in 1977 and is located at 21°-32'36 latitude and 74°-51'41 longitude. The project's catchment area is 38.85 square kilometres. The water in the M.I. tank is used for irrigation, drinking, and aquaculture, and it is perennial. Tender owners breed a vast number of big and small carps. The current investigation was carried out in order to create a checklist of fishes from Budki M.I. Tank. During the current study, fish fauna and relative species from the Budki M.I. Tank were chosen for sampling. The fish were taken from the Budki dam with the help of local fisherman, as well as from the local fish market, between 2009 and 2010. The fish were preserved in a 10% formaldehyde solution for taxonomic examination. Fish identification and economic relevance were done with the help of established literature [4].

Catchment area: The available yield per square mile is 6.943 Mcft when average catchment is used. According to Strange's table, the gross yield at the proposed location is $15+6.943=104.14$ Mcft (2.948 M.cum) because a postman soon flow of 0.45 cuses was observed at the dam site in March 1971, a 10% increase in p.m. yield was considered, and the total yield available was $=104.14+10.41=114.55$ Mcft [5].

The weather: The Budaki M.I. tank's ecological profile is based on the region's bioclimatic conditions. Because the region's climatic data is unavailable, the climate is determined using temperature and rainfall data from nearby stations such as Shirpur and Boradi. Budaki does not get frost or snow, but temperature and rainfall are the most important aspects of its climate [6].

The physical environment: It is administratively part of Maharashtra's Dhule district's Shirpur Tahsil. The area is covered by the deccan trap basalt rock formation geologically. It is distinguished by the influence of temperature and rainfall on soil properties [7] (Figures 1 and 2).



Figure 1. Google satellite image of Budki medium irrigation tank (21032'36N 74051'41E)



Figure 2. Budki M. I. tank panoramic view











RESULTS AND DISCUSSION

Fish diversity is mainly governed by biotic and abiotic factors such as ecosystem type, age of the water body, mean depth, water level fluctuations, morphometric features, and bottom characteristics. The hydro biological characteristics of the collection points, to a greater extent, also play an important role in fisheries output. Various fish species were recorded during the two year investigation of Budki dam. The findings revealed that the dam had a high diversity of fish. During the study period, the fish fauna included 23 species from 17 genera, 6 families, and 5 orders (Annexure). The order *cypriniformes* dominated with 13 species, followed by the order *Siluriformes* with 3 species, order Bagridae with one species, the order *Perciformes* with 3 species and the order *mastacembaliformes* with two species. The current findings are comparable to those of Shinde, et al., who studied the ichthyofauna of the HarsoolSavangi dam in Aurangabad, Maharashtra, India. There were 15 species in total, divided into 12 genera, 3 orders, and 4 families. With 11 species, the order *cypriniformes* was the most numerous, followed by *perciformes* with three species and *Siluriformes* with only one species. The current findings are similar to those of Simimole Sebastian, who studied the ichthyofauna of Idukki reservoir in Kerala, India [8].

During the study period, the family *cyprinidae* dominated (43.36%), followed by *Siluridae* (20.05%), and *Mastacembelidae* (6 orders) (4.88%). Other researchers, including Wakid and Biswas, Venkateshwarulu, et al., Kantaraj GS, et al., and Kadam, et al., Pawara and Patel identified 25 fish species from three orders, five families, and thirteen genera. Family *Cyprinidae* dominated the total fish species (60%), followed by family *Channidae* (12%), family *Balitoridae* (08%), family *Bagridae* (08%), and family *Cobitidae* (04%) [9].

The fish species were categorised by Lagler based on their economic relevance. In the Jawalgaon reservoir in Solapur district, Sakhare identified 23 fish species belonging to seven orders. From the NathSagar dam in Pathan, Aurangabad district. Hiware and Pawar identified 43 different fish species. Murli Krishna and Piska discovered 31 different fish species in the secret lake, in a study from neighbouring Andhra Pradesh, Durgamcheruvu, Rangareddy district near Hyderabad. However, a similar pattern may be seen in Maharashtra's Budki dam [10].

The majority of fish species were also reported and widely distributed in the rivers Tapi and Aner in North Maharashtra, according to the current study of fish fauna in Budki dam. Fish groups such as *Cirrhinus*, *Labeo*, and *Puntius* were more dominant. Cyprinid fishes are discovered to be a more dominating group than others as a result of the current analysis, which is confirmed by Khedkar and Gyananath, who reported a total of 37 species, with the family *Cyprinidae* dominating with 20 species from the Issapur dam in Maharashtra. Battul, et al., discovered 18 species in Maharashtra's Ekruk reservoir, with *Cyprinidae* dominating with 8 species. In the state of Karnataka, other researchers such as Venkateshwarulu et al., and Kantaraj et al., obtained similar findings [11]. The fish species recorded from Budki dam include, *Cyprinus carpio*, *Oreochromis mossambica*, *Labeo rohita*, *Cirrhinusmrigala*, *Cirrhinus reba*, and *Catla catla*, which are considered economically important and cultivable. The recent investigation also discovered that the reservoir is home to ornamental fish such as *Puntius sophore* and *Puntius ticto*. Arya, et al., discovered breeding habitats for numerous species such as *Ompok bimaculatus*, *Labeo fimbriatus*, *Labeo calbasu*, and major carps in the Indra sagar reservoir stretch, which were likely to be destroyed owing to dam construction. The loss of these fishes' breeding sites would have a negative effect on their population in the reservoir (Figure 3) [12].

<p><i>Puntius ticto</i></p> 	<p><i>Puntius assimilis</i></p> 
<p><i>Puntius sophore</i></p> 	<p><i>Pseudambasis ranga</i></p> 
<p><i>Ompak bimaculatus</i></p> 	<p><i>Ompak pabda</i></p> 
<p><i>Mastacembalusa rmathus</i></p> 	<p><i>Cirrhinus mrigala</i></p> 
<p><i>Oriochromis mossambica</i></p> 	<p><i>Mystus seenghala</i></p> 

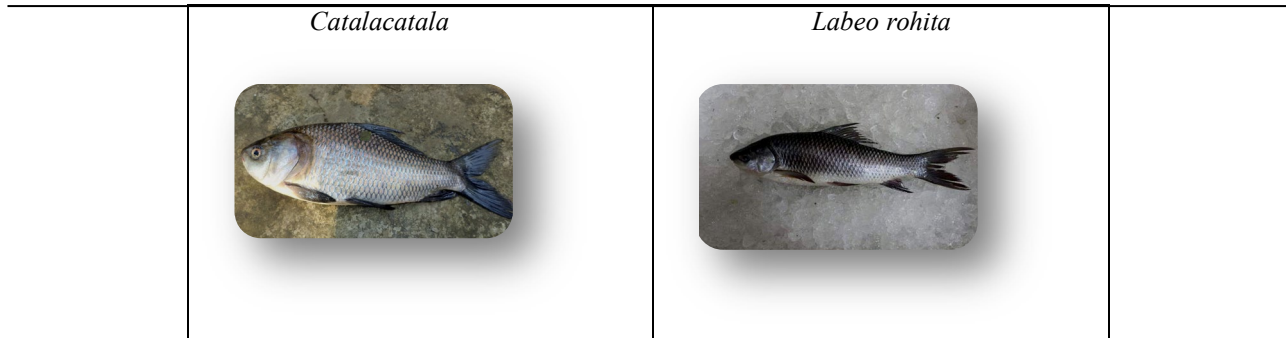


Figure 3. Different types of fishes from BudkiM.I.tank

CONCLUSION

The investigation has been concluded about future planning. For the better development of fish fauna from BudkiM.I.tank, Maharashtra, India. Present research work dealt with identification and fish diversity of study area. The main aim of this study was to assess the present status of knowledge of fish community and diversity of Budki dam.

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