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Indigenous Fishes of Odisha

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ABSTRACT

Odisha, situated in the coastal beds of India is blessed with a rich collection of diverse indigenous fishes. These fishes are well known local species which known to be of high nutrient content, contributing high-quality animal protein for human nutrition as they are the source of micronutrients like iron, iodine, zinc, calcium and also vitamin A, D and E. A large diversity of indigenous fishes is found in the freshwater bodies of Odisha. Some of the common native fish abundantly available in Odisha are belongs to genera *Labeo*, *Cirrhinus*, *Garra*, *Hypselobarbus*, *Catla*, *Clarius* and many more. The plenty abundance of indigenous fishes has been a boon to the rural households as it supports their livelihoods. Besides that the indigenous fishes have a major impact on the local fish market which as a whole also affects the fish productivity, thus contributing a major factor to a high economic growth rate of India's fish productivity. Keeping this in view, an attempt has been taken to gather a brief knowledge on local species from literature and survey in an urban areas of Bhubaneswar, Results revealed that about 15 species are very common in Bhubaneswar. It was also observed that now-a-days many indigenous species have become threatened and endangered due to several natural and human-made causes. Also, a very little emphasis is given on the conservation and management of indigenous species. It is essential to detect the strategies required for their conservation and proper utilization for the sustainable development of fish productivity. Also, the devotion to propose beneficial avenues for future research on indigenous fishes need to be implemented.

INTRODUCTION

Odisha is one of the coastal states of Indian sub-continent and is endowed with indigenous fishes of potential productivity and benefits. Indigenous fishes as per its name are known to be found in a particular region, thus well described as a native fish. A large number of diverse indigenous fish species are found in the freshwater systems of Odisha which includes rivers and its tributaries, flood plains, ponds, tanks, lakes, streams, wetlands, paddy fields and lowland areas. In total about 186 species of indigenous fishes belonging to 11 orders, 33 families, and 96 genera (**Figure 1**) were recorded to be found from various freshwater bodies of the state riverine system like Mahanadi, Baitarani, Rushikalya, and lake-like Anshupa (Mogalekar & Canciyal 2018**)**. The key genera found plentily and locally are *Labeo, Cirrhinus, Garra, Hypselobarbus, Catla, Clarius, Channa, Anabas* etc. (Plate 2). India is ranked 2nd in world inland fish production, next to china (Sundaray et al. 2017). Inland fish production has greatly improved and accelerated in the last few decades. Inland Aquaculture was about 36% of the total fish production in the 1980s and it has increased up to 65% in this decade, contributing more than half of total fish production. The increased growth rate is due to diversification and increase in productivity of inland fish production. It affects the local fish market greatly as nowadays people prefer native fish more than exotic fishes.

Indigenous fishes are a great source of nutrition for humans as it contains high quality of animal protein (SIFF 2010). In Odisha, it is avidly seen that fish and rice has been the staple food for the majority of rural households. In urban areas, people are more health-conscious and therefore, there is more demand for these indigenous fishes. They are a rich source of micronutrients such as copper, zinc, selenium, iodine, magnesium, iron, cobalt and chromium. Other than the micronutrients they are also rich in macro minerals like calcium and phosphorous. They also include vitamins A, D, E, K and water-soluble vitamin B complex. As indigenous fishes are known for their richness in micronutrients so they play a pivotal role in contributing to food and nutrient security. These fishes are also known to provide essential components for the human body, namely polyunsaturated fatty acids (PUFAs) and highly unsaturated fatty acids (HUFAs) which is essential in defence of ailments like cardiovascular diseases and osteoporosis. They are the only naturally available form of omega 3 fatty acids, essential for health. So there should be more focus given for

the cultivation of these indigenous fish species (SIFF 2010).

Rural population highly depend on indigenous species of fishes for nutrition in many parts of Odisha. But a very little attention has been paid on their role in aquaculture enhancement, nutrition, processing, biology, captive breeding, livelihood security and conservation needs. Keeping the importance and diversity of fish species in Odisha, an attempt has been made to gather information on indigenous fish species of Odisha through literature and survey in local markets of an urban area (Bhubaneswar) of Odisha.

Indigenous fishes are very crucial for livelihoods, nutrition and employment. It is seen that stock species are fished for between 30-65 days, while indigenous species are fished throughout the year (SIFF 2010). The livelihoods of fishers are very dependent on the availability of indigenous species in flood plain systems. Furthermore, it was seen that the fishers got better remuneration in the case of indigenous species, as compared to stock species i.e. profit to actual fishers is higher in case of native fish marketing. Use of chemicals for cleaning ponds greatly affects the biodiversity of indigenous species in inland water bodies. At the same time, they deprive the poor of their source of food and livelihood as locally available species performed for consumption, give way to exotic species that often cater to external and urban markets. The degradation of aquatic environments and loss of wetlands affect the indigenous species in various ways and, in turn, local communities (SIFF 2010).

Through survey (**Plate 1**), it was observed that about 15 common species are available in local markets of Bhubaneswar. They are locally known as Balango, Rupa patia, Gania, Kau etc (**Table 1**). Through survey authors noted the information from locals and found that the population of local fish species are declined in alarming rate. Therefore, it is important to prioritize these fishes for conservation and restoration and enhancement programmes. There is a need for research on indigenous fishes to study their importance on the maintenance of ecological, nutritional and socio-economic equilibrium concerning conservation. The current approach to conservation is lacking effectiveness. To achieve sustainable utilization of indigenous species, appropriate planning for conservation and management are of utmost importance. So an integrated system approach adopting in-situ and ex-situ measures are needed. Indigenous species contribute to the native aquatic biodiversity and therefore are key elements of the native ecosystem. Knowledge of indigenous species reveals crucial facts necessary to

the arrangement of ecosystem and habitats as well as to the identification of important genomes and genes (Sarkar et al. 2010). Henceforth, it is essential to detect the key drivers of aquatic diversity loss and to develop a sustainable management technique for both the biota and their habitat. Present paper highlights the importance of indigenous fish species of Odisha state and give base line data for further more survey work on diversity of local fish species.

REFERENCES

Mogalekar H & Canciyal J (2018). Freshwater fishes of Orissa, India. Journal of Fisheries. 6(1): 587-598.

Mohanty B, Behera B & Sharma A (2011). Nutritional Significance of Small Indigenous Fishes in Human Health. Central Inland Fisheries Research Institute, West Bengal: pp 1-87.

Sarkar and Lakra (2010). Small indigenous freshwater fish species of India: Significance, conservation and utilization. National Bureau of Fish Genetic Resources, Lucknow. 15(3): pp 34-35

SIFF (Small Indigenous Freshwater Fish Species: Their Role in Poverty Alleviation, Food Security and Conservation of Biodiversity) (2010). International Collective in Support of Fishworkers. Kolkata, West Bengal. pp 15-31.

Sundaray J, Ferosekhan S & Mohanta K (2017). Present Status and Future Strategy of Freshwater Aquaculture in India- An Institutional view. CIFA, Odisha: pp-1-10.

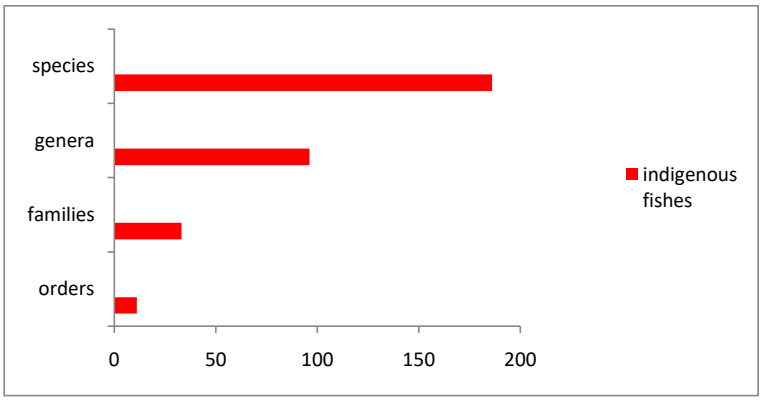

Figure 1: Diversity of fish species available in Odisha, India

Table 1: Some commercially important indigenous fishes of Odisha

Common name	Scientific name
Phali	*Notopterus notopterus*
Seba khainga	*Chanos chanos*
Balango	*Anodontostima chacunda*
Polei	*Gudusia chapra*
sRupa patia	*Sardinella leiogaster*
Kabla	*Sardinella fimbriata*
Gani	*Terapan jarbua*
Chauli	*Stolepherns commersonii*
Phasi	*Jhryssa setirostris*
Singhi	*Heteropneustes fossilis*
Tilapia	*Oreochromis mossambica*
Chandee	*Platax pinnatus*
Savala	*Lepturacanthus savala*
Kau	*Anabas testudineus*
Kala bainshi	*Labeo calbasu*

Plate 1: Survey for the collection of Indigenous fishes of Odisha

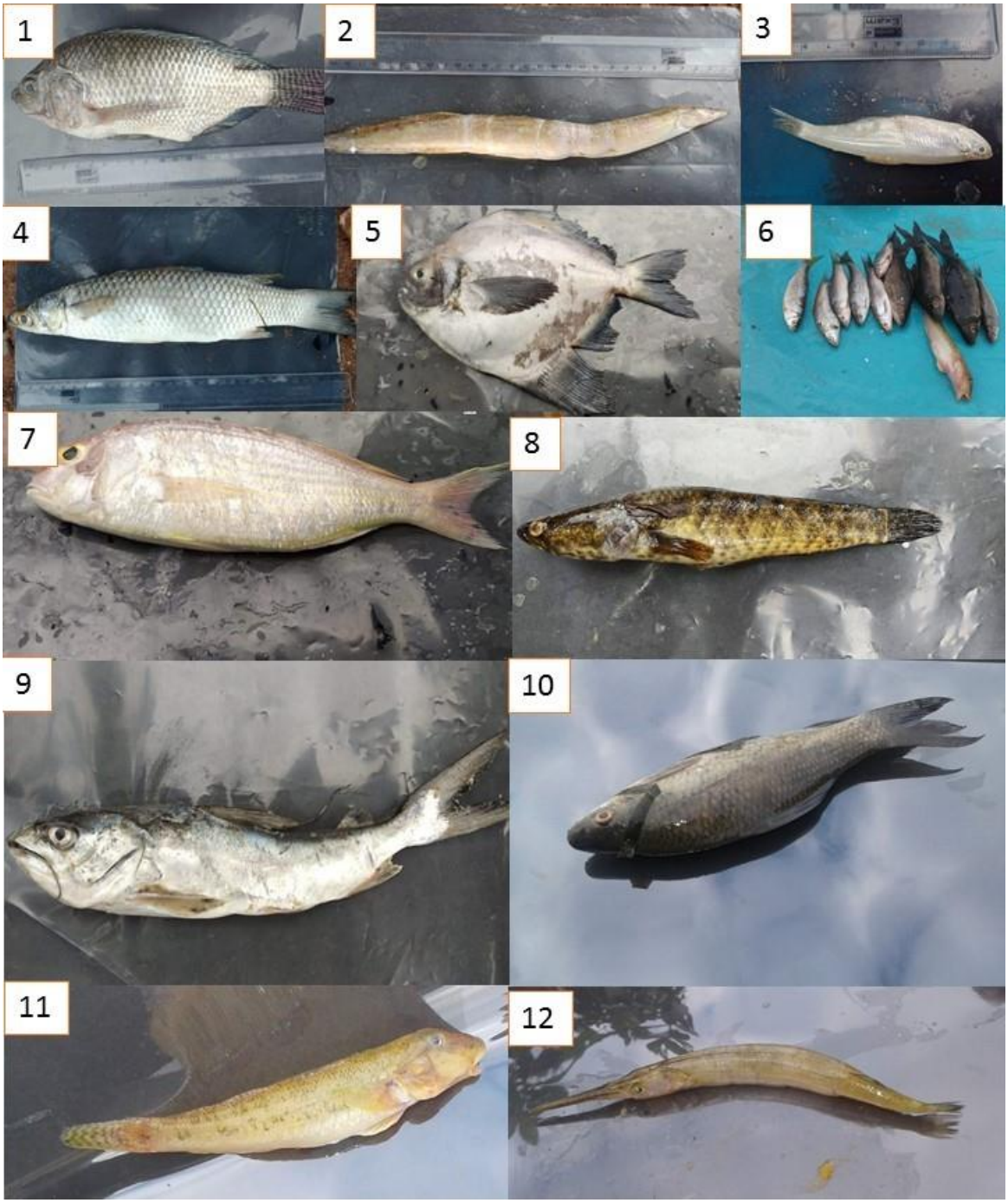

Plate 2: Some common indigenous fish species of Odisha, 1. Kau (*Anabas testudineus*), 2.Bampi todi (*Mastacembelus armatus*), 3.Mahural (*Ambylpharyngodon mola*), 4.Khainga (*Mugil cephalus*), 5.Chandee (*Platax pinnatus*), 6.Mixture of Kala bainshi, Bali garada and Pohala, 7.Borei (*Johnius carutta*), 8.Gadisha *(Channa punctatus*), 9.Kantia (*Mystus cavasius*), 10.Kala bainshi (*Labeo calbasu*), 11.Bali garada (*Glossogobius giuris*), 12.Gania (*Strongylura strongylura*).