

## Pengba: The Jewel of Manipur's Waters

Priyadharsan M S<sup>1</sup>, Abishek C<sup>2</sup>

<sup>1</sup>Department of Fisheries Extension, Fisheries College and research Institute, Thoothukudi-628008

<sup>2</sup>Department of Fisheries Biology and Resource Management, Fisheries College and research Institute, Thoothukudi- 628008

**DOI:10.5281/FishWorld.16537135**

### Abstract

Pengba, scientifically known as *Osteobrama belangeri*, is a culturally significant and ecologically important freshwater fish native to Manipur, India. This medium-sized carp, belonging to the family Cyprinidae, has traditionally been abundant in the region's rivers and lakes and holds immense value for the Meitei community. Renowned for its distinct taste, Pengba is both a culinary delicacy and a symbol of cultural identity in Northeast India. However, its population has been declining due to various environmental and anthropogenic pressures, prompting increased attention from conservationists, researchers, and policymakers. This article highlights Pengba's biological and cultural importance, emphasizing the need for sustainable management to preserve this jewel of Manipur's aquatic biodiversity.

**Keywords:** Pengba, *Osteobrama belangeri*, Cyprinidae, Manipur, freshwater fish, cultural identity, culinary delicacy, aquatic biodiversity, conservation, Meitei community.

### Introduction

In the rich aquatic tapestry of India, the Pengba fish stands out not only as a culinary delicacy but also as a symbol of cultural identity and biodiversity in the northeastern states, particularly Manipur. Known scientifically as *Osteobrama belangeri*, Pengba has long been cherished by the Meitei community and is a crucial species in the region's freshwater ecosystems. With its declining population, Pengba has garnered attention not only from conservationists but also from food enthusiasts, researchers, and policymakers alike. Pengba, scientifically known as *Osteobrama belangeri*, is more than just a fish in Manipur—it is a symbol of cultural pride, culinary delight, and ecological heritage. Once abundant in the rivers and lakes of Manipur, this medium-sized carp has become a rare delicacy, cherished for its taste and its deep-rooted significance in the traditions of Northeast India Mutum, D.,et.al (2023, July 4). *NACA*.

### Biological Profile of Pengba

#### Taxonomy and Habitat

**Scientific Name:** *Osteobrama belangeri*

**Family:** Cyprinidae

**Genus:** *Osteobrama*

**Species:** *O. belangeri*



Fig:1 *Osteobrama belangeri* (Pengba)

**Habitat:** Freshwater rivers and lakes, especially in the Chindwin-Irrawaddy River systems

**Distribution:** Primarily found in Northeast India (especially Manipur) and parts of Myanmar.

Pengba is a ray-finned, medium-sized freshwater fish. It is characterized by a silvery body, laterally compressed with a slightly arched back. Adults can reach up to 30 cm in length. Its streamlined form is adapted for swift movement in riverine environments Sahu, n.d. (2020)

### **Natural Habitat**

Pengba is native to the Chindwin-Irrawaddy River system, with its historical range covering Manipur (India), Myanmar, and parts of Yunnan in China. It thrives in rivers, lakes, and floodplain wetlands, preferring clear, well-oxygenated waters Mutum et al., (2023)

### **Reproduction and Lifecycle**

Pengba is a seasonal breeder, spawning during the monsoon months (June to September). The fish lays adhesive eggs on submerged vegetation. The juveniles grow rapidly and reach maturity in about a year under favorable conditions. However, anthropogenic activities have disrupted their breeding cycles, contributing to population decline.

### **Cultural and Economic Significance**

#### **State Fish of Manipur**

Declared the state fish of Manipur, Pengba holds a special place in the hearts of the Manipuri people. It is celebrated in festivals, rituals, and daily meals, symbolizing prosperity and abundance

#### **Culinary Delicacy**

Pengba is highly prized for its delicate flavor and tender flesh. Traditional dishes like Pengba Thongba (fish curry) are staples during special occasions and family gatherings. The fish is often cooked with local herbs and spices, reflecting the unique culinary heritage of Manipur

#### **Economic Impact**

Pengba is known to command a high market price, typically ranging from ₹400 to ₹800 per kilogram. During festive seasons, the price can soar up to ₹1,000 per kilogram. Owing to its rarity, Pengba is regarded as a luxury food item. This high value contributes significantly to the income of local fish farmers and vendors.

### **The Decline of Pengba in the Wild**

#### **Causes of Decline**

Despite its popularity, Pengba has declined sharply in its natural habitat due to several factors. The Ithai barrage and other hydro projects have blocked migratory routes, disrupting breeding. Pollution, siltation, and wetland encroachment have degraded habitats, while exotic species increase competition and predation. Overfishing driven by market demand has further reduced wild stocks Maisnam et al., (2017)

## Conservation Status

Pengba is currently listed as “Near Threatened” by the IUCN and is considered extinct in the wild in Manipur, with remnant populations surviving in Myanmar

## Conservation and Revival Efforts

### Ranching and Restocking

Organizations like ICAR-CIFRI have initiated ranching programs, releasing thousands of Pengba fingerlings into Loktak Lake and other water bodies to revive natural stocks and support conservation Das & Balkrishna (2022)

### Induced Breeding and Aquaculture

Advances in induced breeding techniques have enabled commercial-scale seed production of Pengba. This has allowed small and marginal farmers to rear the fish in captivity, contributing to both conservation and livelihoods Devi et al., (2009)

### Cage Culture Initiatives

Recent experiments in cage aquaculture have shown promise for enhancing Pengba production without disturbing existing aquatic ecosystems. This method allows for controlled rearing in lakes and reservoirs, potentially increasing supply and reducing pressure on wild populations Samom, (2025)

## Aquaculture Practices

### Traditional and Modern Methods

Most farmers use traditional methods, feeding Pengba with natural sources like rice bran, mustard oil cake, and local aquatic plants, with water sourced from nearby rivers. Some progressive farmers practice scientific carp culture by rearing Pengba alongside species like Catla and Rohu to boost yield and productivity Das et al., (2020)

## Challenges

Pengba farming faces several challenges that hinder its growth and sustainability.

One of the major issues is disease, with Epizootic Ulcerative Syndrome (EUS) being commonly reported. This disease causes significant losses to farmers.

Additionally, the limited availability of quality seeds and balanced feed restricts the potential for large-scale farming.

Market-related constraints also pose challenges. The high price of Pengba makes it unaffordable for many consumers, and instances of mislabeling by vendors can mislead buyers and affect consumer trust.

## Socio-Economic Impact

## Livelihoods

Pengba farming provides supplementary income for many rural families. While most farmers earn up to ₹50,000 annually from Pengba, the sector has potential for growth with improved practices and support.

## Women and Markets

Women play a significant role in selling Pengba at local markets, such as the famous Ima Market in Imphal, reinforcing the fish's importance in community life.

## The Future of Pengba

The expansion of aquaculture presents a promising future for Pengba. With the success of induced breeding and cage culture techniques, Pengba has the potential to become a staple species in composite fish farming across Northeast India and even in other regions.

Integrating conservation efforts with commercial farming practices can play a crucial role in ensuring the long-term survival of the species while simultaneously supporting local livelihoods and economies. Moreover, initiatives to restore Pengba populations are contributing to a cultural revival by bringing back traditional culinary practices and strengthening the cultural identity associated with this iconic fish.

## Conclusion

Pengba is more than a fish—it is a living symbol of Manipur's natural and cultural wealth. Its journey from abundance to near extinction and ongoing revival efforts tell a story of resilience, innovation, and hope. By embracing sustainable practices and honoring its heritage, Manipur can ensure that Pengba continues to thrive in its waters and on its tables for generations to come.

## Reference:

- Sahu, S. K. (n.d.2020). *Pengba, Osteobrama belangeri (Valenciennes, 1844): A prospective species for diversification of carp polyculture system and suggestions towards the adoption of scientific fish farming in Haldia, West Bengal*. International Research Journal of Basic and Applied Sciences, 54. ISSN: 2455-6718.
- Mutum, D., Meitei, M. M., Ngasotter, S., & Mahendrajit, A. (2023, July 4). *Pengba, Osteobrama belangeri – a candidate species for diversification in aquaculture*. Freshwater Finfish, Inland Aquaculture, India.
- Maisnam, M., Gupta, A., Lal, K. K., Singh, R. K., & Mohindra, V. (2017). Genetic divergence in natural and farm populations of Pengba fish, *Osteobrama belangeri* (Valenciennes, 1844), an endemic fish of North-East India derived from mtDNA ATPase 6/8 gene. *Mitochondrial DNA Part B*, 2(2), 658–661. <https://doi.org/10.1080/23802359.2017.1372700>
- Das, B. K., & Balkrishna, H. (2022, March 16). *ICAR-CIFRI carried out ranching of the endemic carp Osteobrama belangeri in Loktak lake of Manipur*. ICAR-Central Inland Fisheries Research Institute.
- Devi, G. A., Devi, G. S., Singh, O. B., Munilkumar, S., & Reddy, A. K. (2009). Induced spawning and hatching of *Osteobrama belangeri* (Valenciennes) using ovatide, an ovulating agent. *Asian*

*Fisheries Science*, 22, 1107–1113. <https://doi.org/10.33997/j.afs.2009.22.4.005>.

Samom, S. (2025, July 24). *Manipur's state fish introduced in cage culture to enhance production and conservation*.

Das, P. C., Sahoo, P. K., Kamble, S. P., Murmu, K., & Basudha, C. (2020). Compatibility of *Pengba*, *Osteobrama belangeri* (Valenciennes) with Indian major carps and evaluation of its ideal incorporation level in carp polyculture system in plains of India. *Aquaculture*, 518, 734845. <https://doi.org/10.1016/j.aquaculture.2019.734845>.