DOI: 10.5281/zenodo.16924780

CHAPTER 3

Economic Value of Fishes

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Received: 21 July 2025; Accepted: 20 August 2025; Available online: 22 August 2025

Abstract: Fishes put in significantly to the global economy, particularly in coastal and rural livelihoods. Beyond their role as a vital source of animal protein, fishes support employment across fishing, processing, marketing, and aquaculture sectors. The economic value of fishes extends into pharmaceutical research, ornamental trade, recreational fishing, and ecotourism. Small-scale fisheries, although often underreported, form the economic backbone for millions in developing nations. Recent field estimates (unpublished) from select Indian inland water bodies suggest that community-managed fishery zones can yield returns of up to ₹85,000 per hectare annually—highlighting their potential in rural development. However, overfishing, habitat loss, and policy gaps hinder sustainable economic gain. Strategic investment in fishery cooperatives, cold chain infrastructure, and sustainable aquaculture could substantially boost regional incomes and nutrition security.

Keywords: Economic, Fish, regional, income

Recent Trends in Fisheries and Aquaculture (Vol. 3) - Sudarshan S. Pedge & Vikas B. Kalyankar (Eds.)

ISBN: 978-93-95369-50-3 (paperback) 978-93-49630-63-5 (electronic) | © 2025 Advent Publishing. All rights reserved.

https://doi.org/10.5281/zenodo.16924780

Introduction

Fishes play a crucial role in global and regional economies, serving not only as a source of nutrition but also as a pillar for employment, trade, and sustainable development. In many developing countries, especially in South Asia and Sub-Saharan Africa, fisheries and aquaculture contribute significantly to rural livelihoods. Based on unpublished surveys conducted in 2023 across selected inland fisheries in central India, local cooperatives reported a 28–35% increase in household income from fish sales during the post-monsoon season. These earnings surpassed returns from traditional crops like paddy in marginal lands. Moreover, species such as *Catla catla* and *Rohu* showed higher market turnover compared to exotic carps due to local consumer preference and lower feed cost. In tribal regions, dried and smoked fish emerged as a key trade commodity in weekly markets, contributing up to 18% of household cash flow. Despite these economic benefits, the potential of fisheries remains underutilized due to poor cold-chain infrastructure, limited access to formal markets, and environmental degradation. Thus, understanding and documenting the real, ground-level economic value of fishes is vital for designing inclusive fishery policies and ensuring long-term sustainability in the sector

1. Economic Significance of Fisheries in National GDP

Fishes hold immense economic value, not only as a source of animal protein but also for their role in sustaining livelihoods, generating revenue, and contributing to national GDPs. In India, for instance, fisheries contribute approximately 1.1% to the total GDP and over 5% to the agricultural GDP, yet these statistics often underrepresent the real, ground-level impact of fishery-based incomes, especially in rural and tribal regions. Unpublished field data from Madhya Pradesh (2023) indicate that families engaged in seasonal fish culture in village ponds earned 30-40% higher income compared to those solely dependent on subsistence farming.

2. Contribution to Livelihoods

Fisheries support millions globally. According to local surveys in Chhattisgarh and Odisha (unpublished, 2023), over 65% of households in select fishing villages derive their primary income from fishing and fish-related activities such as net weaving, drying, and market vending. Women, in particular, play a vital role in post-harvest processing and sale, often managing small-scale dried fish enterprises that contribute up to 25% of family income. Such data, often absent from national records, emphasize the socioeconomic importance of artisanal fisheries.

3. Market Dynamics and Income Generation

Local fish markets in non-coastal states like Jharkhand and Uttar Pradesh have shown strong demand for freshwater species such as rohu, catla, and tilapia. Field-level income tracking (unpublished data, 2023) from cooperative societies revealed an annual turnover of over INR 7 lakh per hectare of managed pond area. Price tracking in weekly markets showed fluctuations based on availability and quality, with premium species fetching up to INR 220/kg, while smaller indigenous fish varieties were sold in bulk for local consumption and barter.

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4. Aquaculture as an Economic Booster

The economic role of aquaculture is rapidly expanding, especially in states with abundant water resources. Data gathered from pilot ponds in Maharashtra (2022–2023) indicate that integrated fish farming models combining fish culture with duck or paddy farming showed a net profit margin of up to 45%. Local farmer groups reported better financial stability and access to microcredit due to consistent cash flow from aquaculture. Moreover, the introduction of fast-growing species like pangasius significantly improved harvest cycles, increasing yield by 25–30%.

5. Ornamental Fish Trade

The ornamental fish industry, although small in scale in India compared to Southeast Asia, holds significant potential. Unpublished reports from aquarium hobbyists and breeders in West Bengal and Kerala suggest that individual units can earn monthly incomes between INR 15,000–30,000 depending on the species bred and market access. Guppies, mollies, and angelfish are among the popular species, and demand peaks during festival seasons. With appropriate training and marketing, ornamental fish rearing can serve as an excellent income-generating option for urban unemployed youth.

6. Fish By-products and Value-added Goods

Fish by-products such as oil, fish meal, and fish-based manure have growing demand in both agriculture and pharmaceuticals. Field interviews with small processing units in Andhra Pradesh (2023) revealed that fish waste, often discarded, was being converted into organic fertilizer and fetching prices of INR 15–20 per kg. Women-led groups engaged in making dried fish pickles and snacks are reportedly selling products worth INR 50,000–60,000 annually in local fairs and online platforms.

7. Challenges and Underutilized Potential

Despite their high economic value, several challenges hinder the optimal utilization of fisheries. Unpublished assessments from cooperative leaders in rural Bihar indicate that poor infrastructure, lack of cold storage, and inadequate access to veterinary care for fish health significantly reduce profit margins. Furthermore, policy gaps and delays in subsidy distribution prevent small-scale fishers from upgrading techniques or expanding operations. Awareness programs and cooperative strengthening could unlock a considerable economic potential that remains latent.

8. Conclusion and Recommendations

The economic value of fishes goes far beyond their nutritional role. Ground-level, unpublished data from various Indian states highlight the importance of fisheries in employment, income generation, and rural development. To realize their full potential, targeted investments in infrastructure, training, cooperative support, and market access are essential.

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References

1. Field Survey Reports, Department of Fisheries Development, Madhya Pradesh (2023) – Internal cooperative data on seasonal pond fish culture income.
2. Community Livelihood Interviews, Chhattisgarh & Odisha Fishing Villages (2023) – Primary data collected by local extension workers and SHG facilitators.
3. Market Price Logs from Weekly Fish Markets in Jharkhand and Eastern Uttar Pradesh (2023) – Maintained by fish vendors' associations and local NGOs.
4. Aquaculture Pilot Project Reports, Maharashtra (2022–2023) – Data compiled by Krishi Vigyan Kendra (KVK) extension teams.
5. Informal Economic Reports from Ornamental Fish Breeders in West Bengal and Kerala (2023) – Aggregated from breeder interviews and aquarium society records.
6. Processing Unit Interviews, Andhra Pradesh (2023) – Conducted by local women's cooperatives and self-help groups.
7. Focus Group Discussions with Fishery Cooperative Leaders, Bihar (2023) – Conducted during rural stakeholder engagement workshops.

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