

“Murrel: India’s Next Aquaculture Superstar — Why Farmers Are Switching Fast”

Venkatesan N

Legacy biogreen technologies Vatluru, Eluru, Andhra Pradesh.

Email: venkateshaqua04@gmail.com

Introduction

Murrel (*Channa striatus*), a native freshwater carnivorous fish widely distributed across India and Southeast Asia, has rapidly emerged as a high-value candidate species for freshwater aquaculture. Traditionally harvested from wild sources, murrel has long been regarded as a premium table fish due to its firm flesh, rich taste, and widely acknowledged medicinal properties. Over the past decade, however, murrel has transitioned from a niche species to a mainstream aquaculture commodity. Farmers across Tamil Nadu, Andhra Pradesh, Telangana, and Kerala are adopting murrel as an alternative or complementary species to carp, driven by price stability, strong market demand, biological resilience, and recent technological breakthroughs in seed production and feed formulation.

The rise of murrel is aligned with India’s broader push for species diversification, a key component of sustainable aquaculture development. As climate variability, disease challenges, and market saturation increasingly affect monoculture systems, species like murrel offer resilience, profitability, and biological adaptability. Its ability to thrive in low-oxygen waters, withstand handling stress, and grow in diverse culture systems positions it at the center of India’s next phase of aquaculture expansion.

The Economic Advantage: Why Markets Favor Murrel

One of the strongest drivers behind murrel’s surge in popularity is its exceptional and consistent market value. Unlike carp species, whose prices fluctuate depending on seasonal supply and festival demand, murrel

enjoys year-round premium pricing. Retail prices commonly range from ₹450 to ₹700 per kilogram, with live murrel or large-sized fish fetching even higher rates in urban markets and specialty restaurants. Murrel’s high consumer preference is rooted in cultural, culinary, and medicinal beliefs. In South India, murrel is perceived as



Figure 1: Image of Murrel

a “strengthening” fish, often recommended in post-operative diets due to the presence of bioactive peptides linked to wound healing and tissue regeneration. This contributes to sustained demand across both rural and urban populations.

From an economic standpoint, farmers report 2–3 times higher net profit margins from murrel compared to carp, even in small production systems. The species’ shorter culture cycle (6–8 months to market size), lower disease incidence, and high survival rates collectively enhance profitability. Live trade networks, especially in Tamil Nadu and Andhra Pradesh, further ensure strong farm-gate connectivity and rapid cash flow for farmers.

Biological Strengths and Climate Resilience

Murrel’s physiological traits make it uniquely suited to

India's climatic and water-resource conditions. As an air-breathing fish, murrel possesses suprabranchial organs that allow it to survive and grow in oxygen-depleted environments where other freshwater species struggle. This adaptation enables murrel culture in:

- Seasonal ponds
- Irrigation tanks
- Low-water or neglected ponds
- Rural farm reservoirs
- Biofloc and zero-exchange systems

This climate resilience is particularly valuable as India experiences irregular rainfall patterns and increasing incidences of water stress. Murrel's tolerance to suboptimal water quality, handling, and crowding makes it suitable for small and marginal farmers who rely on limited water resources. Figure 1 and 2 shows the Murrel and its grading used in farming. Murrel also demonstrates strong disease resistance. While susceptible to certain ectoparasites and bacterial infections, properly managed murrel ponds report survival rates above 85%, significantly higher than carp systems. Its carnivorous nature and aggressive feeding behaviour support fast growth when provided with nutritionally adequate feed.

Technological Breakthroughs: Seed Production and Feed Innovation

Seed Production Advances

One of the historical bottlenecks in murrel aquaculture was the limited availability of quality seed. Earlier reliance on wild-caught fry led to inconsistent growth, poor survival, and irregular supply. However, research institutions and private hatcheries have significantly improved induced breeding and larval rearing technologies.

Key developments include:

- Hormone-induced spawning using Ovotide, HCG, and

improved broodstock management

- Larval rearing in FRP tanks with enriched live feed
- Transition protocols from live feed to formulated di-



Fig 2: Grading of Murrel

ets

- Standardized nursery stocking density and cannibalism control techniques

Today, hatcheries in Andhra Pradesh, Tamil Nadu, and West Bengal are capable of producing millions of fry per season, ensuring reliable supply for commercial farms.

Feed Innovations Driving Scalability

Feeding used to be another constraint due to murrel's carnivorous nature. Farmers traditionally depended on trash fish or live feed, which was costly, inconsistent, and unhygienic. Recent advancements have revolutionized murrel nutrition:

- Formulated floating and sinking pellets for all life stages
- Black Soldier Fly (BSF) larvae-based protein feeds, reducing dependence on fishmeal
- Seaweed-based immunostimulant feeds to improve disease resistance
- Carrageenan-coated slow-release pellets enhancing stability and reducing wastage
- Probiotic and phytogenic feed additives improving

gut health and growth

As a result, murrel farming is becoming more standardized, scalable, and economically viable.

Social and Rural Impact: A Livelihood Transformer

Murrel's robust economics and low resource requirements are transforming rural livelihoods. Small farmers with 0.5–1 acre ponds find murrel ideal because of its low input cost and strong market linkages. Self-Help Groups (SHGs), particularly women-led coastal and inland groups, are adopting murrel as a reliable income-generating activity.

Youth entrepreneurs are entering the sector by establishing:

- Small-scale murrel hatcheries
- Live-fish transport units
- Value-added murrel processing businesses
- Integrated murrel-biofloc farms

The species' premium pricing ensures steady revenue, enabling financial stability for rural households. Furthermore, murrel aligns with the national objective of species diversification, reducing overdependence on carp and contributing to ecological balance by minimizing pressure on wild fish stocks.

Challenges and the Road Ahead

Despite strong prospects, murrel aquaculture faces a few constraints:

- Variation in seed quality across unregulated hatcheries
- Cannibalism during early nursery stages
- Limited farmer training on feeding and water quality
- Lack of standardized disease surveillance programs

However, current innovations are rapidly addressing these issues. With proper extension services, scientific support, and feed standardization, murrel has the potential to scale nationwide. As government policies promote diversification, murrel is prepared to lead In-

dia's next Blue Transformation phase.

Conclusion

Murrel has evolved from a traditional wild delicacy to a modern aquaculture success story. Its premium market value, strong biological resilience, rapid growth cycle, and suitability for small-scale farming make it one of India's most commercially promising freshwater species. With technological breakthroughs in hatchery, feed, and production systems, murrel is set to take center stage in India's freshwater aquaculture landscape. As climate uncertainty and market pressures reshape fisheries, murrel stands out as a reliable, profitable, and sustainable choice truly India's next aquaculture superstar.

References

1. Haniffa, M. A., et al. (2004). "Induced Spawning of Striped Murrel (*Channa striatus*).¹" Indian Journal of Fisheries.
2. Marimuthu, K., & Haniffa, M. (2007). "Larval Rearing Techniques for Murrel." Asian Fisheries Science.
3. NBFGR (2020). Priority Fish Species for Aquaculture Diversification in India. ICAR-NBFGR, Lucknow.
4. Kumar, D., & Gupta, S. (2019). "Advances in Murrel Feed Formulation." Journal of Aquaculture Research & Development.
5. Department of Fisheries, Govt. of India (2022). Handbook on Freshwater Aquaculture Diversification.
6. Vijayakumar, R., et al. (2021). "Nutritional Evaluation of BSF Meal for Carnivorous Freshwater Fish." Aquaculture International.
7. Pandian, T. J. (2011). Fish Reproductive Biology: Murrel Species. CRC Press.
8. Gupta, S. K. & Rathore, V. (2019). "Market Trends and Economics of Murrel Farming." Fishery Technology.
9. FAO (2023). Freshwater Fish Production Outlook in South Asia.