

A SUSTAINABLE AND PROFITABLE BRACKISHWATER FINFISH FARMING MODEL FOR MILKFISH, *CHANOS CHANOS*

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Introduction – the need for species diversification

Brackishwater aquaculture sector in India, has for several decades been dominated by a single species or multiple species of shrimps. Though several options for farming finfish varieties had been made available, farmers preferred to culture shrimp for its ease in culture, marketing and profitability. With increasing global competition in seafood production and supply, causing unstable markets and unpredictable prices, as well as new and emerging diseases causing widespread production issues in the sector, it is only imperative that, for its long term sustenance, the sector seriously consider species diversification and adopt innovative practices and technologies to farm multiple brackishwater species along the Indian coastal areas.

Milkfish – *Chanos chanos*

Milkfish (*Chanos chanos*) is an important candidate species suitable for brackishwater aquaculture. Being

herbivorous in nature, Milkfish grow rapidly in natural water bodies, feeding on benthic algae, lab-lab, phytoplankton and detritus matter. It can also tolerate wide variations in salinity. West Bengal vested with enormous resources of brackishwater to the tune of over 2.1 lakh ha, provides tremendous opportunities for undertaking milkfish farming in bheries and other coastal water bodies. Milkfish has tiny bones and appearance resembling to the prized fish Hilsa and therefore, can be considered as a 'Deccan Hilsa', and a cheaper alternative to the costly hilsa, affordable to the common consumers. In order to promote and popularize milkfish farming, ICAR-CIBA has developed and standardized seed production technology and achieved the first breakthrough in captive breeding for the species in June 2015. There was also a need to develop low input-based milkfish farming protocol which could be easily adopted by farmers. In this context, trials were undertaken with progressive farmers to test and develop economically viable milkfish farming models using hatchery produced seeds in an innovative approach.



Milkfish – *Chanos chanos*

The Innovation

Location of the farms:

1. Gosherchak Village, Baishata Post Office, P.S.- Joynagar, South 24 Parganas, West Bengal located in Sundarban and

2. A.C Fish & Prawn Farm, P.O.- Khamargachhi, Hooghly - 712515, West Bengal

In the **first trial**, 30-day old milkfish fry produced at the CIBA hatchery were reared in net cages in ponds for a period of 30 days. Subsequently, the fingerlings (4-5 g) were stocked in a 1 ha brackishwater pond (0-10 ppt) with stocking density of 10000 nos./ha. Fish were fed with floating pellets @ 6% - 2% body weight. Fertilization was done fortnightly and white nylon nets (covering 15% of pond surface area) were fixed vertically to facilitate the growth of periphyton. In a culture period of 6 months, an average body weight of 500g was achieved with survival of 75% at a productivity of around 3.5 tonnes/ha.



Milkfish of harvestable size

In the **second trial**, nursery reared milkfish fingerlings (4-5 g) were stocked in a 0.2 ha pond at stocking density of 1pc/m² (10000 nos./ ha). Feeding and fertilization were similar to the protocol adopted in the first trial. Here, a body weight of 300g was achieved in a culture period of 6 months, at a survival of 80% with a productivity of around 3.0 tonnes/ ha.



A haul of farmed milkfish

Findings from the trials

- As milkfish is herbivorous in nature, it could easily be farmed in a low-input based system, which can ideally be adopted by small and marginal farmers.
- Periphyton grown on the substrates in the pond reduces the overall feed requirement, thus lowering the production cost.
- Unutilized/ abandoned shrimp ponds could be used for milkfish farming.
- As the fish resembles hilsa, the delicacy of eastern India, it could be popularized as "Deccan hilsa".
- This fish is also suitable for low depth water body like bherry system.

Major issues

Although, milkfish is a native species in the eastern coast of India, it is not commonly available in the seafood markets due to minor fishery and therefore unknown to most fish consumers in several areas. A proper supply channel and a marketing strategy may be necessary to popularize farmed milkfish among consumers through institutional support.

Brief economics

In the first trial 1, the productivity was 3.5 metric tonnes/ha and the cost of production was Rs. 110/kg. A profit of Rs. 2.2 Lakhs was generated in a period of 6 months from the 1 ha pond, with a benefit-cost ratio (BCR) of 1.55 (Rs. 6.2 lakh returns/ Rs.4 lakh production cost). Fish were sold at a price of Rs.180-200/ kg.



Amalesh Chatterjee (middle) with CIBA and Govt. officials during the harvest

In the second trial, the productivity per ha was 3 tonnes with the production cost being Rs. 115/kg. A profit of Rs. 50,000 was generated from the 0.2 ha pond in a culture period of 6 months, at a BCR of 1.7 (Rs. 1.2 lakh returns/ Rs.0.7 lakh production cost). The selling price of fish in this pond was Rs. 200/ kg.

Profile of the farmer

Amalesh Chatterjee is a progressive aqua entrepreneur from Khamargachhi, Hooghly, West Bengal. As a qualified engineer (BE), he has vast experience in all spheres of aquaculture systems and practices for over

30 years. He has a 7.5 ha brackishwater farm in South 24 Parganas and a 1.2 ha freshwater farm attached with a hatchery in Hooghly. He has strong linkages with both state as well as central govt. organizations and involved with them to carry out several field level culture demonstrations of different fish species. He is also the recipient of several awards as a progressive fish farmer from various organizations. Amalesh Chatterjee was the key person to associate with ICAR-CIBA to popularize low input-based farming as well as marketing of milkfish as 'Deccan Hilsa' in the Sundarbans.



Contact details of the farmer

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