

Fish Farming in Extended Fields at Moyna, Dist. Purba Medinipur, West Bengal

Abstract : Experiences gained about a unique fish farming system, which is unlike to usual trend of fish production in ponds and pond management, is described in this communication. Extended fields of 15-20 acres, 50-52 acres in area and further above in villages of Moyna Block, West Bengal are typically lowlands; which when filled with rainwater during monsoon and post-monsoon remains stagnant almost throughout the year at 1.5-2.0 feet depth, making paddy cultivation unsuitable. Embankments are constructed on four sides, water level is further increased upto 5.5 feet, fish farming regions prepared and table-sized major carps are produced therein commercially. Pisciculturists invest a lot and take these tracts on lease, adopt proper management practices, viz., preparation of water body before fish seed stocking, bottom soil treatment after an aquacrop, supplementary fish feed and lime application, in the end produce grown-up fishes in short periods. It grows rapidly on high quality feed and in enormous space.

Keywords: Advanced fingerlings, majorcarps, fish farmers, Moyna

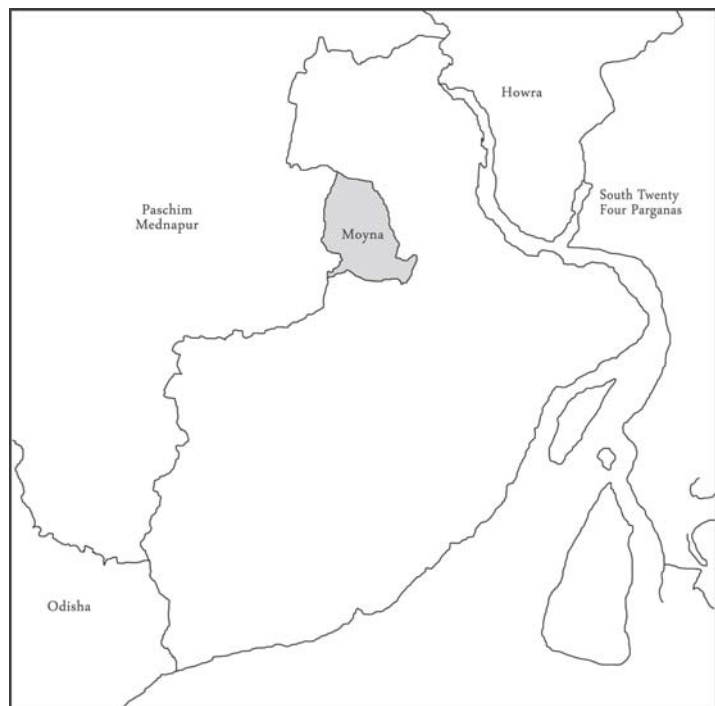
We are familiar about farming of the air-breathing catfish *Clarius batrachus*, insectivorous fishes and medium carps traditionally in water-logged paddy fields, about rice-fish integrated farming system in scientific terms in rainfed lowland areas and renovated paddy plots, where simultaneously fish fingerlings are allowed to grow with paddy and retained in trenches/pond refuge after paddy harvest and after monsoon/post-monsoon, when water table in main plot recedes¹.

Interestingly, grow-out farming of commercially important major carps is practiced successfully in water-retained extended fields at different villages of Moyna Development Block, Dist. Purba Medinipur, West Bengal. Moyna is a Community Development Block forming an administrative division in Tamluk Subdivision of Purba Medinipur district of West Bengal. Following the modified-extensive type of husbandry, about 8500 fish farmers produce marketable-sized major carps in this Block, most of

them in fields. Under composite fish culture system, Catla (*Catla catla*), Rohu (*Labeo rohita*), Mrigal (*Cirrhinus mrigala*), Silver carp (*Hypophthalmichthys molitrix*) and Grass carp (*Ctenopharyngodon idella*) are the major carps cultured at Moyna due to their high growth rate and consumer preference and further among these, the first three species contribute a lion's share in farmed fish production.

Characteristics of Paddy Fields-turned-Fish Farming Regions : Moyna Block is characterized by extended areas of typical lowlands or saucer-shaped depressions.

Every year, due to heavy rainfall, Moyna basin experiences drainage congestion and water-logged hazard from August-September to December-January. The resulted standing water in low-lying agricultural fields has negative effects on agriculture but positive on fish farming activity. During wet season and further when freshwater is let into these plots from nearby river channels for round-the-year fish farming, individual land holdings become single large sheet of water². Almost 50-60 villages like Charandaschak, Baitalchak, Arong Kiarana, Ismalichak, Kripanandapur, Kiarana, Bakcha, Purba-Dakshin Moyna, Paramanandapur,



and so forth, are engaged to culture of *L. rohita*, *C. catla* and others, in their paddy fields. Giant prawn *Macrobrachium rosenbergii* is cultured intensively in the water-logged areas of Bakcha, Arong Kiarana, Kiarana, Ismalichak, Baitalchak, Ramchak, Narikelda³.

Particulars of Fish Farming System : In order to cover the cost of lease and required inputs, many fish farmers here take loan and *Dadan* (imprest money) from *Mahajans* and local fish auctioneers respectively. Fish auctioneers at Moyna lent a lumpsum amount of money to fish farmers as source of fund, on a condition that after 3-4 months, the fish farmer has to bring the entire amount of harvest at disposal of auctioneer, and must supply it to

him at a lower rate. At Moyna, there is reliable supply of fish fingerlings and fish feed and good market infrastructure exists here, to achieve high production and profit on the part of farmer. Expansion of fish farming activities has caused many fish feed dealers to come up in this region.

Other Salient Features : In a publication⁴, it is mentioned that extended paddy fields covering 5282 hectares are utilized as fish farming regions mainly in 47 Mouzas out of 81 in Moyna Block. At Paramanandapur, Dakshin Anukha, Bhandar Chak and Dakshin Changra Chak in Moyna, there exists fields of 125-250 acres (water depth: 1.55-1.60mt), where fish farming alone (6-7 months period) and paddy farming sequential to fish production

TABLE-1: Detail characteristics of expenditure on investment and profit gained by the three fish farmers Dipankar Barman, Debtosh Moni and Dibakar Mal

Effective water area	17 acre (6.8ha)	13 acre (5.2ha)	150 acre (60ha)
Fish species cultivated	Rohu, Catla, Mrigal, Common carp, Silver carp, Grass carp	Rohu, Catla, Mrigal, Silver carp, Grass carp, Black carp	Rohu, Catla, Mrigal, Silver carp, Grass carp
No. of fishes stocked	60000nos. Rohu, 7500nos. Mrigal, 2000nos. Catla, 1500nos. Common carp, 1500nos. Silver carp, 500nos. Grass carp	20000nos. Rohu, 26000nos. Mrigal, 20000nos. Catla, 20000nos. Silver carp, 600nos. Grass carp, 900nos. Black carp	552000nos. Rohu, 69000nos. Catla, 27600nos. Mrigal, 20700nos. Silver carp, 20700nos. Grass carp
Duration of farming	90-120 days	150 days	45-75 days
Procedure	Multiple stocking – multiple/partial harvesting method, both commercial pelleted fish feed and farm-made feed used	Complete harvest and one-time stocking, both commercial pelleted fish feed and farm-made feed used	Multiple stocking – multiple/partial harvesting method, both commercial pelleted fish feed and farm-made feed used
Investment (Pre-harvest cost)			
a) Bundh construction	Rs. 5,20,000/-	–	–
b)	Cost of fish fingerlings (9400kg): Rs. 10,34,000/-	Cost of fish fingerlings (3000kg): Rs. 3,30,000/-	Cost of fish fingerlings (69000kg): Rs. 75,90,000/-
c)	Cost of fish feed (31020kg): Rs. 10,85,700/-	Cost of fish feed (9900kg): Rs. 3,46,500/-	Cost of fish feed (227700kg): Rs. 79,69,500/-
d) Lease value for 1 year	Rs. 8,75,760/-	Rs. 5,31,820/-	Rs. 90,90,909/-
e) Other expenses (Mohua oil cake, lime, labour, night guard, water filling, farm-made feed, fish medicines)	Rs. 14,15,799/-	Rs. 3,10,680/-	Rs. 19,91,819/-
Total pre-harvest cost (a+b+c+d+e)	Rs. 49,31,259/-	Rs. 15,19,000/-	Rs. 2,66,42,228/-
Production cost or income			
a) Annual fish yield or production	52076kg	15480kg	302220kg
b) Money earned after selling fish	Rs. 54,67,980/-	Rs. 16,25,400/-	Rs. 3,17,33,100/-
Profit and profit percentage on investment	Rs. 5,36,721/- (10.88%)	Rs. 1,06,400/- (7.00%)	Rs. 50,90,872/- (19.10%)
Yield/ha/year	7660kg	3000kg	5037kg

are practiced. Fish production in such fields is 4500kg/ha (av.) in six months.

End Note: In West Bengal, freshwater fish farming has developed from a domestic backyard activity to a highly viable commercial enterprise in recent years. Flexibility in use of local pond resources, ensuring assured income, nutritional security and employment opportunity has led major carp culture to the status of a full-time profession for rural farmers, projecting it as an avenue for sustainable livelihood security and rural socio-economic development⁵. Advancement and refinement of technologies over the years have made fish farming eminently suitable and significantly contributory to rural economy both for farmers and entrepreneurs^{6,7}. Fish farming scenario at villages in Moyna Block, a profession that is in vogue extensively, is no exception to this, which is supported by strong indigenous technological knowledge and scientific inputs in various aspects of management. Major carps stocked at 60-100gm size are harvested at 500-1200gm; partial harvesting provide congenial environment for remaining fishes to grow, and ensures continuous returns to fish farmers. An economic analysis of such a kind of fish farming business of Sri D. Borman (water area 17 acres), Sri D. Moni (13 acres) and Sri D. Mal (150 acres) is shown in Table-1.

Map of Purba Medinipur district is shown, with Paschim Medinipur district on west, Orissa on south-west, Howrah district on north-east, South 24 Parganas district on east and Bay of Bengal on south. The shaded region within map specifies the location of Moyna Block.

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