

**INTRODUCTION OF CARPS, MOLA AND PRAWN POLYCULTURE IN THE SUNDERBANS REGION, INDIA TO REDUCE POVERTY AND IMPROVE HOUSEHOLD NUTRITION**

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Mola (*Amblypharyngodon mola*), a nutrient dense fish indigenous to Bengal, which was once abundant in both open waters and closed water bodies, declined drastically in recent years depriving poor people from getting A vitamin and other essential micronutrients. In order to revive its population to improve household nutrition, an on-farm trial was carried out to accommodate mola in carp-prawn polyculture in the Sunderbans region, West Bengal, India from July to December 2007. There were three treatments with eleven replications each. Mola, mrigal (*Cirrhinus cirrhosus*), rohu (*Labeo rohita*), and freshwater prawn (*Macrobrachium rosenbergii*) were stocked at 20,000ha<sup>-1</sup>, 1,000ha<sup>-1</sup>, 3,000ha<sup>-1</sup>, and 3,750ha<sup>-1</sup> in all treatments. Catla (*Catla catla*) was stocked at 1,000ha<sup>-1</sup>, 1,750ha<sup>-1</sup> and 2,500ha<sup>-1</sup> and silver carp (*Hypophthalmichthys molitrix*) at 2,500ha<sup>-1</sup>, 1,750ha<sup>-1</sup> and 1,000ha<sup>-1</sup>, in treatment I, treatment II and treatment III, respectively. Before stocking of the fish fingerlings, fertilization was done at the rate of urea: 50kgha<sup>-1</sup>, TSP: 50kgha<sup>-1</sup> and cowdung: 1500kgha<sup>-1</sup>. Prawn and fishes were fed with mustard oil cake and rice bran (1:2 ratio) at the rate of 3% body weight. Two thirds of the total feed were spread in the morning and one third in the evening. Water quality parameters such as water temperature, dissolved oxygen, transparency and pH were measured fortnightly. There were no significant differences in water quality parameters among the treatments. The highest yields of mola and prawn were observed in treatment I. The mola production was not affected by the presence of catla and silver carp. The lowest density of catla (1,000ha<sup>-1</sup>) with highest density of silver carp (2500ha<sup>-1</sup>) resulted in the highest mola production. There was no significant difference in total production among the treatments, but comparatively better production was found in treatment I. Higher benefit-cost ratio was also obtained in treatment I. It may be concluded that mola-carp-prawn polyculture may be a good option for rural farmers of the Southern region of West Bengal to reduce poverty and improve household nutrition.

Table 1. Production (± SE) and economics of different treatments over a 155 days growth period

		Treatment I	Treatment II	Treatment III
Production (kg ha <sup>-1</sup> )	Mola	286.77 ± 25.30	217.99 ± 27.90	193.14 ± 21.96
	Catla	297.31 ± 33.76	339.61 ± 44.47	399.07 ± 48.72
	Mrigal	310.90 ± 32.32	283.80 ± 37.84	295.84 ± 31.42
	Rohu	665.18 ± 88.45	629.13 ± 83.93	531.09 ± 59.99
	Silver carp	712.77 ± 123.4	525.10 ± 70.18	318.67 ± 56.57
	Prawn	184.47 ± 9.73	144.68 ± 7.86	145.69 ± 9.62
	<b>Total</b>	<b>2457.42 ± 243.96</b>	<b>2140.31 ± 193.39</b>	<b>1883.51 ± 161.24</b>
Economics	Total cost (INR)*	62,759.00	59,740.00	57,771.00
	Total return (INR)	135,455.00	114,260.00	103,835.00
	<b>Benefit-cost ratio</b>	<b>2.16:1.00</b>	<b>1.91:1.00</b>	<b>1.80:1.00</b>

\* 40 INR = 1 USD