

2nd Fisheries Conference and Research Fair 2006

18-19 January 2006

Bangladesh Fisheries Research Forum (BFRF)

ABSTRACTS

- Increasing Aquaculture Production
- Sustainable Fisheries Management
- Post Harvest & Food Safety
- Marketing, Value Chain & Fair Trade
- Socioeconomics & Livelihood



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Abstracts

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INTEGRATED RICE-FISH FARMING IN SALINE AND FRESHWATER INTERFACE IN COASTAL REGION OF BANGLADESH

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With an aim of evaluating the concurrent rice-fish farming in saline and freshwater interface, an experiment was conducted in three farmers' *ghers* of Polder # 16/1 at Paikgacha, Khulna. After harvesting shrimp in early August, each selected *gher* was divided into three plots of almost equal in size of approximately 1150 m² and prepared by repairing of dikes, setting up water inlet-outlet facilities, and ploughing gently the soil surface before paddy plantation. Six rice varieties viz., (i) BRRIdhan-23, (ii) BRRIdhan-40, (iii) BRRIdhan-41, (iv) HR-1, (v) HR-14, (vi) Horkoz (local var.), and three fish-prawn combinations viz, (i) GIFT (Genetically Improved Farmed Tilapia) alone (T₁), (ii) GIFT and prawn (*Macrobrachium rosenbergii*) at 1:1 ratio (T₂), (iii) Prawn alone (T₃) were tested. Each plot received one replication of each rice variety, while each of three plots in each *gher* received one replication of each fish-prawn combination. After 10-12 days of rice plantation in August 2004, all the plots were fed with water up to 15- 30 cm and stocked with GIFT (1.5 g) and prawn (3.2 g) with the total stocking density of 1/m². Feed was applied neither for fish nor for prawn. Initial salinity of water was 1.5‰, which gradually decreased to almost 0.0‰ with the progress of culture period. Though, nitrate and phosphate levels in all the plots were high enough to support the primary productivity, but the rate of primary production in different plots was very low and varied from 1.0 to 2.2 mg C/m³/h, 0.7 to 1.8 mg C/m³/h and 0.4 to 1.5 mg C/m³/h in T₁, T₂ and T₃, respectively. High attenuation of solar radiation with depth and high turbidity might be the main cause of low primary productivity. While the duration of rice ripening was 90 days for HR-14, that was 100-110 days of other varieties. BRRIdhan-23 and BRRIdhan-41 resulted in the higher average yield of 5.09 ton/ha and 4.82 ton/ha, respectively, without any significant difference. BRRIdhan-40 also yielded 4.07 ton/ha, which was similar to that of BRRIdhan-41. These three varieties have been found suitable in brackishwater environment. After 110 days of rearing, GIFT attained an average weight of 86.30 g in T₂ and 78.50g in T₁. Average growth of prawn was almost similar in both mono (22.10 g) and mixed culture system (22.30 g). Despite of the unexpectedly low recovery rate of both GIFT (18% in mono and 22% in mixed culture) and prawn (26.54% in mono and 37.0% in mixed culture), the total fish production of 141.30 kg, 57.87 kg and 136 kg/ha (GIFT 94.93 kg and prawn 40.89 kg) in T₁, T₂, and T₃, respectively. The results indicate that in existing farming pattern of alternate shrimp (*Penaeus monodon*) and rice in south-west brackishwater environment, integration of suitable fish and prawn with rice may increase the total farm output.