

Pattama Wiriyapattanasub 2006: The Effect of Organic Matter in Pond Preparation for Raising Black Tiger Shrimp (*Penaeus monodon* Fabricius) in Low-salinity Water. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology.

Thesis Advisor: Assistant Professor Chalor Limsuwan, Ph.D. 151 pages.

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The effect of organic matter in pond preparation for raising black tiger shrimp (*Penaeus monodon*) in low-salinity water was studied. After harvesting, mud was removed from the center of the pond a little water was added until the soil moisture content was about 70%. Then organic matter with a C:N ratio of 25:1 was added at the rate of 200-500 kg/1,600 m²(rai), depending on the soil pH. A cultured bacteria mixture containing *Bacillus* sp. was poured over the soil and the pond was left for 14 days. Three days later, black tiger shrimp postlarvae stage 15(PL₁₅) were stocked at a density of 50,000 shrimp/1,600 m²(31 shrimp/m²) in three ponds with area of approximately 6,400 m². Three control ponds were also prepared in the normal way with no organic matter added. These were the same size as the experimental ponds and shrimp were stocked at the same density. The water salinity during the culture period ranged from 1.0-8.6 ppt. Soil samples from the bottom of the ponds were taken for analyzing the density of benthic fauna one week before the shrimp were stocked into the ponds and every week until the shrimp reached 60 days, and subsequently every two weeks until the shrimp were harvested. Production from the experimental ponds was 788.20 kg/rai and shrimp weighed 17.97g. The survival rate was 87.90% and the feed conversion ratio (FCR) was 1.24. By comparison, in the control ponds the yield was 447.12 kg/rai and shrimp weighed 14.08g. The survival rate was 63.43% and the FCR was 1.47. There was a statistically significant difference in yield, weight and survival rate.

The water quality in both the experimental and the control ponds was suitable throughout the culture period. The only difference was that the total ammonia in the experimental ponds was 0.04±0.05 mg/l, which was lower than the value in the control ponds, 0.13±0.17 mg/l. The types of benthos that were found consisted of chironomids, ostracods, insect larvae, polychaetes, copepods, and nematodes. The average population density in the experimental ponds was 48,473±13,035.53 organisms/m² and in the control ponds, 13,264±2,041.00 organisms/m², a statistically significant difference. This study demonstrated that adding organic matter during pond preparation could help increase the amount of benthos, a natural food for shrimp during the first month, resulting in a higher survival rate and better harvest.

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Thesis Advisor's signature

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