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Biological characterization of planktonic shrimp, *Acetes* spp. for stock management and aquaculture

Taxonomic characteristics, reproductive biology, food habits, population parameters like growth, mortality, exploitation status of the stock of planktonic shrimp *Acetes* spp, in coastal waters of Klebang Besar, Malacca, Malaysia were examined between February 2005 and March 2007. A total of three species of planktonic shrimp viz *A. indicus*, *A. japonicus* and *A. intermedius* were identified from the investigated area. It is found that sex ratio of *A. indicus* and *A. japonicus* was in favor of females. Gonadosomatic index (GSI) confirmed the continuously breeding of *A. indicus* and *A. japonicus* during the study period. Estimated mean fecundity of *A. indicus* was 1666.28 (± 46.32) eggs. The mean monthly GSI of *A. indicus* proved positive significant ($P < 0.05$) correlation with conductivity ($r = 0.67$), salinity ($r = 0.65$) and TSS ($r = 0.59$). Diverse compositions of food items in the gut contents revealed that the two shrimps were bottom feeder omnivore. Catch per unit effort (CPUE) of the estuarine push net (EPN) was found at 2.50 (± 3.42) kg/fisherman/hr. Higher natural mortalities of male *A. indicus* and *A. japonicus* versus the fishing mortalities observed from the study indicated the unbalance position in the stock. Two major recruitment events per year where two cohorts were produced per year for *A. indicus* and *A. japonicus* populations. Estimated exploitation rate (E) based on the fishing mortality, indicates that the *Acetes japonicus* fishery is over exploited although *A. indicus* and *A. intermedius* fishery were slightly below the optimum level of exploitation. This implies that any further unrestrained increase in fishing effort might overshoot the level giving maximum sustainable yield, thus driving the stock down and leading to economic losses. Nowadays, *Acetes* wet tissue suspensions are being successfully used as food for all stages in the hatchery. It is also used as live food for brood stock management. Thus, *Acetes* as a food organism may play an important role in aquaculture.

Biography

S M Nurul Amin has completed his BSc in Marine Science from University of Chittagong (CU), Bangladesh and PhD in Aquatic Biology from the Universiti Putra Malaysia (UPM), Malaysia. He is an Associate Professor in Department of Aquaculture, Faculty of Agriculture, UPM. He has 18 years of Teaching and Research experience in Aquaculture and Fisheries Biology.

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