

SETTLEMENT AND RECRUITMENT OF A SEA URCHIN, *DIADEMA SETOSUM*, AND IMPLICATIONS FOR CORAL REEF MANAGEMENT IN THE GULF OF THAILAND

JAMREARN BUARUANG AND THAMASAK YEEMIN

Marine Biodiversity Research Group, Department of Biology, Faculty of Science, Ramkhamhaeng University, Bangkok 10240, Thailand

Studies on settlement and recruitment of *Diadema setosum* at Khang Khao Island, Chonburi Province, and Samet Island, Rayong Province, in the Gulf of Thailand were carried out during July, 2000 to September, 2002. Settlement and recruitment of the sea urchin, *D. setosum* were very important information for coral reef management because they often played major roles in controlling macroalgal populations and organized structures of shallow subtidal communities. Newly settled *D. setosum* was found in the sandy zone higher than that of coral zone. Peaks of newly settled *D. setosum* were during July to October, 2001 and June to September, 2002. Averages of recruit densities of *D. setosum* in January, July, October, 2001 and September, 2002 at Khang Khao Island were 2.33 ± 0.41 , 2.31 ± 0.56 , 2.60 ± 0.70 and 3.13 ± 0.78 individuals/m², respectively while those at Samet Island in July, September, 2000 and April, July, 2001 were 0.45 ± 0.001 , 0.42 ± 0.005 and 0.44 ± 0.003 , 0.49 ± 0.004 individuals/m², respectively. Means of recruitment rate of *D. setosum* at Khang Khao Island and Samet Island were highly statistical different (Two-way ANOVA, $P < 0.05$), however, the difference of monthly recruitment rate of *D. setosum* from the two study sites was not statistically different (Two-way ANOVA, $P > 0.05$). *D. setosum* recruits found in the filed on dead corals were more abundant than those on hard substrates and corals. In September, 2002 number of *D. setosum* recruitments were higher than those in the previous years. Averages of recruit densities of *D. setosum* on dead corals, corals and hard substrates in September, 2002 were 4.33 ± 0.76 , 1.67 ± 0.42 and 3.40 ± 1.16 individuals/m², respectively. Means of recruitment rates of *D. setosum* on the three substrates during the sampling periods were significantly difference (Two-way ANOVA, $P < 0.05$). The present study not only shows implications for coral reef management but also provides important basic data for commercial cultivation of *D. setosum* in the future.