

DO DIAMETERS OF BURROWS AND FOOD PELLETS PROVIDE ESTIMATES OF THE SIZE STRUCTURE OF A POPULATION OF *DOTILLA MYCTIROIDES* AT THE SAND-FLATS OF AO TUNG KHEN, PHUKET?

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ABSTRACT: *Dotilla myctiroides* (Milne Edwards), the soldier crab, is a deposit feeder that burrows in sand flats and forms food pellets after the extraction of nutrients from sediments. Burrow diameter, food pellet diameter and carapace morphometric dimensions (carapace width, carapace length and carapace depth) of *D. myctiroides* were measured at the sand flats of Ao Tung Khen, Phuket, Thailand in September 2001. Regression results showed that food pellet diameter and burrow diameter were strongly positively related: average food pellet diameter = $0.776 + 0.221$ (Burrow diameter) ($r^2 = 0.79$). All three simple linear regressions showed that crab carapace length, carapace width and carapace depth were positively related to burrow diameter with $r^2 = 0.83$. Of the three morphometric measurements, carapace length accounted significantly ($p = 0.030$) for most of the variability in burrow diameter in the multiple regression analysis. The simple linear regression for this relationship was: Burrow diameter = $-0.081 + 1.309$ (Carapace length) and $r^2 = 0.89$. These results indicated that both burrow diameter and food pellet diameter were closely related to the size of the crab, especially carapace length, suggesting that food pellet diameter and burrow diameter could be used as estimates to the size structure of the population, without massive excavation and undue disturbance to the habitat.
