



Title	The impact of the soldier crab (<i>Dotilla mictyroides</i>) on the organic matter and nutrient dynamics in Ao Tang Khen, Phuket, Thailand
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Citation	琉球大学21世紀COEプログラム「サンゴ礁島嶼系の生物多様性の総合解析」平成20年度成果発表会
Issue Date	2009-03-14
URL	http://hdl.handle.net/20.500.12000/9869
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PE-11 The impact of the soldier crab (*Dotilla mictyroides*) on the organic matter and nutrient dynamics in Ao Tang Khen, Phuket, Thailand

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Tang Khen Bay, Phuket, Thailand, encompasses an intertidal flat, mangrove, seagrass, and coral ecosystems. As such, this is a continuing study which aims to elucidate the impact of the soldier crab, *Dotilla mictyroides*, on organic matter movement, composition and the nutrient dynamics within and across the coral reef intertidal flat in regards to population distribution and movement. This research was conducted in two parts. First, in March 2008, a general, site specific study on the size, sex and density distribution was conducted. This was followed by a preliminary assessment of *D. mictyroides* tissue and some sediment samples surrounding its habitat using the fatty acid analysis technique. From these results, basic knowledge of the crab's main food resources and affect on the organic matter composition of the surrounding environment could be clarified. Soldier crabs efficiently assimilated diatoms and dinoflagellates into their tissues and changes in the proportions of both polyunsaturated and saturated fatty acids indicate an impact on the decomposition of organic matter in their surrounding environment.

Second, in November, 2008 an intensive study focusing on the movement of organic matter as a result of soldier crab presence was carried out. General data on population, size, and sex distribution was collected again to ensure no differences in the population had occurred. In addition, permanent quadrats were placed to assess soldier crab population movement.

In accordance with Hails and Yaziz (1982), the crabs were divided into four stages of maturity, juvenile (CW < 2.9mm), immature (CW: 3 – 3.9mm), young adult (CW: 4 – 5.9mm), and adult (CW > 6.0mm) based on carapace width (CW). Overall, *D. mictyroides* size and abundance was normal across the tidal flat area. However, in comparison to previous studies, the population density decreased from 91±18.2 (Bradshaw et al 1997) to 28.5±15.6 (March 2008) and then to 9.75±3.8 individuals m⁻² (Nov 2008). In addition, the female size distribution was more limited. Over a two week period however, depending on the tidal range, the population went from 9 to a maximum of 18 individuals 0.5m⁻².

On an ecosystem scale, changes in population size and structure imply a reduced impact on the coral reef tidal flat. However, continued analysis needs to be conducted to further elucidate the impact of the soldier crab on the movement of organic matter and nutrients.