

Fishery and population parameters of the three spot swimming crab *Portunus sanguinolentus* (Herbst, 1783) occurring in the coastal waters off Negombo, Sri Lanka

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Marine crabs are one of the valuable crustacean resources exploited in the coastal waters of Sri Lanka. Booming demand for *Portunus sanguinolentus* (three spot swimming crabs) which were discarded previously is now reported in Sri Lanka and this study evaluates the fishery and stock characteristics *P. sanguinolentus* occurring in the coastal waters off Negombo. Catch and effort data were collected at Negombo, sea street fish landing site from February to November 2014 making bi-weekly field visits. On each sampling day, 50 - 60% of operated boats were sampled randomly and carapace width and sex of landed crabs were recorded. Crab catch rates and total production were estimated using catch and effort data and FiSAT was used to estimate growth and mortality parameters. *P. sanguinolentus* mainly comes as a by-catch of shrimp trawling and the estimated total production during the study period of ten months was 6,006 kg. The crab catch rates fluctuated between 0.29 to 1.20 kg/haul/day. The size of exploited crab ranges from 5.6 cm to 16.5 cm and length-weight relationship showed that they have isometric growth. Asymptotic length (L_{∞}) and growth constant (K) of *P. sanguinolentus* male and female were estimated as 18.40 cm, 0.78 yr⁻¹ and 18.55 cm, 0.74 yr⁻¹ respectively. Estimated values for total mortality (Z), fishing mortality (F) and natural mortality (M) of *P. sanguinolentus* male were 2.48 yr⁻¹, 1.71 yr⁻¹, 0.77 yr⁻¹ while for female these values were 2.85 yr⁻¹, 1.65 yr⁻¹ and 1.20 yr⁻¹. Young crabs recruit to the fishery throughout the year having two peaks, in April and October. *P. sanguinolentus* stock seems to be underexploited ($E = 0.31$), however, the size at first capture ($L_{50} = 8.06$ cm) was found to be smaller than the size at first sexual maturity (9.75 cm and 8.90 cm for male and female respectively) confirming some immature individuals are targeted by trawling gear.

Keywords: *Portunus sanguinolentus*, Negombo, asymptotic length, growth constant, mortality rates