

Population dynamics of Asiatic Hard Clam, *Meretrix meretrix* (Linnaeus, 1758) in Marudu Bay, Malaysia: Implication for fishery resource management

ABSTRACT

Hard clam, *Meretrix meretrix* is the principal bivalve resource collected by artisanal fishermen in the coastal areas of Marudu Bay, Malaysia. Population parameters of the clam in the intertidal zone of Marudu Bay, Sabah were analyzed using FiSAT software, based on monthly length and weight data collected from May 2017 to April 2018. A total of 1,745 clams with shell lengths ranging from 18.3 to 101.7 mm were analyzed. Asymptotic length (L_{∞}) and growth coefficient (K) of the von Bertalanffy growth formula (VBGF) for *M. meretrix* were estimated at 107.63 mm and 0.47 year⁻¹, respectively. The estimated growth performance index (ϕ) was 3.736. The theoretical age at length zero (t_0) was -0.1412. The predicted maximum life span of the clam was 6.38 years. The sampled population of *M. meretrix* exhibited consistent and moderate fatness (3.88 ± 0.84) throughout the year. The total mortality (Z) was estimated at 2.65 year⁻¹, fishing mortality (F) at 1.87 year⁻¹, and natural mortality (M) at 0.78 year⁻¹. The exploitation level (E) of the *M. meretrix* population was 0.70, while the maximum allowable limit of exploitation (E_{max}) was 0.499 for the highest yield. This study clearly indicates that the *M. meretrix* stock in Marudu Bay experiences over-exploitation that warrants immediate action by the fisheries management authority.