

Density, recruitment and growth performance of Asian green mussel (*Perna viridis*) in Marudu Bay, Northeast Malaysian Borneo, three years after a massive mortality event

Abstract

Density, recruitment and growth performance of Asian green mussel (*Perna viridis*) in a particular coastal marine environment can be affected by many factors, including environmental change, pollution, disease outbreak and massive mortality event. The present study was conducted to determine the density, recruitment and growth performance of farmed Asian green mussel in Marudu Bay, three years after a mass mortality event. The study was carried out for 12 months between April 2013 and March 2014. The length frequency data of 1,308 individuals of green mussel were analyzed using the latest version of the FAO-ICLARM Fish Stock Assessment Tools (FiSAT II). The result showed that the green mussel recruitment in Marudu Bay occurs throughout the year with two major peaks i.e. February and July which coincided with the monsoon seasons. The asymptotic length (L_{∞}), growth coefficient (K) and growth performance index (ϕ') of the farmed Asian green mussel in Marudu Bay are relatively high at 113.4 mm, 1.7 year⁻¹ and 4.34, respectively. However, despite good culture location, the settlement density of green mussel in the bay was low. We suspected that the low settlement density could be influenced by the ecological effects due to the long term suspension of the culture substrates and the physiochemical properties of the water in Marudu Bay. Nevertheless, chlorophyll-*a* measurement alone was not able to justify if food scarcity has resulted in high mortality of the farmed Asian green mussel in Marudu Bay.