

Length-weight relationship, sex ratio, mortality and growth condition of natural stock of *Macrobrachium rosenbergii* from the estuarine systems of North Kalimantan, Indonesia

ABSTRACT

Giant prawns (*Macrobrachium rosenbergii*) in North Kalimantan Province, Indonesia are commonly found inhabiting estuarine areas in Salimbatu Village (Bulungan District), Tepian Village (Nunukan District) and Buong Baru and Sesayap Villages (Tana Tidung District). The present study was conducted to analyze the relationship between length and weight, sex ratio, mortality, and growth condition index of the naturally occurring giant prawns in three districts namely Bulungan, Nunukan, and Tana Tidung in the North Kalimantan Province, Indonesia. The samplings were carried out for a period of seven months beginning April to November 2020. The results revealed that the giant prawns in Buong Baru Village, Sesayap Village, and Salimbatu Village were characterized to have negative allometric growth patterns. Interestingly, the male giant prawns in Tepian Village were observed to exhibit positive allometric growth pattern. The ratio sex analysis of the giant prawns in the four villages indicated that female prawns were more than male. In terms of size distribution, Salimbatu Village exhibited 60.1% of prawns measured at 14.02-17.74cm (size range of 10.3-47.5 cm). In Tepian Village, 32.9% of the prawns were observed to measure between 11.20-12.80 cm (size range of 8.0-24.0 cm). In Buong Baru Village, it was observed 18.5% of the prawns measured 22.0-25.5 cm and 29.0-32.5 cm (size range of 15.0-50.0 cm), respectively. Finally, 28.3% of the prawns in Sesayap Village was observed to measure at 12.19-14.02 cm from the overall size distribution between 6.7-25.0 cm. Relative condition factor of giant prawns found in the waters of Salimbatu Village, Tepian Village, and Buong Baru Village waters and Sesayap Village waters was characterized by thin body shape. The maximum length of male prawns was higher than female prawns in Salimbatu Village, Desa Tepian and Sesayap Village, except in Buong Baru Village where female was longer than male. The exploitation rate and fishing mortalities of prawns were higher in Buong Baru Village, Tana Tidung District. Giant prawn fishery contributes to the socio-economic development of the people in North Kalimantan. Hence, sustainable fishery management of this species, particularly in Buong Baru Village is urgently needed so that it can continue to provide livelihoods to the fishermen in the area.