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HORSESHOE CRAB AND ITS SPAWNING GROUND CONDITION IN JOHOR LAMA, JOHOR

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Abstract

This study was conducted at horseshoe crab's natural spawning ground in Johor Lama, Kota Tinggi, Johor, Malaysia (1°35'00"N 104°00'49"E). Six nests were excavated on 4 August 2020, four hours after the highest tide. Type of reclamation, and fishery activities at the spawning site were observed. Grain size analysis was conducted according to Blott and Pye procedure. Eggs hatching rate, larvae moulting rate, infection rate, and larvae abnormality rate tests were conducted. There are two types of reclamation observed in Johor Lama: (i) concrete wall and (ii) stack of boulders. Mangrove and muddy

areas in Johor Lama are still preserved and in good condition. Sand at the horseshoe crab spawning beach in Johor Lama was coarser and poorly sorted ($\bar{x}_{\emptyset}$: 0.09± 0.01 cm; $\sigma_{\emptyset}$: 1.89 ± 0.03) as compared to those of Balok, Pahang (mid-tide mark, August 2012: $\bar{x}_{\emptyset}$: 2.38 ± 0.04 cm; $\sigma_{\emptyset}$: 0.86 ± 0.04). The quantity of the eggs inside each nest in Johor Lama was also in accordance with those of other previous studies (first nest n: 272, second nest n: 233, third nest n: 157, fourth nest n: 135, fifth nest n: 143, sixth nest n: 111). However, the hatching rates of each sample in this population were observed to be lower than those of the others previously studied (31.8% – 66.1%). Two types of larvae abnormalities were reported in this study: (i) genetic impairment that changed the basic Xiphosura's body plan, and (ii) external factor that caused by the impact of the substrate or predatory action that would distort the shape of the juvenile exoskeleton. Based on the observation, the natural ecosystem in Johor Lama is still in good preservation, since it is far from urbanisation and has less deforestation. However, the future of this spawning site is still in doubt due to many ports and industrial zones located on the opposite side of the river in Johor Bahru district that could lead to the worst water pollution.

Author keywords

abnormality; horseshoe crab's eggs; sand grain size; spawning site; Tachypleus gigas

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