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RESEARCH NOTE

Checklist of Molluscs (Gastropoda and Bivalvia) of Malaysia Exclusive Economic Zone (EEZ) in Sarawak Waters

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ABSTRACT

Most of the molluscs studies in Malaysia have focused only on their diversity and the knowledge on their relationship with the water depth are lacking. The hypothesis tested in this research was water depth influence the density of marine gastropods and bivalves of Malaysia Exclusive Economic Zone (EEZ) in Sarawak waters. The aim of the study was to determine the gastropod and bivalve species in Malaysia EEZ of Sarawak waters and the relationship of the species density with water depth. The sampling was conducted from 15th August 2015 until 9th October 2015. The gastropods and bivalves were collected from 32 stations of various depths using the Smith-McIntyre grab. The depth of the stations was from 20 m to 200 m. A total of 95 taxa (61 Gastropoda and 34 Bivalvia) were found in this study. The dominant molluscs species of Sarawak waters in Malaysia EEZ were *Limopsis* sp., *Turitella cingulifera*, *Pitar citrinus*, and *Cavolinia globulosa*. Species density was about 10 ind./m^2 to 610 ind./m^2 and the total density was between 250 ind./m^2 (Station 22) and 1,940 ind./m^2 (Station 2). The total density of gastropods and bivalves showed weak correlation and negative relationship with the depth of water. The findings of this study will aid future studies in Malaysia EEZ.

Keywords: Bivalves, gastropods, Malaysia EEZ, Sarawak waters

The South China Sea with a maximum depth of more than 5,000 m is the largest marginal sea in Southeast Asia (Hu *et al.,* 2000) located at the southwest corner of the North Pacific (Shaw, 1991). Countries that have a major influence on and claims to the sea include China, Malaysia, Philippines and Vietnam. East Malaysia (Sabah and Sarawak) is situated on the Sunda Shelf in relatively shallow water (Morton & Blackmore, 2001). According to the United Nations Convention on the Law of the Sea, 1982, the Exclusive Economic Zone (EEZ) is an area beyond and adjacent to the territorial sea. The EEZ shall not extend beyond 200 nautical miles from the baselines.

Molluscs are widely distributed in marine assemblages and may be extremely abundant in subtidal habitats (Zamprogno *et al*., 2013). This study focused only on two classes of molluscs that were Gastropoda and Bivalvia. The first fishery resources survey in the EEZ of Malaysia was conducted from 1985 to 1987 followed by the second survey from 1996 to 1997. A third survey was conducted from 2004 to 2005 off Sarawak with the objective of assessing the fishery resources in the area of 30 NM offshore (Jamil & Hadil, 2012). There was a survey on the community structure of benthic fauna in the South China Sea, which covered almost all parts of the Gulf of Thailand and the east coast of Peninsular Malaysia (Yasin & Razak, 1997), and along the coast of Sarawak, Brunei and Sabah (Piamthipmanus, 1998).

However, the South China Sea is poorly understood in terms of its marine biodiversity (Morton & Blackmore, 2001). Jamil and Hadil (2012) stated that the current knowledge of the biology of deep-water species in the Malaysian EEZ is still lacking. Furthermore, the distribution patterns of deep-sea benthic fauna in depth > 150 m of the Malaysia EEZ waters off Sabah and Sarawak coasts remained unknown (Jamil & Hadil, 2012). What is known is most often contained in reports, workshop and conference documents that are not available to the wider scientific community (Morton & Blackmore, 2001). Hence, the hypothesis is that the depth of water may influence the density of marine gastropod and bivalve of Sarawak waters in Malaysia EEZ. The objectives of this study were to (i) determine the marine gastropod and bivalve species in Sarawak waters of Malaysia EEZ and (ii) evaluate the relationship between the water depth and the density of gastropods and bivalves.