

REPRODUCTIVE CYCLE OF THE RAZOR CLAM *Solen regularis* DUNKER, 1862 IN THE WESTERN PART OF SARAWAK, MALAYSIA, BASED ON GONADAL CONDITION INDEX

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Abstract: Razor clam or 'ambal' is a highly-priced bivalve collected as food source from several intertidal areas located in western Sarawak, which currently is an unregulated fishery. This study monitored the reproductive cycle of razor clam, *Solen regularis*, collected from the intertidal beaches of Asajaya Laut and Buntal using gonadal condition index (GCI). Sampling was performed at a two-weeks interval or monthly for two years from March 2007 to February 2009. A total of 30 specimens were dissected per sampling. The male gonads appeared beige in colour while female gonads were whitish. Throughout the study, the mean GCI ranged from 0.000 (\pm 0.000) to 0.247 (\pm 0.077) at Asajaya Laut and 0.000 (\pm 0.000) to 0.253 (\pm 0.079) at Buntal. Based on the mean GCI pattern, it is concluded that this razor clams has five stages of reproductive cycle as follows; i) gonadal development, ii) maturation, iii) spawning, iv) spent, and v) resting period. Spawning period for both sites was similar, from end of March-April to September and followed by a short spent stage from end of September-October to November and a resting period from end of October-November to January in the following year. The results obtained in this study could provide important knowledge in determining the spawning season which will benefit razor clam fishery for sustainable management and potential species for aquaculture in future.

KEYWORDS: Reproductive cycle, Gonadal Condition Index, *Solen regularis*, Asajaya Laut, Buntal

Introduction

Razor clams are soft bottom infaunal marine bivalves with more or less narrow and long shells, gaping at both ends (Cosel, 1990). In Sarawak of East Malaysia, the razor clams under Family Solenidae are commonly known as 'ambal' by the local people. It is one of the famous seafood and commercially sold, not only in the western part of the state but also the northern part. There are three different species of Solenidae razor clams being harvested: i) *Solen regularis* Dunker, 1862 (ambal biasa), ii) *S. lamarckii* Deshayes, 1839 (ambal jernang) and iii) *S. sarawakensis* Cosel, 2002 (ambal riong) (Hung and Ruhana, 2007). Period of razor-clamming season is about five months, starting from October to February coinciding with the occurrence of lowest low tides during the day (Rahim and Tan, 2008)

that is linked to the degree of mudflat exposure. Among the three species, *S. regularis* is the most common species collected in the western part of Sarawak because it is widely distributed from the high-tide to the low-tide area, thus making an easy assess for collection by the local people throughout the year (Rahim and Tan, 2008; Rinyod and Rahim, 2009). Razor clams have a great commercial value in the market with a selling price ranging from USD3.50 to USD7.36 per kg (exchange rate USD1.00 = RM3.40), depending on the demand, species and seasons (Ruhana *et al.*, 2007). As a delicacy at seafood restaurants, one kilogram of razor clams sells for USD14.70 to USD17.65 per dish.

Distributions of razor clams in Sarawak are abundant in the intertidal sandy beaches and mudflats of Kuching and Samarahan Division (Pang, 1992). The popular razor-clamming areas