

## FECUNDITY OF BLUE SWIMMING CRAB, *Portunus pelagicus* LINNAEUS, 1758 FROM SEMATAN FISHING DISTRICT, SARAWAK COASTAL WATER OF SOUTH CHINA SEA

IKHWANUDDIN ABDULLAH @ POLITY.<sup>1\*</sup>, JUARIAH HAFSYA MUHAMAD<sup>1</sup>,  
SHABDIN MOHD LONG<sup>2</sup> & ABOL-MUNAFI AMBOK BOLONG<sup>1</sup>

<sup>1</sup>Institute of Tropical Aquaculture, Universiti Malaysia Terengganu, 21030 Kuala Terengganu, Terengganu; <sup>2</sup>Faculty of Science and Resource Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak.

### ABSTRACT

A total of 57 pieces of ovigerous females were sampled through the study period of 14 months from the commercial catches that were made at the Sematan Fishing District, Sarawak coastal water. These ovigerous females were used to determine the crab fecundity through mean number of egg per crab. The present study shows that the mean number of egg is 2,132,924 with mean egg size (volume)  $9.3 \times 10^{-6}$  ml and mean egg size (diameter) 383.6  $\mu\text{m}$  measured using volumetric sub sampling. Fecundity was significantly related to crab size with larger crabs producing a greater number of eggs through linear regression of the fecundity – carapace width relationship. The fecundity-carapace width relationship for *P. pelagicus* was estimated as follows;  $y = 106804x + 375319$  ( $R^2=0.0229$ ;  $n=57$ ). The study shows that the egg size is significantly larger ( $P < 0.05$ ) as the eggs nearly about to hatch which is black in colour.

Key words: Fecundity, blue swimming crab, *Portunus pelagicus*

### INTRODUCTION

The blue swimming crab, *Portunus pelagicus* Linnaeus, 1758 is distributed throughout the Indo-pacific region and is closely associated with sheltered near-shore marine water and estuaries (Stephenson 1962; Kailola *et al.* 1993). Studies showed that large numbers of portunid crabs including *P. pelagicus* frequently enter estuaries as juveniles and remain there for an extended period (Hill, 1975; Potter *et al.*, 1983; Perkins-Visser *et al.* 1996; Potter & de Lestang, 2000). Studies showed that female portunid crabs including *P. pelagicus* sometimes become ovigerous in estuaries; such individuals emigrate into coastal marine water, where they release their eggs (Van Engel, 1958; Metcalf *et al.*, 1995; Potter & de Lestang 2000). Other studies also show that portunid crabs that occupy marine embayment often do not leave these marine environments to spawn and, in cases where there is a salinity gradient, they spawn in the high salinity regions of those systems (Campbell, 1984;

Sumpton *et al.*, 1994; Prager, 1996; Potter & de Lestang 2000).

The fecundity of fish is defined as the number of ripening eggs in the female prior to the next spawning period (Bagenal 1978). In portunid crabs the ripening egg mass was referred as 'berry' eggs contained a variable number of eggs depending on the size of the individual and the size of the berry (Pillay & Nair 1968). The number of eggs produced by females also varies between individuals of a similar size. Generally, larger females produce more eggs than smaller females (Warner 1977; Batoy *et al.* 1987; de Lestang *et al.* 2003a). Studies also show female crabs can produce two or more batches of eggs within a spawning period (Meagher 1971; de Lestang *et al.* 2003a).

Studies on the reproductive biology of *Portunus* spp. has been mostly conducted in Australia (Potter *et al.* 1983; Sumpton *et al.* 1994; Sumpton 2001; de Lestang *et al.* 2003a; de Lestang *et al.* 2003b; Kumar *et al.* 2003) and a few studies from other

\*Corresponding author: ikhwanuddin@umt.edu.my