

EMBRYONIC DEVELOPMENT AND HATCHING RATE OF
BLUE SWIMMING CRAB, *Portunus pelagicus* AT
DIFFERENT SALINITY REGIMES

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CRAB, *Portunus pelagicus* AT DIFFERENT SALINITY REGIMES

By

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Research Report submitted in partial fulfillment of
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DEPARTMENT OF MARINE SCIENCE
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DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:

EMBRYONIC DEVELOPMENT AND HATCHING RATE OF BLUE SWIMMING CRAB, *Portunus pelagicus* AT DIFFERENT SALINITY REGIMES

by **Nor Faizah Binti M M K Noorulhudha**, Matric No. **UK 22532** have been examined and all errors identified have been corrected. This report is submitted to the Department of Marine Science as partial fulfillment towards obtaining the Degree **Bachelor of Science (Marine Biology)**, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

ppt	-	part per thousand
ppm	-	part per million
CW	-	carapace width
%	-	percent
cm	-	centimetre
mm	-	millimetre
EPA	-	Eicosapentaenoic acid
ARA	-	Arachidonic <i>acid</i>
Phe	-	Phenylalanine
His	-	Histidine
Arg	-	Arginine
µm	-	micrometre
BW	-	body weight
°C	-	degree Celcius
g	-	gram
OTC	-	oxytetracycline
L	-	Litre
mL	-	millilitre

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ABSTRACT

The effect of salinity (5, 15, 25, 30, 35, 45 ppt) on spawning success, egg size and hatching success of the blue swimming crab, *Portunus pelagicus* were studied. The morphology of ^{the} embryo were observed and classified into 10 embryonic stages. Berried females of blue swimming crab, ^{were} sampled from Gelang Patah, Johor. This study is important to expand the knowledge on *P. pelagicus* embryo and its hatching mechanism. Berried female incubated in 5 ppt did not survive thus any further study in this treatment was not conducted. Female incubated 15 ppt did not spawn and those incubated in 45 ppt had retarded development and eventually ~~released~~ thus the study on egg size was not conducted. The Prehatch stage mean egg diameter that incubated in 25 ppt was largest ($380.24 \pm 1.78\mu\text{m}$) compared to ones incubated in 30 ppt ($365.23 \pm 0.64\mu\text{m}$) and 35 ppt ($357.34 \pm 1.04\mu\text{m}$). Higher percentage increase in egg size occurred mostly at stage near hatching. Total incubation period for berried female incubated in 25, 30 and 35 ppt was 10 days. In this study, berried females of *P. pelagicus* tend to have unsynchronised hatching. The morphological characteristic of *P. pelagicus* embryo was almost the same as other brachyuran crab in which, the appendage will form followed by eye formation, present of chromatophore, heartbeat and then ready to hatch.

PERKEMBANGAN EMBRIO DAN KADAR PENETASAN KETAM BUNGA,
Portunus pelagicus PADA TAHAP KEMASINAN YANG BERBEZA

ABSTRAK

Kesan kemasinan air (5, 15, 25, 30, 35, 45) kepada kejayaan pembiakan, saiz telur dan kejayaan penetasan ketam bunga, *Portunus pelagicus* dikaji. Morfologi embrio dikenal pasti dan mengelaskan kepada 10 peringkat. Induk yang bertelur diambil dari Gelang Patah, Johor. Kajian ini penting untuk mengembangkan pengetahuan tentang embrio dan mekanisme penetasan *P. pelagicus*. Induk *P. pelagicus* yang dieram pada 5 ppt tidak bertahan, maka kajian lanjutan menggunakan kemasinan ini tidak dijalankan.. Induk *P. pelagicus* yang dieram pada 15 ppt tidak berjaya bertelur dan yang dieram pada 45 ppt mempunyai pembantutan perkembangan embrio lalu melepaskan telurnya, maka kajian mengenai saiz telur dalam kemasinan ini tidak dijalankan. Mean saiz telur pada peringkat Prehatch adalah paling besar bagi embrio yang dieram dalam 25 ppt ($380.24 \pm 1.78\mu\text{m}$) berbanding embrio yang dieram pada 30 ppt ($365.23 \pm 0.64\mu\text{m}$) dan 35 ppt ($357.34 \pm 1.04\mu\text{m}$). Peratusan peningkatan saiz telur yang tinggi dicatat pada embrio yang hampir ingin menetas. Induk *P. pelagicus* dalam 25, 30 dan 35 ppt mengambil masa 10 hari untuk mengeram telurnya. Dalam kajian ini, *P. pelagicus* cenderung kepada ketidaksamaan dalam penetasan. Ciri-ciri morfologi *P. pelagicus* adalah hampir sama dengan ketam Brachyuran yang lain, di mana rangka badan dapat dilihat dahulu, diikuti oleh pembentukan mata, kehadiran chromatophore, degupan jantung dan akhir sekali bersedia untuk menetas.