

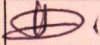
ASPECTS ON THE REPRODUCTION OF SOME  
COLEOPTERAN GORALS IN REDANG ISLAND, TERENGGANU

TAN CHUN HONG

FACULTY OF SCIENCE AND TECHNOLOGY  
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

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ASPECTS ON THE REPRODUCTION OF SOME  
SCLERACTINIAN CORALS IN REDANG ISLAND, TERENGGANU

By

Tan Chun Hong

This project is submitted in partial fulfillment of  
the requirement for the degree of  
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Aspects on the Reproduction of some Scleractinian corals in Redang Island, Terengganu

oleh Tan Chun Hong, No. Matrik UK\_550 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sarjana Muda Sains – Biologi Marin, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh:

Penyelia

Nama: **LIEW HOCK CHARK**  
Fakulti Sains dan Teknologi  
Kolej Universiti Sains dan Teknologi Malaysia  
Cop Rasmi: **(KUSTEM)**  
**21030 Kuala Terengganu, MALAYSIA**

Tarikh: 29/03/04

Ketua Jabatan Sains Samudera

Nama:

Cop Rasmi:

**PROF. MADYA DR. KAMARUZZAMAN B. YUNUS**  
Ketua  
Jabatan Sains Samudera  
Fakulti Sains dan Teknologi  
Kolej Universiti Sains dan Teknologi Malaysia  
21030 Kuala Terengganu.

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## LIST OF ABBREVIATIONS

<b>Abbreviation</b>	<b>Meaning</b>
ANOVA	Analysis of Variance
Std	Standard
$r^2$	coefficient of determination
%	percent
$^{\circ}\text{C}$	degree Celsius
h	hour
cm	centimeter
mm	millimeter
$\mu\text{m}$	micrometer
ppt	parts per thousand

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## ABSTRACT

The gonad development and reproductive cycle of Scleractinian corals in Teluk Bakau, Pulau Redang, Terengganu were studied. Observations were conducted over a period of 11 weeks, between 1<sup>st</sup> August 2003 and 10<sup>th</sup> October 2003, during which nine samplings were carried out. Four species of Scleractinian corals (*Acropora nobilis*, *Acropora hyacinthus*, *Acropora elseyi* and *Pocillopora verrucosa*) consisting of 20 – 30 colonies each were decalcified, dissected and examined. No eggs were observed for all four species during the first two samplings. The increment and subsequent decrement in the abundance of colonies with eggs vary with species throughout the observation period, suggesting that the release of eggs vary with time for each species. Similarly, the changes in the size of coral eggs also suggested the occurrence of a spawning phenomenon. The eggs were categorized into four stages of development: (1) no gonads; (2) small oocytes; (3) large ovoid oocytes but no testes; (4) large irregular oocytes with testes. A growth curve for each species was obtained and growth rate was found to be highest when the coral eggs developed from stage three to stage four. Referring to the tidal cycle generated by the WXTIDE programme, coral spawning was predicted to have taken place two to three days before and after a full moon. The possibility of coral spawning was further enhanced before a neap tide. The data presented here suggest that the Scleractinian corals that were studied do not spawn synchronously. This study is hoped to provide a baseline data for coral reproduction in Pulau Redang.

## ASPEK-ASPEK PERSENYAWAAN SESETENGAH BATU KARANG SCLERACTINIA DI PULAU REDANG, TERENGGANU

### ABSTRAK

Kemajuan gonad dan kitaran persenyawaan batu karang Scleractinia di Teluk Bakau, Pulau Redang, Terengganu telah dikaji. Pemantauan telah dijalankan selama 11 minggu dari 1hb Ogos 2003 hingga 10hb Oktober 2003, dimana sembilan penyampelan telah dilaksanakan. Empat spesies batu karang Scleractinia (*Acropora nobilis*, *Acropora hyacinthus*, *Acropora elseyi* dan *Pocillopora verrucosa*) yang terdiri daripada 20 – 30 koloni telah dinyahkalsium, dibedah dan diperiksa. Tiada telur dijumpai dalam dua penyampelan yang pertama. Kenaikan diikuti dengan keturunan peratusan koloni yang mempunyai telur berbeza dengan spesies, dan ini memberi pendapat bahawa pelepasan telur berlaku pada masa yang berbeza untuk spesies yang berlainan. Perubahan saiz telur juga menunjukkan berlakunya proses pelepasan telur. Kemajuan telur dikategori kepada 4 peringkat: (1) tiada gonad, (2) oosit yang kecil, (3) Oosit yang besar berbentuk ovoid tetapi tiada testes dan (4) oosit yang besar dengan testes. Lengkungan tumbesaran telur dengan masa telah diplotkan dan didapati kadar pembesaran adalah tertinggi apabila telur berubah dari peringkat tiga ke peringkat empat. Dengan merujuk kepada kitaran pasang surut air laut yang dijana oleh program WXTIDE, fenomena pelepasan telur batu karang diramalkan berlaku dua hingga tiga hari sebelum dan selepas bulan purnama. Kemungkinan untuk fenomena ini berlaku seterusnya bertambah dengan berlakunya pasang anak. Data yang dipersembahkan memberi pendapat bahawa batu karang Scleractinia yang dikaji tidak melepaskan telur dalam masa yang sama. Kajian ini berharap dapat memberi satu data panduan dasar dalam persenyawaan batu karang di Pulau Redang.