

TAGGING AND MONITORING OF *Acanthaster planci*  
INDIVIDUALS IN THE CORAL REEF OF BIDONG ISLAND

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**TAGGING AND MONITORING OF *Acanthaster planci*  
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**By**

**Lim Wei Chen**

**Research Report submitted in partial fulfillment of  
the requirement for the degree 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:  
*Tagging and monitoring of Acanthaster planci individuals in the coral reef of Bidong Island*  
 by *Lim Wei Chen*, Matric No. *UK 20815* 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 of *Bachelor of Science (Marine Biology)*, Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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## ABBREVIATIONS

<b>CoTS</b>	Crown-of-thorns sea star
<b>GBR</b>	Great Barrier Reef
<b>cm</b>	centimeters
<b>PIT</b>	passive integrated transponder
<b>GPS</b>	Global positioning system
<b>UMT</b>	University Malaysia Terengganu
<b>L</b>	liter
<b>ppt</b>	part per thousand
<b>°C</b>	degree Celcius
<b>m h<sup>-1</sup></b>	meter per hour
<b>m d<sup>-1</sup></b>	meter per day

## ABSTRACT

This study was conducted using *Acanthaster planci* in Bidong Island, Terengganu where different tagging materials were being tested, identification of individuals by using the organism's external morphological features and movement monitoring. Three tagging materials were tested in this study by using wall plugs, rubber strips and plastic tubing. An identification technique by using the number of arms, madreporites, anuses and disk diameter was tested to recognise different individuals. Rubber strips remained attached on the organisms for 12 days, followed by plastic tubing (9 days) and lastly, wall plugs which remained attached for a day. On the other hand, the identification of external morphological features appears to be more reliable since the external morphological features of the organisms underwent slight fluctuation in the disk diameter while the other features (number of arms, madreporites and anus) remained constant after two months of observation. Movement of *A. planci* in the wild were monitored and observed to have foraging movement while distance covered was  $0.87\text{m h}^{-1} / 3.3\text{m d}^{-1}$  on the reef in Bidong Island. The short distances covered by the individuals were due to the adequate availability of food in the area. The identification technique can be improved by developing a feasible tagging material which will then facilitate individual recognition that requires less time and effort.

# PENANDAAN DAN PEMANTAUAN INDIVIDU *Acanthaster planci* DALAM TERUMBU KARANG PULAU BIDONG

## ABSTRAK

Kajian ini dijalankan dengan menggunakan *Acanthaster planci* di Pulau Bidong, Terengganu di mana bahan-bahan penanda yang berbeza telah diuji, teknik pengenalan yang menggunakan sifat-sifat semula jadi organisma dan pemantauan pergerakan. Tiga bahan penanda telah diuji dalam kajian ini dengan menggunakan palam dinding, jalur getah dan tiub plastik. Satu teknik pengenalan dengan menggunakan bilangan lengan, madreporite, dubur dan diameter cakera telah diuji untuk mengenal pasti individu yang berbeza. Jalur getah kekal melekat pada organisma selama 12 hari, diikuti dengan tiub plastik (9 hari) dan akhir sekali, palam dinding yang hanya kekal untuk sehari. Sebaliknya, teknik pengenalan individu menggunakan sifat-sifat semulajadi luaran organisma yang digunakan lebih dipercayai kerana sifat-sifat semula jadi tersebut mengalami perubahan yang sedikit dalam diameter cakera manakala sifat-sifat lain (bilangan lengan, madreporite dan dubur) kekal sama selepas dua bulan pemerhatian. Pergerakan *A. planci* di terumbu karang dipantau dan kelihatan mempunyai pergerakan perburuan dengan jarak yang dilintasi adalah  $0.87\text{m h}^{-1} / 3.3\text{m d}^{-1}$  di Pulau Bidong. Jarak yang singkat dilindungi oleh individu-individu disebabkan adanya makanan yang mencukupi di kawasan itu. Teknik pengenalan boleh diperbaiki dengan membangunkan bahan penanda yang boleh dipakai yang kemudiannya akan memudahkan pengenalan individu.