

AGE DETERMINATION OF THE SPOTTED SEAHORSE,  
*Hippocampus kuda* USING OTOLITHS

BAH HUI HOON

FACULTY OF SCIENCE AND TECHNOLOGY  
UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

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using otoliths / Pak Hui Hoon.



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KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA  
21030 KUALA TERENGGANU

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**HAK MILIK  
PERPUSTAKAAN KUSTEM**

**AGE DETERMINATION OF THE SPOTTED SEAHORSE, *Hippocampus kuda*  
USING OTOLITHS**

**By**

**PAK HUI HOON**

**This project report is submitted in partial fulfillment of the requirements for the  
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**Department of Marine Science**

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# KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA (KUSTEM)

Mengabang Telipot  
21030 Kuala Terengganu

## PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

**Age determination of the spotted seahorse, *Hippocampus kuda* using otoliths** oleh **Pak Hui Hoon**, nombor matirk **UK7547** 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 Utama

Nama: **LIEW HOCK CHARK**

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

Tarikh: **28/03/05**.....

.....  
Ketua Jabatan Sains Samudera

Nama:

Cop Rasmi:

Tarikh: .....

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## ABSTRACT

A total number of 40 *Hippocampus kuda* were examined to determine age by means of their otoliths. Each individual have three pairs of otoliths which are located in the brain cavity. The growth rings on the otoliths were counted from photographs taken and by sketching using camera Lucida. The otoliths were found to be good age indicators in validating seahorse age. Rings on the otoliths correlated well with age of the seahorses. Through the examination on ring counts, each band revealed weekly deposition. This was derived using 15 seahorses of known age. Measuring the body length of seahorse and its otoliths size was the less encouraging methods to use in age determination. As for body length analysis, it only provides us with rather rough indication on the age of seahorse. Otoliths diameter on the other hand, does not show distinct variation in the same age group of specimens. In a nutshell, the precise age of a seahorse is best expressed in terms of ring counts using otolith.

## ABSTRAK

Sejumlah 40 *Hippocampus kuda* telah dikaji dalam mengenalpasti umur mereka dengan menggunakan otolith mereka. Setiap individu mempunyai tiga pasang otolith yang terdapat di dalam bahagian otak. Gelang pertumbuhan pada otolith dikira melalui tangkapan gambar dengan menggunakan komputer dan lakaran gambar dengan menggunakan camera Lucida. Didapati otolith adalah petunjuk umur yang baik dalam proses pengiraan umur kuda laut. Gelang pada otolith berkorelasi baik dengan umur sebenar kuda laut. Melalui eksperimen dalam pengiraan umur, setiap satu gelang mencerminkan deposit secara mingguan. Ini adalah dengan menggunakan 15 ekor kuda laut semasa menjalankan eksperimen., Pengukuran panjang badan kuda laut dan size otolith adalah cara yang kurang menggalakkan dalam mengenalpasti umur kuda laut. Bagi analisis jumlah panjang badan kuda laut memberi umur kuda laut secara kasar. Diameter otolith sebaliknya tidak memnunjukakn variasi yang ketara dalam spesimen umur yang sama. Sesungguhnya, umur kuda laut dapat dikenalpasti melalui pengiraan gelang pada otolith.