

PHILOSOPHY OF SCIENCE AND TECHNOLOGY

SEM NAI SETH

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Hydrology survey in Setiu Lagoon / Siew Kai Shyh.



PERPUSTAKAAN
KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA
21030 KUALA TERENGGANU

1100034646		

Lihat sebelah

HAK MILIK
PERPUSTAKAAN KUSTEM

HYDROLOGY SURVEY IN SETIU LAGOON

By

Siew Kai Shyh

Research Report submitted in partial fulfillment of
the requirement of the degree of
Bachelor of Science (Marine Biology)

Department of Marine Science
Faculty of Science and Technology

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**JABATAN SAINS SAMUDERA
FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI
MALAYSIA**

**PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: Hydrology Survey In Setiu Lagoon oleh Siew Kai Shyh, No. Matrik, UK 6613 telah diperiksa dan semua pembetulan disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Saujana Sains (Biologi Marin), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh:

Penyelia Utama

PROF. DR. LAW AH THEEM

Nama:

Pensyarah
Jabatan Perikanan dan Sains Samudera
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
21030 Mengabang Telipot
Kuala Terengganu.

Cop Rasmi:

Tarikh: 31/3/05

Ketua Jabatan Sains Samudera

Nama: **DR. AHMAD SHAMSUDDIN B. AHMAD**

Ketua

Cop Rasmi:

Jabatan Sains Samudera
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
21030 Kuala Terengganu

Tarikh: 31/3/05

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LIST OF SYMBOLS AND ABBREVIATIONS

°C	degree celcius
%	percentage
o/oo	part per thousand
DO	dissolved oxygen
KCl	Kalium Clorida
mg CaCO ₃ .L ⁻¹	miligram
mg	miligram
mg.L ⁻¹	miligramme per liter
mL	mililiter
mm	milimeter
nm	nano meter
ppm	part per million
ppt	part per thousand
psu	practical salinity unit
SCS	South China Sea
TA	Total Alkalinity
TSS	total suspended solid

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ABSTRACT

The Northeast monsoon effect on the hydrology parameter in Setiu Lagoon was studied. Three sampling periods were conducted during August, October and November (Southwest monsoon, inter-monsoon and Northeast monsoon). For the first sampling, the mean values of temperature, DO, pH, salinity, conductivity, Total alkalinity and suspended particles were 30.37°C, 5.08 mg.L⁻¹, 7.95, 32.25 ppt, 49.00 ms.cm⁻¹, 14.96 mg CaCO₃.L⁻¹ and 56.67 mg.L⁻¹ respectively. For the second sampling, the mean values of temperature, DO, pH, salinity, conductivity, TA and suspended particles were 28.04°C, 4.54 mg.L⁻¹, 8.07, 18.13 ppt, 26.73 ms.cm⁻¹, 69.47 mg CaCO₃.L⁻¹ and 168.89 mg.L⁻¹ respectively. For the third sampling, the mean values of temperature, DO, pH, salinity, conductivity, TA and suspended particles were 28.62°C, 3.61 mg.L⁻¹, 6.96, 16.46 ppt, 26.73 ms.cm⁻¹, 59.47 mg CaCO₃.L⁻¹ and 154.45 mg.L⁻¹ respectively. Anova analysis showed that there were significant differences in between parameter values in the three sampling period ($p < 0.05$). There are significant differences in the water movement among the sampling periods. The Hydrology parameters indicate that Northeast monsoon has a little effect on the salinity in Setiu lagoon.

ABSTRAK

Kajian mengenai pengaruh Monsun Timur Laut terhadap parameter air di Setiu lagoon telah dilakukan. Tiga penyempelan telah dijalankan pada bulan Ogos, Oktober dan November (Monsun Barat Daya, pre-monsun dan Monsun Timur Laut). Nilai-nilai paramter air pada penyempelan pertama iaitu suhu, oksigen terlarut, pH, saliniti, konduktiviti, total alkalinity dan partikel terampai adalah seperti berikut 30.37°C , 5.08 mg.L^{-1} , 7.95, 32.25 ppt, 49.00 ms.cm^{-1} , $14.96 \text{ mg CaCO}_3.\text{L}^{-1}$ dan 56.67 mg.L^{-1} . Nilai-nilai paramter air pada penyempelan kedua iaitu suhu, oksigen terlarut, pH, saliniti, konduktiviti, total alkalinity dan partikel terampai adalah seperti berikut 28.04°C , 4.54 mg.L^{-1} , 8.07, 18.13 ppt, 26.73 ms.cm^{-1} , $69.47 \text{ mg CaCO}_3.\text{L}^{-1}$ and 168.89 mg.L^{-1} . Nilai-nilai paramter air pada penyempelan kedua iaitu suhu, oksigen terlarut, pH, saliniti, konduktiviti, total alkalinity dan partikel terampai adalah seperti berikut 28.62°C , 3.61 mg.L^{-1} , 6.96, 16.46 ppt, 26.73 ms.cm^{-1} , $59.47 \text{ mg CaCO}_3.\text{L}^{-1}$ and 154.45 mg.L^{-1} . Analisis Anova menunjukkan terdapat perbezaan antara ketiga-tiga penyempelan ($p < 0.05$). Terdapat perbezaan ketara pada pergerakan air semasa ketiga-tiga penyemplan. Pengaruh Monsun Timur Laut pada paramter air di Setiu lagoon adalah sangat rendah berdasarkan kepada nilai saliniti.