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Total organic carbon and degradable organic carbon in water an sediment of Setiu Lagoon, Terengganu, South China Sea / Chua Seong Seng.

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Lihat sebelah

TOTAL ORGANIC CARBON AND DEGRADABLE ORGANIC CARBON IN WATER AND SEDIMENT OF SETIU LAGOON, TERENGGANU, SOUTH CHINA SEA

By

CHUAH SEONG SENG

Research Report submitted in partial fulfillment of the requirements for the degree of Bachelor of Science (Marine Science)

Department of Marine Sciences
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:

Total Organic Carbon And Degradable Organic Carbon In Water And Sediment Of Setiu Lagoon, Terengganu, South China Sea oleh ***Chuah Seong Seng***, No. Matrik ***UK8207*** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperolehi ***Ijazah Sarjana Muda Sains Sains Samudera***, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREATIONS

µm	-	Micrometer
‰	-	Part per thousand
ALPHA	-	American Publish Health Association
BOD	-	Biological Oxygen Demand
$C_6H_{12}O_6$	-	Carbohydrate
CH_4	-	Methane
Cl	-	Chlorine
CO_2	-	Carbon Dioxide
COD	-	Chemical Oxygen Demand
DO	-	Dissolved Oxygen
DOC	-	Dissolved organic carbon
DOE	-	Department of Environment
FW	-	Formula Weight
GFC	-	Glass Microfibre Filters
HCl	-	hydrochloride acid
M	-	Molar
Max	-	Maximum
mg C/g	-	Milligram carbon per gram
mg/L	-	Milligram per liter
Min	-	Minimum
ml	-	Milliliter
MW	-	Molecular weight
N	-	Normality
NO_2^-	-	Nitrite
NO_3^-	-	Nitrate
NPOC	-	Non-purgeable organic carbon
O_2	-	Oxygen
°C	-	Degree Celsius
OM	-	Organic matter
p	-	Probability
POC	-	Purgeable organic carbon
S	-	Sulphur
SS	-	Suspended Solid
St	-	Station
Std. Dev.	-	Standard Deviation
TC	-	Total carbon
TIC	-	Total inorganic carbon
TOC	-	Total Organic Carbon
WQS	-	Water Quality Standard
µM	-	Micromole

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ABSTRAK

Bahan organan dan organan biodegradasi dalam air dan sediment di Setiu Lagoon telah dikaji. Tiga lawatan dilakukan ke atas empat belas stesen telah ditentukan. Sampling pertama, kedua dan ketiga dilakukan pada 25 Ogos, 6 Oktober dan 14 Disember 2005. Purata nilai bagi bahan organan, BOD_5, organan biodegradasi, organan tak biodegradasi dan peratus organan biodegradasi dalam sample air semasa sampling pertama ialah 11.42mg C/L ,1.61mg/L, 0.19mg C/g, 11.23mg C/g, and 1.85%; untuk sampling kedua, bacaan ialah 10.04mg C/L, 3.77mg /L, 4.53mg/g, 9.13mg C/g, and 11.46%; dan untuk sampling ketiga, bacaan ialah 32.11mg C/L, 1.19mg/ L , 0.13mg/g, 31.97mg C/g, 0.46%. Bagi sample sediment, semasa sampling pertama, bacaan ialah 6.13mg C/g, 1.27mg/L, 0.79mg C/g, 5.33mg C/g, 18.48%; bagi sampling kedua, bacaan ialah 8.13mg C/g, 1.27mg/L, 1.43mg C/g, 6.70mg C/g, 19.54%; serta untuk sampling ketiga, bacaan ialah 9.46mg C/g, 0.94mg /L, 1.06mg C/g, 8.40mg C/g, 17.73%. Dalam sample air, bahan organan, BOD_5, organan biodegradasi, organan tak biodegradasi dan peratus organan biodegradasi menunjukkan tiada perbezaan ketara ($p>0.05$) antara kesemua stesen. Bahan organan, BOD_5, organan biodegradasi, organan tak biodegradasi dan peratus organan biodegradasi sample air menunjukkan perbezaan yang ketara ($p<0.05$) antara sampling pertama, kedua dan ketiga tetapi keadaan sebaliknya berlaku bage sample sediment. Tambahan pula, bagi sample sediment, bahan organan, BOD_5, organan biodegradasi menunjukkan perbezaan ketara ($p<0.05$) antara stesen sebaliknya, organan tak biodegradasi dan peratus organan biodegradasi menunjukkan tiada perbezaan yang ketara ($p>0.05$) antara stesen.

ABSTRACT

The distribution of organic carbon and degradable organic carbon in water and sediment of Setiu Lagoon were studied. Three trips were conducted on the established fourteen stations. The first, second and third sampling was carried out on 25 August, 6 October and 14 December 2005 respectively. The average values of organic carbon, BOD_5, degradable organic, non-degradable organic and percent of degradable organic carbon in water samples during first sampling were 11.42mg C/L ,1.61mg/L, 0.19mg C/g, 11.23mg C/g, and 1.85% respectively; for the second sampling, the values were 10.04mg C/L, 3.77mg /L, 4.53mg/g, 9.13mg C/g, and 11.46%; for third sampling the values were 32.11mg C/L, 1.19mg/ L , 0.13mg/g, 31.97mg C/g, 0.46% respectively. For sediment samples, for first sampling, the values were 6.13mg C/g, 1.27mg/L, 0.79mg C/g, 5.33mg C/g, 18.48% respectively; for second sampling, the values were 8.13mg C/g, 1.27mg/L, 1.43mg C/g, 6.70mg C/g, 19.54%; for the third sampling, the values were 9.46mg C/g, 0.94mg /L, 1.06mg C/g, 8.40mg C/g, 17.73% respectively. In water samples, organic carbon, BOD_5, degradable organic, non-degradable organic and percent of degradable organic carbon have shown no significant difference ($p>0.05$) among all the stations. Organic carbon, BOD_5, degradable organic, non-degradable organic and percent of degradable organic carbon in water samples indicated a significant difference ($p<0.05$) between the first, second and third samplings but sediment samples in the other way round. In addition, in sediment samples, organic matters, BOD_5, degradable organic showed a significant difference ($p<0.05$) between stations while non-degradable organic and percent of degradable organic matters showed no significant difference ($p>0.05$) between stations.