

PHYTOPLANKTON ABUNDANCE AND DISTRIBUTION IN
CHUKAI, KEMAMAN MANGROVE WATERWAYS

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**PHYTOPLANKTON ABUNDANCE AND DISTRIBUTION IN CHUKAI, KEMAMAN
MANGROVE WATERWAYS**

By

Zulaikha Bt Zainal Abidin

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

**Department of Marine Science
Faculty of Maritime Studies and Marine Science
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2010**



**DEPARTMENT OF MARINE SCIENCE
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DECLARATION AND VERIFICATION REPORT

RESEARCH PROJECT I AND II

It is hereby declared and verified that this research report entitled:
**PHYTOPLANKTON ABUNDANCE AND DISTRIBUTION IN CHUKAI,
KEMAMAN MANGROVE WATERWAYS** by **ZULAIKHA BT ZAINAL ABIDIN,**
Matric No **UK16071** 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 **SCIENCE (MARINE SCIENCE)** Faculty of Maritime
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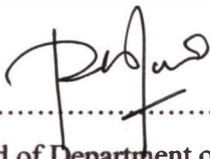
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LIST OF ABBREVIATION

Abbreviation	Description
GPS	Global Positioning System
PRIMER	Plymouth Routines in Multivariate Ecological Research
CANOCO	Canonical Correspondence Analysis
CCA	Canonical Correspondence Analysis
μm	micron meter
%	percentage
sp	species
mg/L	milligram per liter
ppt	part per thousand

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ABSTRACT

Phytoplankton percentage abundance and distribution in relation to the environment parameters was studied from 12 stations in Chukai, Kemaman waterways. A hydrolab quanta was used to measure the water quality parameters such as salinity, dissolved oxygen, pH and temperature at each station. Phytoplankton samples were collected by using Kitahara plankton net. Phytoplankton identification and cell counting was done using Lackey's Drop Method. Counts were expressed as number of cells, diversity index and evenness index. The station similarities were portrayed using PRIMER version 5.2 software. CANOCO version 4.5 software was used to show phytoplankton genera-environment relationship. From the result, there were four major groups of phytoplankton namely Bacillariophyceae, Cyanophyceae, Dinophyceae and Dhrysophyceae, represent 31 genera. Bacillariophyceae was the dominant group with more than 70% population. Chukai, Kemaman waterways relatively high salinity with an average of 26.75ppt and neutral pH (7). Three groups of station similarity, group 1 (station 1 to 4), Group 2 (station 6) and other stations in group 3 (at 77% similarity) and three groups of phytoplankton genera (at 20% similarity), group 1 represented 4 genera, group 2 represented 2 genera and group 3 represented 26 genera of phytoplankton were observed there. One group represented a relationship between the physical parameters (D.O, salinity, temperature, pH) and phytoplankton genera.

ABSTRAK

Taburan dan kelimpahan fitoplankton dan data persekitaran telah dikaji di 12 stesen di alur sungai Chukai, Kemaman. Hydrolab telah digunakan untuk mengukur parameter air di setiap stesen seperti suhu, kemasinan air, kelarutan oksigen dan pH. Sampel fitoplankton diambil dengan menggunakan jaring Kitahara. Pengenalpastian dan pengiraan sel fitoplankton dengan menggunakan kaedah "Lackey's Drop Method". Pengiraan telah dijalankan bagi bilangan sel fitoplankton, indeks kepelbagaian dan indeks kesamarataan. Perisian PRIMER versi 5.2 digunakan untuk mengira dan menunjukkan indeks taburan, indeks kesamarataan dan persamaan antara stesen. Manakala perisian CANOCO versi 4.5 digunakan untuk menunjukkan kaitan antara species fitoplankton dan persekitaran. Dari kajian yang dijalankan, terdapat 4 kumpulan utama fitoplankton iaitu bacillariophyceae, cyanophyceae, dinophyceae dan chrysophyceae. Bacillariophyceae mendominasi dengan lebih 70% kelimpahan. Kawasan ini mempunyai salinity yang tinggi dengan purata 26.75ppt dan pH yang neutral (7). Keseluruhannya, terdapat tiga kumpulan yang mempunyai persamaan stesen sebanyak 77% dan tiga kumpulan mempunyai persamaan genera fitoplankton sebanyak 20% berdasarkan kepada kelimpahan fitoplankton dengan keadaan persekitaran. Terdapat satu kumpulan yang mempunyai hubungan antara fitoplankton dengan parameter fizikal di alur sungai Chukai, Kemaman.