

PHYTOPLANKTON ABUNDANCE, DISTRIBUTION, AND
SPECIES COMPOSITION AT TELUK KALONG, KEMAMAN
TERENGGANU

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FACULTY OF MARITIME STUDIES AND MARINE SCIENCE
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**PHYTOPLANKTON ABUNDANCE, DISTRIBUTION AND SPECIES
COMPOSITION AT TELUK KALUNG, KEMAMAN, TERENGGANU**

By

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**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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UNIVERSITI MALAYSIA TERENGGANU

DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled:

Phytoplankton Abundance, Distribution and Species Composition
at Teluk Katong, Kemaman, Terengganu

by Abdul Rasyid Bin Kasman Matric No. UK22280 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 Bachelor of Science (Marine Biology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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List of Symbols

Symbol		Page
%	Percent	5
μm	Micrometer	15
m	Meter	16
mL	Milliliter	18
L	Liter	18
mm	Millimeter	18
μL	Microliter	18
ppt	Part per thousand	21
/	Present	22
0	Absent	22
Nat./L	Natural unit per liter	27
TM	Trademark	41
NM	Nautical Mile	41
$^{\circ}\text{C}$	Degree Celsius	42
Cells L^{-1}	Cell per liter	49

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Appendix

- A** Density of phytoplankton according to class and mesh size respectively.
- B** Pictures of several dominant phytoplankton
- C** Picture of freshwater effluent at Teluk Kalong, Kemaman.
- D** Pictures of Unknown Species
- E** List of Marine Dinoflagellates Found in Malaysian Waters (DOF, 2007).

Abstract

This finding of this study is to provide the current status of phytoplankton community in term of abundance, species composition and distribution. In order to study the alien species identification, this study can be used as baseline data to determine the native species that already present at Teluk Kalong's waters. This study was conducted at Teluk Kalong, Kemaman, Terengganu. The *in situ* parameter did not affect the phytoplankton density and distribution. A total of 3 Phyla, 4 Classes, 33 Family and 44 Genus of phytoplankton were recorded. For species composition, it was distributed evenly based on its appearance in the mesh size. 24.14% - 37.93% portion of phytoplankton presence in 60 μ m. 27.59% - 43.10% of phytoplankton filtered in 40 μ m and 29.41% - 36.36% in 20 μ m. Phytoplankton density ranging from 1743.432 Nat. Unit/L to 8906.493 Nat. Unit/L. Station 3, 12, and 14 has highest densities, which the nearest station to the land. Bacillariophyceae, 84.53%, dominated by *Guinardia* sp. and *Rizhosolenia*, was the highest percentage in all station, followed by Cyanophyceae, by 10.50%, Dinophyceae by 4.06% which dominated by *Dinophysis* sp. and *Ceratium* sp., and Dictyochophyceae by 0.003%. Value of 3.42 in station 3 had the highest diversity while for 2.78 and 2.96 in stations 5 and station 8, had the lowest diversity of phytoplankton. The value of the phytoplankton diversity was grouped under second Diversity Form, which is rich in diversity. In this study, none of the phytoplankton was new in the Teluk Kalong waters.

Kelimpahan, Taburan, dan Komposisi Spesies Fitoplankton di Teluk Kalong, Kemaman, Terengganu

Abstrak

Dapatan daripada kajian ini adalah untuk memberi status semasa komuniti fitoplankton dari segi kelimpahan, komposisi spesies dan taburan. Dalam usaha untuk mengkaji pengenalan spesies asing, kajian ini boleh digunakan sebagai data asas untuk menentukan spesies asli yang sudah hadir di perairan Teluk Kalong ini. Fizikal parameter tidak menjejaskan kepadatan dan taburan fitoplankton. Sebanyak 3 Filum, 4 Kelas, 33 Famili dan 44 Genus fitoplankton telah direkodkan. Untuk komposisi spesies, ia diagihkan secara sama rata berdasarkan kehadiran dalam saiz jejaring. 24.14% - 37.93% kehadiran fitoplankton di 60 μ m. 27.59% - 43.10% daripada fitoplankton ditapis dalam 40 μ m dan 29.41% - 36.36% ditapis dalam 20 μ m. Julat kepadatan fitoplankton dari 1743.432 Nat. Unit / L hingga 8906.493 Nat. Unit / L. Station 3, 12, dan 14 mempunyai kepadatan tertinggi, di mana stesen terdekat dengan pantai. Bacillariophyceae, 84.53%, dikuasai oleh *Guinardia* sp. dan *Rizhosolenia* sp., adalah peratusan yang tertinggi di semua stesen, diikuti oleh Cyanophyceae, dengan 10.50%, Dinophyceae oleh 4.06% yang dikuasai oleh *Dinophysis* sp. dan *Ceratium* sp., dan Dictyochophyceae oleh 0.003%. Nilai 3.42 di stesen 3 mempunyai kepelbagaian tertinggi manakala bagi 2.78 dan 2.96 di stesen 5 dan stesen 8, mempunyai kepelbagaian yang paling rendah fitoplankton. Nilai kepelbagaian fitoplankton telah dikumpulkan di bawah Bentuk Kepelbagaian ditahap kedua, iaitu kaya dengan kepelbagaian. Dalam kajian ini, tiada satu pun daripada fitoplankton adalah baru di perairan Teluk Kalong.