

**THE ABUNDANCE AND DIVERSITY OF
PHYTOPLANKTON AT KUALA TERENGGANU
COASTAL WATERS, TERENGGANU**

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**THE ABUNDANCE AND DIVERSITY OF PHYTOPLANKTON AT
KUALA TERENGGANU COASTAL WATERS, TERENGGANU**

By

Alifah Ilyana binti Mohd Husni

**Research Report submitted in partial fulfillment
of the requirements for the degree of
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FINAL YEAR PROJECT REPORT VERIFICATION
PENAKUAN DAN PENGESAHAN LAPORAN

It is hereby declared and verified that this project report titled **The Abundance and Diversity of Phytoplankton at Kuala Terengganu Coastal Waters, Terengganu** by **Alifah Ilyana Binti Mohd Husni, UK30859** have been examined and all errors identified have been corrected. This report is submitted to the School of Marine and Environmental Sciences as partial fulfillment towards obtaining the **Bachelor of Science (Marine Science)** from School of Marine and Environmental Sciences, Universiti Malaysia Terengganu.

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DECLARATION

It is hereby declared and verified that this project report titled **The Abundance and Diversity of Phytoplankton at Kuala Terengganu Coastal Waters, Terengganu** by **Alifah Ilyana Binti Mohd Husni, UK30859** have been examined and all errors identified have been corrected. This report is submitted to the School of Marine and Environmental Sciences as partial fulfillment towards obtaining the **Bachelor of Science (Marine Science)** from School of Marine and Environmental Sciences, Universiti Malaysia Terengganu.

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ABSTRACT

The diversity, abundance and distribution of phytoplankton along Kuala Terengganu coastal waters have been sampled from 11th until 14th June 2015. The phytoplankton samples have been collected within range 8 – 52 meters from the water surface. Water sample (L) was collected and filtered through 60 µm mesh size plankton net. Filtered phytoplankton sample was concentrated to 150 mL and preserved with 10% formalin solution. Identification of phytoplankton to the genus level and cell counting using Lackey's method was done under light microscope. Calculation was done for density (cells/L), diversity index and evenness index. Phytoplankton density was counted using Lackey's method. About 31 genera were present from all of the sampling samples. Phylum Bacillariophyta was the most abundant. Most of abundant phytoplankton genera present were *Trichodesmium*, *Bacteriastrum*, *Chaetoceros*, *Rhizosolenia*, *Proboscia*, *Thalassionema*, *Guinardia*, *Coscinodiscus* and *Ceratium*.

The highest density of phytoplankton was in Station 24 (1641.25 cells/L). Diatom was more abundant compared to the dinoflagellates and cyanobacteria. The highest diversity index of phytoplankton was in Station 1 ($H' = 2.32$) with evenness index ($J' = 0.77$). The higher the diversity index (H') values, the higher the evenness index (J') values.

KAJIAN KEPELBAGAIAN DAN TABURAN FITOPLANKTON DI PERAIRAN KUALA TERENGGANU

ABSTRAK

Sampel fitoplankton untuk kajian kepelbagaian, taburan dan jumlah fitoplankton telah diambil di sepanjang perairan Kuala Terengganu dari 11 hingga 14 Jun 2015. Sampel fitoplankton telah diambil sekitar 8 – 52 meter dari permukaan air. Sampel fitoplankton sebanyak L dikumpulkan. Sampel yang dikumpul telah ditapis menggunakan jaring plankton berukuran 60 μm . Sampel telah dipekatkan kepada 150 mL dan diawet menggunakan larutan formalin. Pengenalpastian fitoplankton kepada peringkat genus dan pengiraan sel dengan kaedah Lackey telah dijalankan menggunakan mikroskop kompaun. Pengiraan dijalankan bagi ketumpatan (sel per liter), indeks diversity dan indeks kesamarataan. Ketumpatan fitoplankton telah dikira dengan menggunakan kaedah Lackey's. 31 genera telah dikenal pasti daripada semua sampel. Filum Bacillariophyta adalah antara yang terbanyak. Antara genera yang paling banyak dijumpai adalah *Trichodesmium*, *Bacteriastrum*, *Chaetoceros*, *Rhizosolenia*, *Proboscia*, *Thalassionema*, *Guinardia*, *Coscinodiscus* dan *Ceratium*. Stesen 24 menunjukkan ketumpatan sel fitoplankton yang paling tinggi sebanyak 1641.25 sel/L. Diatom adalah paling banyak berbanding dinoflagellates dan cyanobacteria. Fitoplankton indeks diversiti paling tinggi di Stesen 1 ($H'=2.32$) dengan indeks evenness ($J'=0.77$). Semakin tinggi nilai indeks diversity (H'), semakin tinggi nilai indeks evenness (J').