

A STUDY OF PLANKTON COMPOSITION AND ABUNDANCE IN
FISH POND AT PENGKALAN GELAP, SETIU.

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**A STUDY OF PLANKTON COMPOSITION AND ABUNDANCE IN
FISH POND AT PENGKALAN GELAP, SETIU.**

By

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**Research report submitted in partial fulfillment of
the requirement for the degree of
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**DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT**

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

Study of Plankton Composition and Abundance in Aquaculture Pond at Kampung Pengkalan Gelap, Setiu, Terengganu by Norrafiuddin bin Yusoff, Matric No. UK17267 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 Biology), Faculty of Maritime Studies and Marine Science, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

ind/L	-	individuals per liter
cells/L	-	individuals of phytoplankton per liter
μm	-	micrometer
$^{\circ}\text{C}$	-	degree celcius
NTU	-	Nephelometric Turbidity Units
mg/L	-	miligram per liter
ppt	-	part per thousand
m	-	meter
mm	-	milimeter
mL	-	mililiter

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ABSTRACT

Plankton research is critical in the aquaculture as the plankton serve as live food for the fish cultured. This study is focused on the plankton composition and abundance in different type of aquaculture pond. Different types of pond hold different fish stage; larvae and juvenile stage. This study was done at Kampung Pengkalan Gelap, Setiu from May to July 2010. Sample of water from four different type of pond is collected using hand net with 20 μm mesh size were brought back to lab for plankton analysis. The sample is preserved using 4% buffered formalin for zooplankton and Lugol's iodine for phytoplankton. The pond is juvenile pond, fish larvae pond, plankton cultured pond and control pond. The phytoplankton and zooplankton were identified and counted using Lackey's method for phytoplankton and zooplankton is using the formula to calculate the density. To know what species of plankton is abundance in pond is important. For phytoplankton, genus *Chaetoceros* is the most abundance where it presents in all ponds. The higher density of phytoplankton recorded in fish larvae pond with the value 3.34×10^4 cells/L. For zooplankton, the most abundant of zooplankton is copepod and rotifers. The higher density of the zooplankton is on the first sampling of the fish larvae pond. The physical parameter of the water generally stable except the dissolved oxygen (DO) of the control pond where it reaches low value at 0.2 mg/L. The physical parameter was affect by the construction of new pond and the tide current.

Kajian Tentang Komposisi Dan Kelimpahan Plankton Di Dalam Kolam Ikan Di
Kampung Pengkalan Gelap, Setiu.

ABSTRAK

Kajian berkaitan plankton adalah amat perlu dalam bidang akuakultur kerana plankton bertindak sebagai makanan semulajadi kepada ikan. Kajian ini tertumpu kepada kadungan komposisi dan kelimpahan plankton di dalam kolam ikan yang berlainan peringkat kitaran hidup ikan. Komposisi plankton adalah amat penting di dalam sesuatu kolam yang mempunyai peringkat kitaran hidup yang berlainan kerana plankton memainkan peranan dalam tumbesaran ikan tersebut. Kajian ini dijalankan di kolam ikan di Kampung Pengkalan Gelap, Setiu. Sampel air di bawa balik ke makmal untuk di analisis dan dikenalpasti sampel plankton yang terdapat di dalam kolam tersebut. Bilangan dan jenis fitoplankton dan zooplankton dikira dan dikenalpasti kerana adalah penting untuk memastikan jenis plankton yang terdapat di dalam setiap kolam. Kumpulan fitoplankton yang mempunyai kelimpahan tertinggi adalah dari genus *Chaetoceros* dimana ia hadir di dalam setiap kolam. Kolam yang mempunyai bilangan fitoplankton paling banyak ialah kolam larva ikan dimana nilai ketumpatan fitoplankton ialah 3.34×10^4 sel/L. Bagi zooplankton, kumpulan yang mempunyai nilai kelimpahan tertinggi ialah dari kumpulan copepod dan rotifer. Bagi kolam yang mengandungi ketumpatan paling tinggi ialah kolam larva ikan pada penyampelan pertama. Keadaan kualiti air adalah stabil bagi setiap kolam kecuali pada kolam kawalan dimana jumlah oksigen terlarut adalah rendah dan nilai terendah dicatatkan ialah 0.2 mg/L. Pembinaan kolam baru dan pasang surut air mengubah keadaan kualiti air. Penyampelan ini dijalankan pada bulan Mei hingga Julai.