



A SURVEY ON PLANKTON & PRIMARY PRODUCTIVITY OF KELANTAN RIVER SYSTEMS

**DR. ROHASLINEY HASHIM
PUSAT PENGAJIAN SAINS KESIHATAN
(304 / PPSK / 6131633)**

LAPORAN AKHIR PROJEK PENYELIDIKAN JANGKA PENDEK
FINAL REPORT OF SHORT TERM RESEARCH PROJECT

Sila kemukakan laporan akhir ini melalui Jawatankuasa Penyelidikan di Pusat Pengajian dan Dekan/Pengarah/Ketua Jabatan kepada Pejabat Pelantar Penyelidikan

1. Nama Ketua Penyelidik:
Name of Research Leader

Dr Rohasliemy Hashim

Profesor Madya/
Assoc. Prof

Dr
Dr

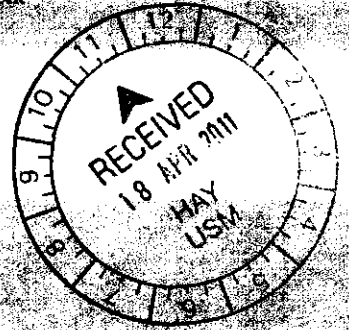
Encik/Puan/Cik
Mr/Ms/Ms

2. Pusat Tanggungjawab (PTJ):
School/Department

Pusat Pengajian Sains Kesihatan

3. Nama Penyelidik Bersama:
Name of Co-Researcher

TIADA



4. Tajuk Projek:
Title of Project

A Survey on Plankton & Primary Productivity of Kelantan River Systems

5. Ringkasan Penilaian/Summary of Assessment

Tidak
Mencukupi
Inadequate

Boleh
Diterima
Acceptable

Sangat Baik
Very Good

1

2

3

4

5

i) Pencapaian objektif projek:

Achievement of project objectives

ii) Kualiti output:

Quality of outputs

iii) Kualiti impak:

Quality of impacts

iv) Pemindahan teknologi/potensi pengkomersialan:

Technology transfer/commercialization potential

v) Kualiti dan usahasama :

Quality and intensity of collaboration

vi) Penilaian kepentingan secara keseluruhan:

Overall assessment of benefits

6. **Abstrak Penyelidikan**

(Perlu disediakan di antara 100 - 200 perkataan di dalam Bahasa Malaysia dan juga Bahasa Inggeris. Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar).

Abstract of Research

(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English).
This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)

As per attached separately

7. **Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini.**

[Sila gunakan kertas berasingan]

Applicant are required to prepare a Comprehensive Technical Report explaining the project.
(This report must be appended separately)

As per attached separately

Senaraikan kata kunci yang mencerminkan penyelidikan anda:

List the key words that reflects your research:

Bahasa Malaysia

Bahasa Inggeris

Sungai

River

Plankton

Plankton

Produktiviti Primer

Primary Productivity

8. **Output dan Faedah Projek**

Output and Benefits of Project

(a) * **Penerbitan Jurnal**

Publication of Journals

(Sila nyatakan jenis, tajuk, pengarang/editor, tahun terbitan dan di mana telah diterbitkan/diserahkan)

(State type, title, author/editor, publication year and where it has been published/submitted)

Mentioned in the technical report

(b) **Faedah-faedah lain seperti perkembangan produk, pengkomersialan produk/pendaftaran paten atau impak kepada dasar dan masyarakat.**
State other benefits such as product development, product commercialisation/patent registration or impact on source and society.

N/A

* Sila berikan salinan/Kindly provide copies

(c) **Latihan Sumber Manusia**
Training in Human Resources

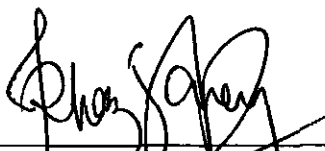
i) **Pelajar Sarjana**
Graduates/Students
(Berikan nama, ijazah dan status)
(Provide names, degrees and status)

1. Siti Zulfarina Fadzil - Master, active
2. Tan Rock Yan - Master, active

ii) **Lain-lain**
Others

9. **Peralatan yang Telah Dibeli:**
Equipment that has been purchased

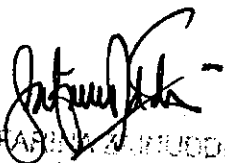
Kemmerer Water Sampler
Plankton Net


Tandatangan Penyelidik
Signature of Researcher

29/3/2011
Tarikh
Date

Komen Jawatankuasa Penyelidikan Pusat Pengajian/Pusat
Comments by the Research Committees of Schools/Centres

Penyelidikan telah mencapai objektif kajian yang
di sarankan .


DR. ZAFARWAN BIN MUZZIDIN
Tandatangan Pengerusi
JAWATANKUASA PENYELIDIKAN
PUSAT PENGAJIAN/PUSAT
Signature of Chairman
[Research Committee of School/Centre]

13/4/2011

Tarikh
Date

ABSTRACT

A two year study (January 2008 – December 2010) of plankton and primary productivity was conducted in Kelantan and Pengkalan Chepa rivers. These two rivers are considered as main river of Kelantan River Systems. Kelantan River is influenced by intensive sand mining and urbanization which at this moment could be categorized as CLASS III river. Meanwhile Pengkalan River is influenced by industrialization and was categorized as CLASS III river by Department of Environment. Zooplankton and phytoplankton are included in this study. However, the identification is yet to be completed. At this moment, there were 955 individuals of zooplankton were identified in Kelantan River, which representing 13 families and 50 species while 1260 individuals were identified in Pengkalan Chepa River which consists of 11 families and 35 species. The most dominant and abundant species in Pengkalan Chepa river was *Monostyla lunaris* while *Lecane elasma* dominated the Kelantan River. The net primary productivity value for majority of the stations in the study site showed the negative value. This indicates that the more oxygen was consumed than produced.

ABSTRAK

Kajian terhadap plankton dan produktiviti primer telah dijalankan selama dua tahun (Januari 2008 - Disember 2010) di Sungai Kelantan dan Sungai Pengkalan Chepa. Kedua-dua sungai dianggap sebagai sungai utama bagi sistem sungai Kelantan. Sungai Kelantan dipengaruhi oleh perlombongan pasir secara intensif dan pembangunan pambandan dan sungai boleh dikategorikan sebagai sungai KELAS III. Sementara itu Sungai Pengkalan dipengaruhi oleh industrialisasi dan dikategorikan sebagai sungai KELAS III oleh Jabatan Alam Sekitar. Zooplankton dan fitoplankton termasuk dalam kajian ini. Namun, proses pengenalpastian setiap plankton masih belum selesai. Pada masa ini, terdapat 955 zooplankton yang dikenalpasti di Sungai Kelantan, yang mewakili 13 famili dan 50 spesies manakala 1260 zooplankton telah dikenalpasti di Sungai Pengkalan Chepa yang terdiri daripada 11 famili dan 35 spesies. Jenis yang paling dominan dan berlimpah di Sungai Pengkalan Chepa ialah *Monostyla lunaris* sementara *Lecane elasma* mendominasi Sungai Kelantan. Nilai produktiviti bersih utama bagi sebahagian besar stesen di lokasi kajian menunjukkan nilai negatif. Hal ini menunjukkan bahawa lebih banyak oksigen yang digunakan dari dihasilkan.