

**UNIVERSITI SAINS MALAYSIA
PROJEK PENYELIDIKAN UNIVERSITI
PENYELIDIKAN
LAPORAN AKHIR**

**INTEGRATING ENVIRONMENT
CHARACTERISTICS AND FISHERIES
MANAGEMENT IN GALAS RIVER BASIN**

PENYELIDIK

DR. ROHASLINEY HASHIM

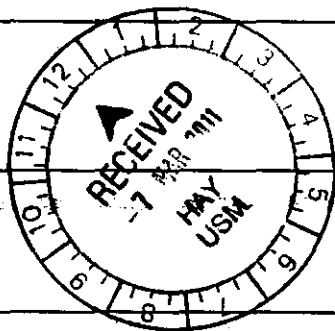
PENYELIDIK BERSAMA

DR. AMIR SHAH RUDDIN MD SAH

2011

**UNIVERSITY RESEARCH GRANT
FINAL REPORT
Geran Penyelidikan Universiti
Laporan Akhir**

A.	TITLE OF RESEARCH: <i>Tajuk penyelidikan:</i> Integrating Environmental characteristics and fisheries management in Galas River Basin 1001/PPSK/815018
B.	PERSONAL PARTICULARS OF RESEARCHER / MAKLUMAT PENYELIDIK:
(i)	Name of Research Leader: <i>Nama Ketua Penyelidik:</i> Dr Rohasliney Hashim¹
	Name of Co-Researcher <i>Nama Penyelidik Bersama:</i> Dr Amir Shah Ruddin Md Sah²
(ii)	School/Institute/Centre/Unit : <i>Pusat Pengajian /Institut/Pusat/Unit :</i> ¹ School of Health Sciences ² School of Biological Sciences



C.	Research Platform (Please tick (✓) the appropriate box): <i>Pelantar Penyelidikan (Sila tanda (✓) kotak berkenaan):</i> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> A. Life Sciences <i>Sains Hayat</i> <input type="checkbox"/> B. Fundamental <i>Fundamental</i> <input type="checkbox"/> C. Engineering & Technology <i>Kejuruteraan & Teknologi</i> <input type="checkbox"/> D. Social Transformation <i>Transformasi Sosial</i> <input type="checkbox"/> E. Information & Communications Technology (ICT) <i>Teknologi Maklumat & Komunikasi</i> <input type="checkbox"/> F. Clinical Sciences <i>Sains Klinikal</i> <input type="checkbox"/> G. Biomedical & Health Sciences <i>Bioperubatan Sains Kesihatan</i>
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<p>D.</p>	<p>Duration of this research : <i>Tempoh masa penyelidikan ini :</i></p> <p>*Duration : 3 Years (Dilanjutkan selama 3 bulan) <i>Tempoh :</i></p> <p>From : 31/10/2007 To : 31/12/2010 <i>Dari : Ke :</i></p>
<p>E.</p>	<p>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)</p> <p>River fisheries contribute significantly to the food security, health and livelihoods of hundreds of millions of people. Currently, river and floodplain fisheries in Asia are yielding an estimated 16 million tons annually worldwide. However, as use of water for irrigation has increased, together with demand for urban and industrial use, fish catches along these river systems have declined. Kelantan recorded more than 35 freshwater species to date. It is estimated that river fish landings in Kelantan only contributed about 3.5 to 4.1 % of total river fish production. This contribution has been considered as the optimum level and it is expected to be in the region of 87,000 kg per year, occasionally fluctuated depending on the situation. Galas River Basin (GRB)'s case study revealed that GRB is contributed about 15-20 % of total river fish production in Kelantan (average 21, 432 kg of two year sampling, 2008-2009). Total CPUE (g/hour/yr) showed that GRB is producing a very low catch if compared to other inland fisheries. Fish biomass and CPUE did not have a significant correlation with water quality because water quality did not fluctuate to a great extent during sampling periods and acceptable for fish growth and survival. Study had been conducted in Galas River because it is one of prominent river contributing into Kelantan River in Kelantan State. Intensive sampling activities were carried out twice in a year which encompass rainy and dry season. Sampling was carried out in two years for better results and analysis.</p> <p>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).</p> <p>See APPENDIX 1</p>
<p>F.</p>	<p>SUMMARY OF RESEARCH FINDINGS <i>Ringkasan dapatan Projek Penyelidikan</i></p> <p>See APPENDIX 2</p>

G. COMPREHENSIVE TECHNICAL REPORT

Laporan Teknikal Lengkap

Applicants are required to prepare a comprehensive technical report explaining the project.
(This report must be attached separately)

Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini.
[Laporan ini mesti dikepilkan]

As per attached separately

List the key words that reflectour research:

Senaraikan kata kunci yang mencerminkan penyelidikan anda:

English	Bahasa Malaysia
River	Sungai
Fisheries	Perikanan
Environment	Persekitaran

PUBLICATION

Cited Journal

1. Rohasliney, H. 2010. Status of River Fisheries in Kelantan, Peninsular Malaysia, Malaysia. World Academy of Science, Engineering and Technology 65: 829-834. ISSN: 2070-3740. (indexed by Thomson Reuters (ISI), SCIRUS, Google Scholar, Engineering Index (Compendex), EBSCO, GALE, DOAJ, INTUTE, Scientific Commons and Electronic Journals Library)
2. Rohasliney, H. 2011. River fisheries in Kelantan: A note on fish landings and conservation issues. *Journal of Sustainability Science and Management*. (dalam semakan)

Journal Proceeding

1. Mohd Rezza Petra Azlan & Rohasliney, H. 2009. Study of freshwater fish assemblages and its productivity at Galas River, Kelantan. In: Jamaluddin Md Jahi, Muhammad Rizal Razman, Deni Efizon, Kadaruddin Aiyub, Kadir Arifin, Bustari Hasan, (editors). 167-174pp. Prosiding Seminar Antarabangsa ke-2: Ekologi, Habitat Manusia & Perubahan Persekitaran. Universiti Kebangsaan Malaysia. ISBN978-983-2457-11-4.
2. Mohd Rezza Petra Azlan & Rohasliney Hashim. 2010. Kajian Perikanan Air Tawar dan Produktivitinya di Sungai Galas, Kelantan. In: Deni Efizon, Jamaluddin Md. Jahi, Muhammad Rizal Razman, Sofyan Husein Siregar, Dewita Bukhari, Nofrizal, Desmelati & Asmika Harnalin Simarnata, (editors). 496-504pp. Ekologi, Habitat Manusia dan Perubahan Persekitaran Prosiding Seminar Antarabangsa Ke-3 Ekologi, Habitat Manusia dan Perubahan Persekitaran. BPP-PSPL Press, Pekan Baru. ISBN: 979-999-1-4.
3. Rohasliney H., Siti Amirah J., Nurul Izzati A. S., Mohd Rezza Petra A., Miti Fateema Yusliza, M. Y. & Amir Shah Ruddin, M.S. 2010. Fish diversity in unpolluted and polluted river, Kelantan, Malaysia. In: Devagi K, Meekiong K, Isa I, Lim C.K, Lim P.T., Hairul A.R, Y E, Azaima R, Ho W.S, Samsur M., Jamilah J., Cheksum T. & Fasihuddin A., (editors). 476-491pp. Proceeding of Conference on Natural Resources in the Tropics 3. Universiti Malaysia Sarawak, Samarahan, Sarawak. ISBN 978-967-5418-11-2

Oral/Abstract

4. Rohasliney H., Siti Amirah J., Nurul Izzati A. S., Mohd Rezza Petra A., Miti Fateema Yusliza, M. Y. & Amir Shah Ruddin, M.S. 2009. Initial study on fish diversity in Galas River and Pengkalan Chepa River, Kelantan, Malaysia World Congress on Biodiversity. March 2009. Chiang Mai, Thailand. (Oral/Abstract)

H.

a) Results/Benefits of this research
Hasil Penyelidikan

No. Bil:	Category/Number: Kategori/ Bilangan:	Promised	Achieved
1.	Research Publications (Specify target journals) <i>Penerbitan Penyelidikan</i> (Nyatakan sasaran jurnal)	4	1 (2010) 3 (2011, under review)
2.	Human Capital Development		
	a. Ph. D Students	1	0 Dropped out
	b. Masters Students	2	1 (writing stage) 1 (dropped out)
	c. Undergraduates (Final Year Project)	0	0
	d. Research Officers	1	1
	e. Research Assistants	1	1
	f. Other: Please specify	-	-
3.	Patents <i>Paten</i>	-	-
4.	Specific / Potential Applications <i>Spesifik/Potensi aplikasin</i>	-	-
5.	Networking & Linkages <i>Jaringan & Jalinan</i>	5	4
6.	Possible External Research Grants to be Acquired <i>Jangkaan Geran Penyelidikan Luar Diperoleh</i>	-	-

- Kindly provide copies/evidence for Category 1 to 6.

b) Equipment used for this research.

Peralatan yang telah digunakan dalam penyelidikan ini.

Items Perkara	Approved Equipment	Approved Requested Equipment	Location
Specialized Equipment Peralatan khusus	GPS Sonar Laptop		Environmental & Occupational Laboratory, School of Health Sciences
Facility Kemudahan	Environmental & Occupational Laboratory, School of Health Sciences		
Infrastructure Infrastruktur			

- Please attach appendix if necessary.

I. BUDGET / BAJET

Perbelanjaan : Expenditure

Project Account No. : 1001/PPSK/815018

Total Approved Budget : RM 231,560.00

Total Additional Budget : RM 0

Grand Total of Approved Budget : RM 231,560.00

Yearly Budget Distributed

Year 1 : RM 89,960.00

Year 2 : RM 74,760.00

Year 3 : RM 0

Additional Budget Approved

Year 1 : RM

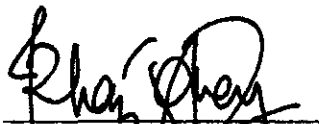
Year 2 : RM

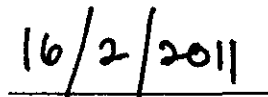
Year 3 : RM

Total Expenditure : RM 164,720.00

Balance : RM 0

- **Please attach final account statement from Treasury**


Signature of Researcher
Tandatangan Penyelidik


Date
Tarikh

H.

COMMENTS OF PTJ'S RESEARCH COMMITTEE
KOMEN JAWATANKUASA PENYELIDIKAN PERINGKAT PTJ

General Comments:

Ulasan Umum:

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.....
.....
.....

.....
Signature and Stamp of Chairperson of PTJ's Evaluation Committee
Tandatangan dan Cop Pengerusi Jawatankuasa Penilaian PTJ

Date :
Tarikh :

Signature and Stamp of Dean/ Director of PTJ
Tandatangan dan Cop Dekan/ Pengarah PTJ

Date :
Tarikh :

H.

COMMENTS OF PTJ'S RESEARCH COMMITTEE
KOMEN JAWATANKUASA PENYELIDIKAN PERINGKAT PTJ

General Comments:

Ulasan Umum:

Objective of research is achieved but ^{did not meet} the number of publications and postgraduate student targeted. Few publications are in the pipeline and 1 under review. Overall achievement is satisfactory.

DR. ZAFARINA ZAINUDDIN
Timbalan Dekan

(Penyelidikan & Pengajaran Sains) ~~Penyelidikan & Pengajaran Sains~~

Signature and Stamp of Chairperson of PTJ's Evaluation Committee

Tandatangan dan Cop Pengerusi Jawatankuasa Penilaian PTJ
Kampus Kesihatan.

Date : 28/2/2011

Tarikh :

Signature and Stamp of Dean/ Director of PTJ

Tandatangan dan Cop Dekan/ Pengarah PTJ

Date : 1/3/11

Tarikh :

PROFESOR DR. AHMAD HJ ZAKARIA
Dekan
Pusat Pengajian Sains Kesihatan
Universiti Sains Malaysia
Kampus Kesihatan
16150 Kungang Kerian
Kelantan.

Abstrak Penyelidikan

Perikanan sungai menyumbangkan secara signifikan kepada keselamatan makanan, kesihatan dan kehidupan bagi berjuta manusia. Dewasa ini, kebanyakan perikanan darat dan dataran sungai seluruh dunia memberi hasil sekurang-kurangnya 16 juta tan setahun. Bagaimanapun, akibat penggunaan air secara melampau untuk tujuan pengairan dan keperluan domestik dan industri, pendaratan ikan di sepanjang sungai telah pun semakin berkurangan. Kelantan direkodkan mempunyai lebih daripada 35 spesies ikan air tawar manakala pendaratan ikan air tawar Kelantan menjangkau 3.5 sehingga 4.1% daripada keseluruhan pendaratan ikan sungai di Malaysia. Kajian di Lembangan Galas (LG) menunjukkan bahawa LG menghasilkan lebih kurang 15-20% daripada keseluruhan penghasilan ikan di Kelantan (dengan purata 21,432 kg selama 2 tahun penyampelan). Jumlah CPUE (g/jam/tahun) menunjukkan LG menghasilkan tangkapan paling rendah berbanding perikanan darat yang lain. Biomas dan CPUE ikan didapati tiada perkaitan dengan keadaan kualiti air kerana kualiti air di LG tidak mengalami perubahan yang ketara di sepanjang penyampelan dijalankan dan masih sesuai untuk pertumbuhan dan kemandirian spesies ikan. Kajian dijalankan di Sungai Galas kerana sungai ini merupakan salah satu daripada sungai yang paling menonjol dan terkenal di Kelantan. Sungai ini kemudiannya bersambung dengan Sungai Kelantan. Kajian secara intensive dijalankan dua kali setahun yang merangkumi musim panas dan musim hujan. Penyampelan dijalankan secara berterusan selama dua tahun bagi menghasilkan keputusan yang lebih baik untuk analisis statistik.

Human activities generally reduce the number of native species and intolerant species while increasing the number of non native and tolerant species. Catfishes, snakeheads and perches are known for their high tolerance of poor water quality. In addition to that, less abundant of fish in degraded habitats also can be seen in this study (*sensu* Rohasliney et al. 2009; 2010). It is well-known that biodiversity contributes to human mankind through its stabilizing effect on the environment: an ecological function that is so crucial in maintaining and preserving the survival of many living species that form our biological heritage. The value of our biodiversity in ensuring a healthy environment and the role it serves in the advancement of science, education and humanity at large scale need no further elaboration. Evidently, fish serves as just one example of effects on living organisms of human-induced environment degradation; biodiversity loss is threatening; cutting across and into all taxa. It is everybody's responsibility to make sure our biodiversity is sustainable because low quantity and quality of freshwater threaten economic prosperity, social stability, and the resilience of an ecosystem services and natural capital (*sensu* Rohasliney et al. 2009; 2010)