

FRESHWATER FISH DIVERSITY AND COMMUNITY  
STRUCTURE AT CG. SENYU, PERANGGANGU

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2006



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SEKAYU, TERENGGANU

By

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Research Report Submitted in partial fulfillment of  
the requirements for the degree of  
Bachelor of Applied Science (Biodiversity Conservation and Management)

Department of Biological Sciences  
Faculty of Science and Technology  
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA  
2006

This project should be cited as:

Zinneerah, A. Z. 2006. Freshwater fish diversity and community structure at Sg. Sekayu, Terengganu. Undergraduate thesis, Bachelor of Applied Science in Biodiversity Conservation and Management, Kolej Universiti Sains dan Teknologi Malaysia, Terengganu. 83p.

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**PENGAKUAN DAN PENGESAHAN LAPORAN  
PROJEK PENYELIDIKAN I DAN II**

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: FRESHWATER FISH DIVERSITY AND COMMUNITY STRUCTURE AT SG. SEKAYU, TERENGGANU oleh Zinneerah Binti Ahmad Zamil, no. matrik: UK7973 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah Sarjana Muda Sains Gunaan-Pemuliharaan Dan Pengurusan Biodiversiti, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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## ACKNOWLEDGEMENT

First and foremost, I would like to thank God the Almighty for giving me the strength and endurance in completing this project. It is my pleasure to express deepest gratitude towards Mr. Amirrudin bin Ahmad from Departmental of Biological Science and Technology, as my supervisor, for his patience, guidance, advices and support for the whole period of my project. Your constructive comments were greatly appreciated.

Thanks due to Faculty of Science and Technology for allowing me in using the laboratory and the facilities. Further thanks to the lab assistants, especially Mr. Syed Ahmad Rizal, Mr. Nik Muhamad Razali Salam and Mr. Muhammad bin Embong for their great assistance during sampling and lab work.

With this chance given, I convey my heartfelt thanks to my beloved parents, Mr. Ahmad Zamil bin Hj Mokhtar and Mrs. Azizon binti Othman, for always encouraging me in my studies and being understanding throughout this project and my studies.

Thanks to Sarah binti Abdul Razak, my project partner, for her great cooperative. Your countless effort, regardless of time, energy or money during completing this project made this project possible and bearable. To all my buddies that sticking with me no matter what, thanks for the encouragement and support. Lastly, to whomever it may concern which is involve directly or indirectly in completing this project. From the bottom of my heart, thank you.

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## LIST OF ABBREVIATIONS

|      |                            |
|------|----------------------------|
| N    | Total of individual fishes |
| n    | Number of individuals      |
| %    | Percentage                 |
| SL   | Standard Length            |
| °C   | Degree Celsius             |
| mg/l | milligram per liter        |
| km   | Kilometer                  |
| Sg.  | Sungai                     |
| LS   | Lower stream               |
| MS   | Middle stream              |
| US   | Upper stream               |

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## ABSTRACT

This study was conducted to determine the diversity of fishes in Sg. Sekayu, Terengganu. The objectives of this study are to investigate the longitudinal of freshwater fish species at first order of Sg. Sekayu, to study the effect of multiple removals on fish diversity of a selected area, and to analyze the stomach content of eight dominant fish species. Fishes were sampled in September 2005 and December 2005. The sampling was carried out at three different sites; lower stream, middle stream and upper stream. Fishes were captured by electrofishing with the watt of 250 and collected using scoop-net. A total of 589 individual fishes were captured, comprising 14 families and 33 species. The *Poropuntius smedleyi* is the highest captured individual, representing 35.99%, followed by *Glyptothorax fuscus* (19.19%), *Garra cambodgiensis* (10.69%) and *Mastacembelus unicolor* (4.41%). In this study a few diversity indices was also measured. The Shannon-Wiener Index, Evenness Index, Margalef's Index, Simpson's Index, and Menhinic Index was calculated for the lower stream, middle stream and upper stream. Middle stream recorded the highest number of fishes followed by lower stream and upper stream. Overall, the diversity of fish species in Sg. Sekayu is high. The study of community structure in Sg. Sekayu was conducted to determine the food preference for fishes. The total of food-containing stomach examined was 155, taken from eight different species. The diet of fish was recorded and analyzes via frequency of occurrence and relative abundance method. Results suggested that insects were found in most stomach, followed by algae, plant material and other material. Stomach content was analyzed to get information of their trophic relation.



## KEPELBAGAIAN IKAN AIR TAWAR DAN STRUKTUR KOMUNITI DI SG. SEKAYU, TEREANGGANU

### ABSTRAK

Kajian telah dijalankan bagi menentukan kepelbagaian ikan air tawar di Sg. Sekayu, Terengganu. Objektif kajian adalah untuk menyelidiki taburan longitud ikan air tawar pada order pertama Sg. Sekayu, untuk mengkaji kesan terhadap multi-pengambilan ikan di kawasan terpilih dan untuk menganalisa kandungan perut bagi lapan spesies ikan dominan. Persampelan dijalankan pada bulan September 2005 dan Disember 2005 pada tiga kawasan yang berbeza; hilir sungai, pertengahan sungai dan hulu sungai. Ikan-ikan ditangkap menggunakan kaedah renjatan elektrik dan dikutip dengan menggunakan sauk. Sejumlah 589 individu ikan ditangkap, terdiri daripada 14 famili dan 33 spesies. *Poropuntius smedleyi* merupakan spesies dominan dengan tangkapan tertinggi (35.99%), diikuti oleh *Glyptothorax fuscus* (19.19%), *Garra cambodgiensis* (10.69%) dan *Mastacembelus unicolor* (4.41%). Beberapa indeks diversiti digunakan dalam kajian ini. Indeks Shannon-Wiener, Indeks Evenness, Index Margalef, Index Simpson dan Indeks Menhinic dikira bagi setiap kawasan hilir sungai, pertengahan sungai dan hulu sungai. Secara keseluruhan, kepelbagaian ikan di Sg. Sekayu adalah tinggi. Kajian berkenaan struktur komuniti dijalankan bagi mengenalpasti keutamaan makanan ikan-ikan. Sejumlah 155 perut ikan yang mengandungi makanan diperiksa. Pemakanan ikan direkod dan dianalisis melalui kaedah frekuensi kehadiran dan kelimpahan relatif. Keputusan menunjukkan kandungan perut ikan yang paling dominan adalah serangga, diikuti dengan

alga, serpihan tumbuhan dan lain-lain. Analisis kandungan perut adalah bertujuan untuk mendapatkan maklumat berkenaan hubungan trofik di kawasan kajian.