THE USE OF AQUATIC INSECTS IN THE WATER QUALITY CLASSIFICATION OF SUNGAI TERSAT, HULU TERENGGANU, TERENGGANU

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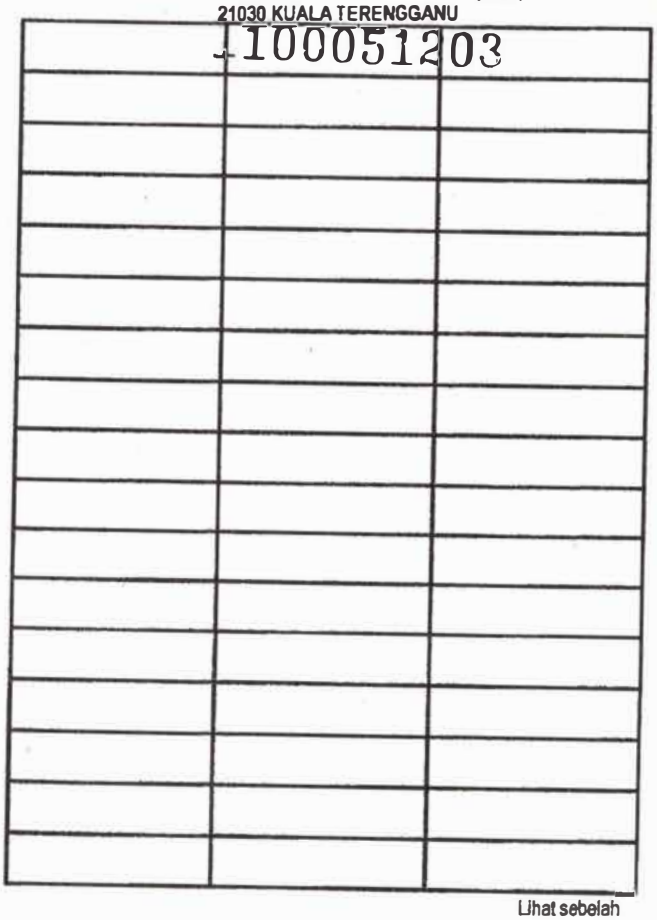
2007



Lihat sebelah

THE USE OF AQUATIC INSECTS IN THE WATER QUALITY CLASSIFICATION OF SUNGAI TERSAT, HULU TERENGGANU, TERENGGANU.

By

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Research Report submitted in partial fulfillment of
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PROJEK PENYELIDIKAN I DAN II
RESEARCH REPORT VERIFICATION

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: THE USE OF AQUATIC INSECTS IN THE WATER QUALITY CLASSIFICATION IN SUNGAI TERSAT, HULU TERENGGANU, TERENGGANU oleh Intan Azleena Mohd. Alis, no. matrik: UK 10329 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Gunaan (Pemuliharaan & Pengurusan Biodiversiti), Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATION

UMT	- Universiti Malaysia Terengganu
DO	- Dissolved Oxygen
TDS	- Total dissolved solid
TSS	- Total suspended solid
MVSP	-Multivariate Statistic Package
SPSS	- Statistical Package for Social Science
ST1	- Station 1
ST2	- Station 2
ST3	- Station 3

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ABSTRACT

A study on the use of aquatic insects in the water quality classification of Sungai Tersat, Terengganu was conducted in four consecutive months (August-November 2006). Aquatic insects were sampled in three selected stations (ST1, ST2 and ST3) along the river with differing degree of intervention. All specimens were collected by using Turtox bottom kick net, preserved in 75% ethanol and brought back to laboratory for identification. A total of 2515 individuals of aquatic insects belonging to 36 families from seven orders have been recorded encompassing Ephemeroptera (46%), Odonata (13%), Plecoptera (10%), Diptera (10%), Trichoptera (8%), Hemiptera (8%) and Coleoptera (5%). The most dominant family of all stations was Heptageniidae from order Ephemeroptera with 581 individuals were captured. ST1 represented the highest number of aquatic insects individuals due to the habitat heterogeneity and favorable substrate content. On the other hand, ST3 exhibited the lowest abundance of aquatic insects and family numbers due to the interferences. Family Biotic Index (FBI) showed that the water quality of all stations were in excellent and good condition with the possible slight organic pollution. Meanwhile, Biological Monitoring Working Party (BMWP) indicated that all stations were in very high or good water quality and Average Score Per Taxon (ASPT) showed that all stations demonstrated clean water even though there were a lot of disturbances occurred. There were no significant difference between sites and number of individuals based on Kruskal Wallis Test. The relationships between the physicochemical and the macroinvertebrates data were investigated by Pearson correlation analysis. This analysis showed that the abundance of aquatic insects was probably influenced by pH value, temperature, conductivity and velocity. The highest similarity was discovered in ST1 and ST3 based on Sorenson's Coefficient Analysis.

PENGGUNAAN SERANGGA AKUATIK DALAM PENGKELASAN KUALITI AIR DI SUNGAI TERSAT, HULU TERENGGANU, TERENGGANU

ABSTRAK

Kajian tentang penggunaan serangga akuatik dalam pengkelasan kualiti air di Sungai Tersat, Terengganu telah dijalankan dalam empat bulan berturut-turut (Ogos-November 2006). Sampel serangga akuatik dikutip di tiga stesen yang dipilih (ST1, ST2 dan ST3) sepanjang sungai dengan darjah gangguan yang berbeza. Semua spesimen disampel dengan menggunakan "Turtox bottom kick net", disimpan di dalam etanol 75% dan dibawa balik ke makmal untuk pengecaman. Sejumlah 2515 individu serangga akuatik mewakili 36 famili dan tujuh order telah direkodkan yang terdiri daripada Ephemeroptera (46%), Odonata (13%), Plecoptera (10%), Diptera (10%), Trichoptera (8%), Hemiptera (8%) dan Coleoptera (5%). Famili paling dominan bagi semua stesen adalah Heptageniidae daripada order Ephemeroptera di mana 581 individu telah berjaya ditangkap. ST1 menunjukkan bilangan serangga akuatik yang tertinggi disebabkan oleh kepelbagaian habitat dan kandungan substrat yang baik. Sebaliknya, ST3 menunjukkan kelimpahan serangga akuatik dan bilangan famili yang paling rendah disebabkan oleh gangguan. Family Biotic Index (FBI) menunjukkan bahawa kualiti air di semua stesen adalah dalam keadaan baik dengan kemungkinan berlaku sedikit pencemaran organik. Manakala, Biological Monitoring Working Party (BMWP) menunjukkan bahawa semua stesen berada dalam kualiti air yang baik dan Average Score Per Taxon (ASPT) menunjukkan bahawa semua stesen mempunyai air yang bersih walaupun gangguan berlaku. Tiada perbezaan yang nyata ditunjukkan antara stesen dan bilangan individu berdasarkan Ujian Kruskal Wallis. Hubungan antara faktor fizik-kimia dan data invertebrata makro dikaji dengan menggunakan Analisis Korelasi Pearson. Analisis ini menunjukkan kelimpahan serangga akuatik dipengaruhi oleh nilai pH, suhu, konduktiviti dan halaju. Kadar persamaan yang tinggi didapati di ST1 dan ST3 berdasarkan analisis "Sorenson's Coefficient".