

ABSTRACT

A study on macroinvertebrate assemblages and water quality of Batang Baleh was conducted between April 2014 and August 2015. This study aimed to determine the species diversity of macroinvertebrates, to assess the water quality of Batang Baleh tributaries, and to determine the functional feeding groups of macroinvertebrate according to stream orders. In total, 58 streams were studied and divided into four main areas namely, Entawau, Singut, Gaat and Mengiong. Stream temperatures were slightly warm (range: 21.00°C–29.19°C), alkaline (pH range: 6.08–7.90), with high DO (range: 6.0–8.2 mg/L). The water was clear during no rain, and turned muddy after the rains (turbidity range: 0.00–394.18 NTU). The water conductivity ranged from 15.00 to 87.10 mS/cm. The water quality based on National Water Quality Standard (NWQS) by DOE, were classified Batang Baleh streams between Class I and Class II. A total of 5,616 individual macroinvertebrate were collected during this study, representing 13 Orders, 62 Families, and 112 Genera. Aquatic insects made up 94% of the total individuals, which Ephemeroptera found the most abundant (44%). Shannon index for four study areas ranged from 2.29–2.60, while evenness (0.52–0.92) and Margalef's (1.32–2.57). Both ACE and Jack 1 estimators estimate the macroinvertebrates observed species is 119, and seven species not caught. However, Chao 1 estimates the species occurred is 129 species and 17 species not captured. The multivariate analysis for Principal Component analysis (PCA) and Non-metric Dimensional Scaling (NMDS) showed turbidity is associated with the distribution of macroinvertebrate in the Mengiong streams. Gathering-collectors were revealed the most abundant in 58 streams of Batang Baleh.

Keywords: diversity, macroinvertebrate, water quality, Batang Baleh

Perbandingan Analisis untuk Taburan Makroinvertebrata dan Kualiti Air di Batang Baleh, Kapit, Sarawak

ABSTRAK

Kajian terhadap taburan makroinvertebrata dan kualiti air di Batang Baleh telah dijalankan di antara April 2014 dan Ogos 2015. Kajian ini adalah untuk menentukan kepelbagaian spesies makroinvertebrata, untuk menilai kualiti air di anak-anak sungai Batang Baleh, dan menentukan fungsi kumpulan pemakanan makroinvertebrata mengikut kategori sungai. Secara keseluruhan 58 aliran yang telah dikaji dan dibahagikan kepada empat kawasan utama iaitu Entawan, Singut, Gaat, dan Mengiong. Suhu sungai adalah sedikit panas (di antara: 21.00 °C–29.19 °C), alkali (pH di antara: 6.08–7.90), dan DO tinggi (di antara: 6.0–8.2 mg/L). Keadaan air adalah bersih semasa tanpa hujan, dan menjadi sangat berlumpur selepas hujan (kekeruhan di antara: 0.00–394.18 NTU). Kekonduksian air adalah di antara 15.00 hingga 87.10 mS/cm. Kualiti air berdasarkan NWQS oleh DOE, mengklasifikasikan sungai-sungai Batang Baleh di antara Kelas I dan Kelas II. Sejumlah 5,616 individu makroinvertebrata telah dikumpul semasa kajian ini, diwakili 13 Order, 62 Famili, dan 112 Genera. Serangga akuatik terdiri daripada 94% daripada jumlah keseluruhan individu, yang mana Order Ephemeroptera didapati amat banyak (44%). Shannon indeks untuk ke-empat kawasan di antara 2.29–2.60, manakala kesamaan (0.52–0.92) dan Margalef's (1.32–2.57). Kedua pengangar ACE dan Jack 1 telah menganggarkan 119 spesies dilihat, dan tujuh spesies tidak ditangkap. Walau bagaimanapun, Chao 1 menganggarkan 129 spesies dan 17 spesies tidak ditangkap. Statistik multivarian Analisis Komponen Utama dan Non-metric Dimensional Scaling (NMDS) menunjukkan kekeruhan dikaitkan dengan taburan

makroinvertebrata di kawasan Mengiong. Kumpulan-Pemungut didapati paling banyak di 58 aliran Batang Baleh.

Kata kunci: *kepelbagaian, makroinvertebrata, kualiti air, Batang Baleh*