WATER QUALITY OF BATANG SALAK, KUCHING DURING LOW TIDE

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INTRODUCTION

Ecologically and biologically, river acts as a backbone for aquatic organisms to survive. Development and urbanization resulted in river water quality deterioration (Sumok, 2001). River water quality assessment becomes an essential tool to manage the surface water and assist in decision making for development or protecting the river (Sullivan et al., 2002). Degradation of river water quality particularly in Sarawak includes urban development, infrastructure construction and discharge of untreated waste water and raw sewage (Chowdhury and Ali, 2006) from settlement areas and aquaculture farms (Sumok, 2001). Study by Sapheri (2007) reported that Sg. Bako water parameters such as TSS, BOD, and NH_3–N increased after receiving pond effluent from nearby shrimp farms which showed deterioration of water quality. Batang Salak located in Kuching, Sarawak is an important river for Samariang catchments area, supporting the life of villagers along the river where they depend on fishes and other seafood for daily consumption and income generation. According to initial observation, Batang Salak receives effluent from shrimp farming, domestic sewage from Semariang Batu settlement and construction area upstream. Therefore, the objective of this study is to assess the water quality of Batang Salak and its tributaries for the purpose of further aquaculture development.

MATERIALS AND METHODS

Sampling was carried out at Batang Salak, Kuching which is the main river in Semariang catchments area and its tributaries in July, 23rd 2008. Total length of the river studied was 12 kilometers. Eighteen sampling stations were selected along the river where *in–situ* data and water sample were collected in triplicate. *In–situ* data collection involved the measurement of parameters such as pH, temperature, conductivity, DO, TSS, turbidity and chlorophyll - *a* at the surface, middle and bottom of the river by using Water Quality Monitoring Unit (YSI 6600) in triplicate. Analysis of water samples were carried out according to the standard methods; Cadmium Reduction Method Powder Pillow for NO_3^--N, Diazotization Method Powder Pillow for NO_2^--N, Nessler Method for NH_3–N, PhosVer-3 (Ascorbic Acid) Method Powder Pillow for PO_4^{3-}-P and Heteropoly Blue Method Powder Pillow for SiO_2 (Hach, 2002). Five Days Biochemical Oxygen Demand (BOD_5), Chlorophyll-*a* and total suspended solid (TSS) analyzed following the protocols outlined by APHA (1998). One way ANOVA was carried out using SPSS version 15.0.

RESULTS AND DISCUSSION

Sampling during low tide showed that the temperature ranged from 27°C to 30°C with pH ranging from 7.5 to 7.7 at the three depths measured. Temperature was almost the