

Fish Fauna Composition and Water Quality at Batang Ai Hydroelectric Reservoir, Lubok Antu, Sarawak

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ABSTRACT

This study was carried out in October 2014 and February 2015 to determine the fish species composition and water quality at Batang Ai Hydroelectric reservoir area. A total of six sampling stations were selected in this study. Fourteen water quality parameters were documented based on *in-situ* and *ex-situ* laboratory analysis that were carried out according to the APHA (2000) methods. A total of 992 individuals consisting of 20 species from 8 families were caught in Batang Ai Hydro-electric reservoir. The three most dominant species were *Cyclocheilichthys apogon*, *Osteochilus wandersii* and *Barbonymus schwanenfeldii*. Results for *in-situ* water quality parameters were pH (6.22-8.32), dissolved oxygen (0.7-8.3 mg/L), conductivity (6.3-120.7 μ S/cm), temperature (26.3–31.3 °C), transparency (1.02-4.27 m) and turbidity (0.00-34.66 FNU). For *ex-situ* water quality parameters, results of BOD₅ ranged from 0.7-6.3 mg/L, TSS (0.002-0.043 g/L), chlorophyll-a (1.70 to 35.85 mg/L) and for nutrients (ammonical nitrogen: 0.03 to 2.53 mg/L; nitrate: 0.01 to 0.21 mg/L; orthophosphate: 0.02 to 2.04 mg/L and Nitrite: 0.001 to 0.117 mg/L). The fisheries production of Batang Ai Hydroelectric Reservoir was estimated to be 11.17 kg ha⁻¹ yr⁻¹ to 20.67 kg ha⁻¹ yr⁻¹. Aquaculture and other anthropogenic activities occurring within the surrounding areas of the reservoir may have negatively impacted the water quality of Batang Ai Hydro-electric reservoir.

ABSTRAK

Kajian telah dijalankan pada bulan Oktober 2014 dan Februari 2015 untuk menentukan komposisi spesies ikan dan kualiti air di kawasan Empangan Hidro-elektrik Batang Ai. Enam stesen pensampelan telah dipilih dalam kajian ini. Empat belas parameter kualiti air telah didokumentasikan berdasarkan penganalisan *in-situ* dan *ex-situ* pensampelan dengan mengikuti cara APHA (2000). Sebanyak 992 ekor ikan telah ditangkap terdiri daripada 20 spesies daripada 8 famili di Empangan Hidro-elektrik Batang Ai. Tiga spesies dominan adalah *Cyclocheilichthys apogon*, *Osteochilus wandersii* and *Barbonymus schwanenfeldii*. Hasil kajian *in-situ* adalah pH (6.22-8.32), oksigen terlarut (0.7-8.3 mg/L), konduktiviti (6.3-120.7 μ S/cm), suhu (26.3–31.3 °C), kejernihan (1.02-4.27 m) dan kekeruhan (0.00-34.66 FNU). Untuk kajian *ex-situ*, hasil kajian untuk BOD₅ adalah 0.7-6.3 mg/L, TSS (0.002-0.043 g/L), klorofil-a (1.70 to 35.85 mg/L) dan untuk nutrien (ammonical nitrogen: 0.03 to 2.53 mg/L; nitrat: 0.01 to 0.21 mg/L; orthofosfat: 0.02 to 2.04 mg/L and nitrit: 0.001 to 0.117 mg/L). Produksi ikan oleh Empangan Hidro-elektrik Batang Ai dianggarkan 11.17 kg ha⁻¹ yr⁻¹ kepada 20.67 kg ha⁻¹ yr⁻¹. Akuakultur dan aktiviti lain berpunca daripada kegiatan manusia yang berlaku di sekeliling kawasan empangan telah memberi kesan negatif kepada Empangan Hidro-elektrik Batang Ai.