

Abstract

The objective of this study was to investigate water quality in terms of physical and chemical characteristics and diversity of benthic fauna found in Chi River which flew through Kosumpisai district, Kantharawichai district and Muang district, Maha Sarakham province. The investigation was conducted in 6 areas of study; each was conducted with 6 times of sample collection (between January 2013 and March 2014). The parameters included temperature, transparency, sediment size, total organic carbon, pH, dissolved oxygen (DO), biochemical Oxygen demand (BOD), NO_3^- -N, PO_4^{3-} and coliform bacteria. In addition, there was Benthos diversity study which focused on investigating Diversity Index (H') Evenness' Value (J') and Taxa Richness (R).

According to the result of the study, it found that each parameter showed an average as follows. The average water temperature was of 21.20 - 34.17 °C, transparency was of 10.00 - 73.33 cm., sediment size was of < 0.02 - 1.00mm., total organic carbon was of 38.00 - 112.60%, pH was of 6.84 - 10.03, dissolved oxygen (DO) was of 2.00 - 9.82 mg/L., biochemical oxygen demand (BOD) was of 1.93 - 6.07 mg/L., NO_3^- -N was of 0.40 - 1.13 mg/L., and PO_4^{3-} was of 0.07 - 0.47.

The result of the benthos diversity found that there were 3 phyla found in Chi River namely phylum Arthropoda (5 orders, 9 families), Phylum Mollusca and Phylum Annelida (1 order, 1 family). The most frequently found family was family Palaemonidae. *Macrobranchium lancheste* was the most commonly found benthos here. The diversity index (H') was of 2.30, the average of Evenness Value (J') was of 0.58 (58%) and Taxa Richness (R) was of 2.57.

Diversity of benthic habitats depended on environmental area, such as water quality and minerals salt. Most of benthic habitats lived in clear and clean water. There were mayflies larva found in good quality water resource and Tubiflex worm and *Chironomus sp.* which tolerated to water pollution were found in polluted water resource.

Keywords: Diversity, Benthos, Water quality, Chi River, Maha Sarakham Province