

Hatairat Soodta 2007: The Use of Oligochaetes as an Index of Organic Status of Benthic Substrate in Different Land Use Types of Nakhonchaisri River. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Assistant Professor Teera Lekcholayut, M.Sc. 96 pages.

Study on organic status of benthic substrate in different land use types of Nakhonchisri River was carried out from January 2003 to December 2003. Ekman grab and gravity core sampler were used for oligochaetes and sediment sampling from 6 stations along the river. Nineteen species of 5 oligochaete Family; Naididae, Tubificidae, Aeolosomatidae, Haplotaxidae and Lumbricidae were identified. The density of oligochaetes durring dry season was 1,255 individual/m², in the rainy season was 1,076 individual/m² and in the winter season was 1,188 individual/m² with diversity index ranged between of 2.16 - 3.22 (except in station 4 of lowest value at 1.73). Family Naididae was common species and found in highest species (12 species). Such number of Family Naididae provided high diversity of each station. Three species Family Tubificidae was found. Two of them in Family Tubificidae (such as *Branchiura sowerbyi* and *Tubifex tubifex*) were found in highest density and in every station. Results on total organic matters and acid volatile sulfides were ranged in 106.4 – 117.6 mg/g and 0.01 – 0.30 mg/g, respectively. Statistical test indicated that those parameter were significant different ($P < 0.05$) amoug station, particular those in station 4 had the value of total organic matter and acid total volatile sulfides at highest level between 117.0-125.9 mg/g and 0.30-0.57 mg/g, respectively. For the use of oligochaetes as an indicators of organic status of benthic substrate, *Branchiura sowerbyi* and *Tubifex tubifex* could be used to indicate sediment total organic matter ranging between 106.4 – 125.9 mg/g and acid volatile sulfides ranging between 0.01 - 0.59 mg/g. Those levels of total organic matter and acid volatile sulfides can imply the enrichment status of benthic substrate. Moreover, *Nais* sp. and *Aelosoma niveum* which were significantly correlated ($P < 0.05$) with acid volatile sulfides can be used as index of acid volatile sulfides.

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