Chalatip Junchompoo 2006: Study on Water and Bottom Sediment Properties for Evaluation on Enrichment and Pollution Status of Bangpakong River in Ban Pho District, Chachoengsao Province. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Charumas Meksumpun, Ph.D. 269 pages.

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Study on water and bottom sediment properties in Ban Pho District had been carried out based on the objective to assess enrichment and pollution status of the water resources. The study was done during August 2004 to February 2005 by field surveys of 24 stations located in the middle of Bangpakong river and in small canals which received anthropogenous loads. The results during dry periods were under water quality standard because dissolved oxygen were lower than 4.0 mg/l. There had problems in high saltiness and suspend solids which, accordingly, had impacted on utilization of the water resources. The results concerning enrichment status indicated generally high values of ammonium, nitrate, nitrite, silicate, and orthophosphate concentrations of 0.63, 1.43, 0.07, 7.86, and 0.29 mg/l respectively. The molar ratios of N : P which were higher than 16 caused the chlorophyll *a* became in eutrophic level, particularly in June 2004 and May 2005. The nutrient concentrations during those times were increased more than 20 times during ebb tidal period and the impact of water discharge from small canals were cleary observed. High levels of nutrients and chlorophyll *a* can be easily seen in canal Na , Nong Bua , Sanam Chan , Na Lang and Ban Pho that received waste runoffs from aquaculture and domestic activities. Such phenomena caused higher accumulation of organic matter in canals (*ca* 10.70%) than in the middle of river (*ca* 8.91%). Related increases of total sulfides were found. Nevertheless, the concentrations were still low and had no toxic to aquatic animals. The overall view indicated that the Bangpakong river in Ban Pho District was in eutrophic status, especially during load period which consisted of the bloom of phytoplankton and high sedimentary organic matter that caused low dissolved oxygen levels. Moreover, the environmental factors such as tide and inflow volume should have great roles on pollution problems and recovery possibility of the water resources.

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