Kwanruen Yodkham 2008: Study on Aquatic Ecology to Generate Guideline for Fisheries Conservation in Wetland of Nong Bong Khai Non-Hunting Area, Chiang Rai Province. Master of Science (Fishery Management), Major Field: Fishery Management, Department of Fishery Management. Thesis Advisor: Associate Professor Sukhoom Rowchai, D.Agr. 123 pages.

The objectives of this study were to investigate aquatic ecology system in Nong Bong Khai wetland for determining the relationship between aquatic ecological factors and juvenile fish abundance and to generate guideline for fisheries conservation. The sampling periods were in the middle of rainy season in August of 2007 and in the late of rainy season in November of 2007.

Water quality in the study area was found to be suitable for the living of aquatic animals but dissolved oxygen was observed to be over saturated in most sampling areas, indicated the eutrophic state of water body. The survey of plankton showed high density of plankton population in the lake. Dominant species of phytoplankton found was blue-green algae such as *Microcystis aeruginosa* which also was the indicator of eutrophic water. Dominant species of zooplankton were protozoa and copepod such as *Difflugia globulosa* and copepod nauplius. Benthos density and composition varied with bottom sediments and concentration of dissolved oxygen at deep water layer and the highest number of benthic animal was detected at sampling site S1. Most benthic species found in the lake were oligochaetes in family Tubificidae and insect larva in family Chironomidae which indicated to the polluted condition of bottom soil. Aquatic plants at all sampling sites were different in type and density depending on physical characteristics of water bodies. Most of aquatic plants were marginal plants that spread scatteredly from shoreline covering area about 10-15 m^2 per group. Low juvenile fish abundance was observed in the lake. The economic fish species found were *Oreochromis niloticus* and *Oxyelestris marmoratus* while most of non-economic species were *Trichopsis vittata* and *Ambassis notatus* . Average density of juvenile fish was observed to be highest at sampling site S1 as compared to the other sites and average size of juvenile fish sampled in August was smaller than those collected in November. The relationship analysis between juvenile fish abundance and aquatic ecological factors also revealed that abundance of juvenile fish had positive relationship with abundance of benthic animals and with the appearance of marginal plant. From overall results, it can primarily conclude that the sampling site S1 is the most suitable area as spawning and nursery grounds for fish in Nong Bong Khai where most spawning activities occur in middle of rainy season between August to October of the year. Hence, the water body at site S1 should be formally assigned as a fishery conservation area to protect fish spawning activities in the lake.

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