Thesis Title Macro-invertebrate Communities Inside and Outside Fish

Conservation Areas at Thambon Muang Chang

Amphoe Muang Nan

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ABSTRACT

The objectives of this study is to compare the macro-invertebrate communities between inside and outside fish conservation areas at Ban Had Pha Khon and Ban Sop Yao villages which they have been declared as fish conservation areas, in Nan river which fishing are not permitted since 1992-1993. Macro-invertebrates from 2 compartments, benthic and riverine plant, were collected on 3 occassions in March July and December 1995. Physico-chemical properties of water, number of species and abundance of macro-invertebrate inside the conservation areas were not different from that of the outside areas but they varied with season and compartment of habitat. Number of species and abundance were highest in summer, lower in winter and rainy season, respectively. Cluster analysis using species composition data indicated that difference of communities distribution were due to characteristic of substrates and riverine plants. For each village, the upstream sites which were more stable substrates had more abundance than the downstream sites which were less-stable substrates. The abundance of macro-invertebrate at gravel-cobble substrate higher than that of silt on bedrock and gravel-silt, respectively. Number of species and

species richness at riverine plant were higher than that of benthos. Contrarily, the abundance of benthos was higher than that of the macro-invertebrate clinging on riverine plants. The species diversity and evenness inside conservation areas were higher than that of the outside. Multiple linear regression illustrated that conductivity had more effect to number of species than dissolved oxygen and alkalinity, only conductivity was factor affecting abundance of communities as below :

Number of species = 48.07 +0.26 Conductivity -6.06 Dissolved Oxygen -0.29 Alkalinity

Number of individual = -10,656.13 +84.06 Conductivity