Pronthip Peumwarunyoo 2012: Potential for Trichoptera Communities as Biological Indicators of Water Quality in Mae Tao Watershed, Mae Sot District, Tak Province. Master of Science (Environmental Science and Technology), Major Field: Environmental Science and Technology, Division of Science. Thesis Advisor: Miss Taeng-On Prommi, Ph.D. 107 pages.

The potential of using Trichoptera communities as biological indicators of water quality was studied in Mae Tao and Mae Ku watershed during February to December 2011. Seven sampling sites (MT1-MT5, MK2, MK8) were selected. A total of 3,442 individual of trichopteran larvae belonging to 10 family and 18 genera were found. The larvae of family Hydropsychidae were the most abundance, followed by Philopotamidae, Odontoceridae, and Leptoceridae, respectively. The genus *Cheumatopsyche*, *Hydropsyche*, and *Chimarra* were the most abundance genera in this study. For the trichopteran adult, a total of 8,376 male individuals, beloging to 14 families, 35 genera and 122 species were recorded. The most species rich were *Hydroptila thuna, Chimarra akkaorum, Oecetis scutulata* and *Setodes okypete*. The species diversity index (*H'*) of Trichoptera larvae was highest in MT1 (0.842) and lowest (0.352) in MK8, whereas the highest diversity of Trichoptera adult was found in MT2 (1.168) and the lowest (0.535) was at MT5. Results of ordination analysis indicated that the species group, *Potamyia flavata* were correlated negatively with dissolved oxygen and the species *Oecetis asmada* and *O. scutulata* were correlated positively with water turbidity, electric conductivity and total dissolved solids, whereas increased abundance of *Hydroptila* sp. was the best bioindicator of agriculturally impacted sites. Physico-chemical parameters revealed that mostly the surface water quality in Mae Tao and Mae Ku watersheds were not exceed standard within the Type III of The Surface Water Standard for Agriculture and Water Quality for Protection of Aquatic Resources. Changes in the caddisfly fauna may indicate changes in physico-chemical factors owing to agricultural

_____ _____ __ / __ / __

Student's signature Thesis Advisor's signature

Copyright by Kasetsart University All rights reserved