

Wanphruek Thiamdaet 2013: Rapid Bioassessment with Periphyton Assemblage for Headwater Streams at Thong Pha Phum District, Kanchanaburi Province. Master of Science (Biology), Major Field: Biology, Department of Zoology. Thesis Advisor: Assistant Professor Boonsatien Boonsoong, Ph.D. 123 pages.

Rapid Bioassessment with Periphyton Assemblage from Huai Khayeng and Huai Pak Khok streams at Thong Pha Phum District, Kanchanaburi Province. The physical, chemical and biological parameters. All eight stations sampled in December 2008 and April 2009. There were 4 Divisions and Forty eight genera of the periphyton. The majority of them were red algae: *Audouinella* spp. in Division Rhodophyta; green algae: *Oedogonium* spp. and *Spirogyra* spp. in Division Chlorophyta; blue green algae: *Calotrix* spp., *Lyngbya* spp. and *Phormidium* spp. in Division Cyanophyta and diatoms: *Gomphonema* spp., *Synedra* spp., *Cymbella* spp., *Navicula* spp., *Achnanthes* spp., *Diploneis* spp. and *Fragilaria* spp. in Division Bacillariophyta. Most of them were pennate diatoms.

Multivariate approach with cluster analysis showed temporal variation of periphyton composition among different time period. Ordinations of samples resulting from PCA did not showed clearly separation on ordination space because small samples (16 samples) were analyzed. Axis I was highly correlated with orthrophosphate concentration, variables commonly associated with residential site (KY4 and KY2). Thus, Axis I may indicate effects of soluble phosphorus on stream water chemistry. In addition, Axis I was correlated positively with % *Achnanthes*, % *Achnanthes* / (*Achnanthes* + *Navicula*), % *Diploneis* and % *Navicula*.

---

Student's signature

Thesis Advisor's signature