Kamonpan Chaitong 2009: Efficiency of Gut Weed (*Ulva intestinalis* Linnaeus) in Heavy Metals Absorption in Shrimp Culture System. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology.
Thesis Advisor: Associate Professor Chatcharee Kaewsuralikhit, M.S. 138 pages.

Efficiency of gut weed (*Ulva intestinalis* Linnaeus) in heavy metal assimilation in both laboratory conditions and shrimp ponds was investigated. In laboratory conditions, 150 grams of *U. intestinalis* was added into 3 liters of seawater with different concentrations of cadmium (Cd): 0, 5, 10 and 20 µg Cd/L. Gut weed was also added in to seawater with different concentrations of arsenic (As): 0, 10, 50 and 100 µg As/L. The concentration factors of Cd assimilated by *U. intestinalis* was 7.3-446.0 and As accumulation by *U. intestinalis* was 7.9-771.3 µg/kg dry weight/day. Efficiency of *U. intestinalis* in heavy metal (mercury (Hg), lead (Pb), zinc (Zn), Cd and As) assimilations was investigated in a shrimp culture system in upper southern of Thailand. *U. intestinalis* and water samples were collected twice a month and sediment samples were collected monthly between November 2008-March 2009. The heavy metals in all samples were analyzed by ICP-MS (Inductively Coupled Plasma-Mass Spectrometry). All heavy metals in the sediments, Hg, Pb, Zn, Cd and As, were observed with the highest concentration of Zn followed by Pb, As, Hg and Cd, respectively. As and Hg were found in water samples at higher concentrations than other heavy metals and exceeded the standard levels for coastal water quality. The highest concentrations of heavy metal in *U. intestinalis* was observed in the same period of highest biomass of gut weed at the days 14-28. The concentration of Hg, Pg, Zn, Cd and As were 3.1-10.4, 12.3-834.7, 307.0-4,170.0, 6.1-10.4 and 45.0-2,713.0 µg/kg dry weight, respectively. The highest concentration factor of Pb assimilated by *U. intestinalis* was 834.73, while the highest concentration factors of Zn, As, Cd and Hg were 627.8, 271.3, 10.4 and 10.4, respectively.

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