

Panida Godpetch 2009: Bottom Soil Remediation in Shrimp Cultivation Pond Using Biological Treatment with Plowing Method. Master of Science (Environmental Technology and Management), Major Field: Environmental Technology and Management, Department of Environmental Science. Thesis Advisor: Mrs. Piyapawn Somsamak, Ph.D. 133 pages.

During shrimp growing period, organic wastes and sediment accumulate at bottom of cultivation ponds. The appropriate bottom soil management reduces the growing problems in next crop cycle and prolongs aging of the pond. This experiment aimed to compare the efficiency of 4 different sediment remediation methods namely dried soil (DS), effective microorganisms (EM), dried and crushed soil (CS), and crushed soil with microorganism (CM). Among methods investigated, CM exhibited the highest sediment remediation efficiency. The CM method reduced organic matter, total nitrogen, and available phosphorus in the sediment by 27.25%, 45.89% and 57.89% respectively, after 56 days of treatment. There was no significant accumulation of ammonia, nitrite, and nitrate in sediment at the end of experiment. The DS method demonstrated the least overall efficiency with organic matter and total nitrogen reduction of 5.59% and 35.39% respectively. The total *Vibrio* concentrations in sediment in all treatments also decreased by more than 98% after being treated for 56 days which clearly demonstrated the affected of exposure to sunlight. However, the sediments needed to be exposed to sunlight for at least 30 days to reach the efficiency of 90% reduction. Therefore, this study has demonstrated that CM method is an effective remediation method for preparation of shrimp cultivation pond.

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Thesis Advisor's signature

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