Thesis Title Using Aerated Lagoon System as a Treatment Process for Wastewater from Shrimp Culture Ponds

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ABSTRACT

The purpose of this research was to study the efficiency of treatment process for wastewater from shrimp culture ponds by using aerated lagoon system. The factors that effect its efficiency such as influent BOD of wastewater from shrimp culture ponds, aeration time and the quantity of Mixed Liquor Suspended Solids culture were also studied. In addition, the study of stabilization pond system was compared to aerated lagoon system.

The experiments were divided into 4 sections according to influent BOD of wastewater from shrimp culture ponds and aeration time namely,

Section 1: Influent BOD of wastewater from shrimp culture ponds between 9-14 mg/l, aeration time 2 hours

Section 2: Influent BOD of wastewater from shrimp culture ponds between 9-14 mg/l, aeration time 4 hours

Section 3: Influent BOD of wastewater from shrimp culture ponds between 15-20 mg/l, aeration time 2 hours

Section 4: Influent BOD of wastewater from shrimp culture ponds between 15-20 mg/l, aeration time 4 hours

Each section was divided into 4 sets according to wastewater treatment process as following, set 1 using stabilization pond system, set 2 using aerated lagoon system without Mixed Liquor Suspended Solids culture, set 3 and set 4 using aerated lagoon system with Mixed Liquor Suspended Solids culture of 500 mg/l and 1,000 mg/l respectively.

The experimental results all four sections of set 1, set 2, set 3 and set 4 have shown that the COD treatment efficiency rates were 31.26%, 32.81%, 43.57% and 45.72%, the BOD treatment efficiency rates were 32.20%, 33.52%, 49.78% and 52.61%, the suspended solids treatment efficiency rates were 53.86%, 58.95%, 72.28% and 74.59% respectively.

In addition, it was found that increasing aeration time and the quantity of Mixed Liquor Suspended Solids culture demonstrated in higher efficiency of the system. For influent BOD was not effected to system.