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DISTRIBUTIONAL RELATIONSHIP BETWEEN PHOSPHORUS, ORGANIC MATTER AND ORGANIC CARBON IN MUD OF COASTAL SHRIMP-FARMING PONDS

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Abstract

Phosphorous (P) and organic carbon (OC) found in organic matter (OM) play pivotal role in the productivity process of aquatic environment and significantly controlling its physico-chemical properties. The excessive P and OC containing muds of aquaculture systems deteriorate the congenial culture environment through developing eutrophication problems. The objective of present study was to determine the distributional relationship between the P, OC, and OM in the mud of shrimp-farming ponds of Viet Nam in order to evaluate the true trophic state of coastal aquaculture ecosystem. P concentration (1.689 to 120.187 mg/kg) and OM (4.21 to 25.74%) of sediment showed remarkable variability ($r = 0.032$ for P and $r = 0.026$ for OM) in mud of all ponds studied. A positive correlation ($r = 0.9805$, $n = 3$) between the distribution pattern of P concentration and OC/P ratio of shrimp ponds clearly revealed that P content in mud is greatly influenced by the OC in OM. The P/OC of ponds varied from 0.30 to 16.9 and allows us to infer the potential for release or retention of inorganic P from the muds to overlaying water, thus mitigating the potential to over fertilize shrimp ponds.

Key words: coastal shrimp pond, mud, organic matter, phosphorous, trophic status

Received: August, 2011; *Revised final:* June, 2013; *Accepted:* June, 2013

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