Effect of Sediment Nitrate on Content of Sulfide in an Intensive Culture of Black Tiger Shrimp (*Penaeus monodon* Fabricius) in the Earthen Ponds

Putth Songsangjinda¹ and Usanee Ekpanithanpong²

¹Coastal Aquaculture Research Institute
²Administrative and Technical Cooperation, Department of Fisheries

Abstract

This investigation research was conducted in order to understand the effect of sediment nitrate on the content of sulfide in an intensive culture of black tiger shrimp in the earthen ponds. Eight shrimp ponds of two commercial farms located in Songkhla and Pattani provinces were selected for this study. Water and sediment samplings and growing performance had been collected from the ponds every 2 weeks since January 15, 2004 for about 19 weeks. Water samples were analyzed for salinity, dissolved oxygen, pH, alkalinity, nitrogenous compounds, organic carbon, oxygen production and consumption. While the sediment samples were analyzed for pH, total nitrogen, total organic carbon, acid volatile sulfide (AVS) and sediment oxygen demand (SOD).

The results were found that pH, dissolved oxygen and sediment nitrate were slightly different among these two farms. On the other hand, SOD and AVS were significantly different. The AVS/SOD index showed a good negative correlation with sediment nitrate and shrimp growth, but positive correlation with decreasing of FCR. The result from this study showed that the AVS/SOD index of sediment is probably applicable in pond bottom management for the good growth, feeding and low FCR of black tiger shrimp culture.

**Keywords:** Nitrate, Sulfide, Sediment, Culture, *Penaeus monodon*

*Corresponding author: 1/19 Kaosan Soi 1, Khaorubchang, Muang District, Songkhla 90000
e-mail: putthsj@yahoo.com