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SUGITAR SVANGSUB : EFFECT OF BLACK TIGER SHRIMP FARMING IN
FRESHWATER CULTURAL AREAS ON PADDY SOIL PROPERTIES. : CASE STUDY
ONGKHARAK DISTRICT NAKHONNAYOK PROVINCE. THESIS ADVISORS :
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The purpose of this research was to study the effect of black tiger shrimp farming in freshwater cultural areas on chemical and physical soil properties of paddy areas. Properties of soil from paddy areas which were not close to shrimp farming operations (reference soils) and soil from paddy areas which were located near shrimp ponds (neighboring soils) were compared. Soil samples were collected at depths of 0-30, 30-50 and 50-100 centimeters. Reference soils were collected from 2 paddy areas. Neighboring soils were collected from paddy areas near shrimp ponds which had been cultured for 1, 2 and 3 years, with samples collected at 2 ponds of each age interval. Samples were collected at distances of 0, 50, 100, 150 and 200 meters from the shrimp ponds.

Results of study indicate that some chemical properties of neighboring soils had been changed significantly ($p < 0.05$). In particular, electrical conductivity, sodium adsorption ratio and sodium content tended to increase with longer shrimp pond use period and decrease with greater distance from shrimp pond. The electrical conductivity showed a high value of more than 2 dS/m after 1 year of shrimp farming. Sodium adsorption ratio showed a ratio more than 13 after 2 years of shrimp farming while sodium level increased in every shrimp farming period interval. These soil property changes indicate a trend of increasing salinity in neighboring soils. Calcium level was found to be lower in neighboring soils than in reference soils but magnesium level of neighboring soils was found to be higher at some sites and lower at others than that of reference soils. Others soil properties such as soil reaction, organic matter, total nitrogen, available phosphorus, available potassium and soil texture were the same for neighboring soils and reference soils.