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JUTARAT KITTIWANICH: MONITORING SHRIMP FARM EXPANSION AND ASSESSING ITS COMPLIANCE TO LAND USE PLAN ALONG PRASAE AND PANGRAT RIVER, RAYONG PROVINCE. THESIS ADVISOR : CHUMLONG ARUNLERTAREE, Ph.D., PHUTCHAPOL SUVANACHAI, Ph.D., SIRI TOOKWINAS, M.Sc. 93 P. ISBN 974-664-907-8

Monitoring shrimp farm expansion, including its impact on mangrove forest and land use, is very important for a sustainable management and planning of coastal zones. This study was composed of 3 objectives. The first was to monitor land use for shrimp farms and mangrove forests changing over 22 years (1977 – 1999). The second was to evaluate the spatial relationship of expanding shrimp farms and mangrove forest. The third was to find out the existing shrimp farms which complied with coastal management plan developed by government agencies. Landsat – 4, 5 and JERS-1 satellites were used to process multi – temporal and post classification techniques for detection of shrimp farms and mangrove forest shifts. Shrimp farm maps in 1999 were used to detect land misuse according to land zoning by the government.

The result showed that from 1987 to 1990, about 1,760.15 ha. of mangrove forest were destroyed at the rate of 586.72 ha./yr., whilst shrimp farm expanded by 3,317.03 ha. with a rate of 1,105.69 ha./yr. Both of these had changed dramatically during this period. The shrimp farms were initially located on the area near coastline and then expanded from river mouth to land. Moreover, about 62.34 % (1,097.28 ha.) of total shrimp farms in 1990 were located on the former mangrove areas which were classified in 1987. Also, shrimp farms classified in 1999, were compared with the mangrove zoning areas of Royal Forestry Department and priority crop areas of Land Development Department. It was found that about 1,486.77 ha. or 35.10 % of total shrimp farms in 1999 were located over the preservation and conservation zoning area, while about 977.00 ha. or 23.07 % of total shrimp farms were located over the priority crop area.