

Chinnawat Phuangyod 2006: Impact of Shrimp Farming on Soil Properties
and Mangrove Community at Sawi District, Chumphon Province.

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The objective of this study was to assess the impacts of shrimp farming on soil
properties and mangrove forests in Sawi District, Chumphon Province. Plant community and
soil properties at 0-5 cm and 5-30 cm depth collected at 15 sampling plots from pristine
mangrove forests and mangrove forests nearby shrimp farms during May 2004-May 2005 were
investigated and compared using the F-test at a level of 0.05 significance.

The results indicated that the activities of shrimp farming causes impacts on soil
properties, including increasing pH and sand particles in addition to decreasing available
phosphorus, total nitrogen, organic matter and exchangeable calcium. The percentages of sand
and silt, exchangeable sodium, magnesium and CEC of the two soil layers were significantly
different between the two ecosystems. The pH, exchangeable potassium and calcium were
significantly different only at 5-30 cm depth. The growth rate of trees in pristine mangrove
forests in terms of diameter at breast height and total height, are 0.11-0.31 cm/year and
0.42-0.88 m/year, respectively, while the growth rate of mangroves next to shrimp farms are
0.08-0.19 cm/year and 0.36-0.63 cm/year, respectively. *Rhizophora apiculata* and
R. mucronata, the indicator species of mangroves, are found only in the pristine forests but
Lumnitzera littorea, which prefer hard mud, are found in the areas next to shrimp farms. The
activities of shrimp farms also decrease the natural generation of new seedlings. In pristine
mangrove forests, it is 90.70%, while mangroves next to shrimp farms are 29.41%.

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Student's signature

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