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CONCLUSION AND RECCOMENDATION

The study of long-term and seasonal variation of nutrients in the Upper Gulf of Thailand were conducted by using the secondary data during 1987-1994. The considering data were salinity, phosphate, total phosphorus, nitrate and nitrite.

The affected from the large amount of terrrestrial inputs were found to be the major factor on the fluctuations of nutrients and salinity in the Upper Gulf, particularly for the high concentration of phosphate near the river mouth during the wet season. While high concentrations of nitrate were found in the central part located far away from the terrestrail nutrients source.

Long-term variation of nutrients by classified the study area into three parts (east, west, and central part). The spatial and temperal distributions patterns of nutrients found no obviously difference fluctuation in each year along the vertical and horizontal in the Upper Gulf. The variations of nutrients along the horizontal line were found the same fluctuations in each year during the study period. Since the loading of wastes were increases during this period the concentrations of nutrients in the Upper Gulf quite consistant from time to time.

The secondary data from the Department of data in 1989, 1990 and 1994 which the most completed and covered the whole area were also evaluated by the numerical model based on mass balance concept. Two approachs were determined the establish nutrient budget in the Upper Gulf of Thailand. The single longitudinal one dimension is considered to balance the net advective material exchange with the mixing terms, while the box model is considered to establish nutrient budgets by the net material transport in ordes to determine the intervals of transprtation in the Upper Gulf. The major sources of nutrients in the Upper Gulf of Thailand came from the four

major rivers drained into the area and regeneration within the system. There were very small variation of nutrients overtime. Some excess nutrients were removed to sediment and some were exported to the Lower Gulf in some periods.

Recommendation

In this study, nutrient budget calculation did not show any pattern of seasonal variation because of lacking data in some months and no data on river load collected on the same periodlong term period as in the Upper Gulf. A continuous data of at least 5 years both in the rivers and in hte Gulf are neccessary for a better understandings of the nutrient cycling in the Upper Gulf of Thailand.

All forms of nutrients both organic and inorganic are needed to be use in the nutrient budget model in order to cover all aspects of nutrient cycles in the Upper Gulf.

From the study of the internal transport the Upper Gulf by box model, internal water exchange patterns of the Upper Gulf were too complex to be clearly described by any simple water and salt budget, more complex water distribution analysis (numerical models of water circulation) should be developed.