

1. Summary

This report of Songkla Lake Research Project covers the period of May 1978 - April 1979. The survey of the Inner Lake (Thale Luang) was carried out by setting 15 stations around the periphery of Thale Luang with the area of about 800 sq. kilometers, using the political map of Songkla Fishery Station. The six sub-projects concentrated on the Inner area of the Lake are :- Pollution Loading Survey, Water Quality, Heterotrophic and Coliform Bacteria, Benthos Fauna Survey, Plankton Survey and Bottom Sediment Quality. This research report covered only four sub-projects as following : Pollution Loading Survey, Water Quality, Heterotrophic and Coliform Bacteria and Bottom Sediment Quality

a) Bacterial Parameters for various stations around the Inner Lake (Thale Luang) were investigated from May 1978 - April 1979. The parameters utilized were aerobic heterotrophic counts, total coliform counts and selected other species. The results of the study showed that higher counts of both heterotrophic and coliform bacteria occurred at the station located near the communities such as Pattalung, Ranoj, and Pak Payun and also the data showed the total bacterial count depends on seasons.

b) The Water Quality Survey covered the same period of May 1978 to April 1979 in both Time and Places. The parameters of Water Temperature, Conductivity, Salinity, pH, Acidity, Alkalinity, Dissolved Oxygen, Phosphate, Nitrate, Secchi Disc Reading (Light Penetration) and Chlorophyll were analysed. From the interpretation of the correlation between the above parameters, it appears that the water quality in the Inner Lake (Thale Luang) has not been seriously affected by pollution and other man-made activities. But the only one effect of salinity intrusion into Inner Lake that plays the important role for the agriculture in Ranoj Project. The maximum salinity in Inner Lake was found 6.3 ppt at Ranoj Pumping Station in October 1978 and the minimum was 0.4 ppt in May and June 1978. There were two maximum peaks ; the first was in September and the second one was during January - April 1979. The effect of Seasonal salinity fluctuation was obviously due to the rainfall on the catchment area and on the water surface of the lake.

c) A Study of Pollution Loading Survey was considered the community waste which discharges into Klongs. The survey emphasized on 3 areas. The first area was the Klongs of Phatthalung Province. The second area was Klong U - Tapao, Haadyai, Songkla and the third area was the water quality of outer lake (Thale Sap Songkla). The average pollution parameters of Klong from Phatthalung (Lampam) found pH 7.5, D.O. 5.7 mg/l, B.O.D. 0.8 mg/l, Total alkalinity 49 mg/l as CaCO_3 , N-NO_3 0.7 mg/l, P-PO_4 0.08 mg/l. The water in Klong Lampam became worse after passed through Phatthalung Municipality. The BOD was collected and analysed found 19.2 mg/l

Klong U - Tapao is now anxiously contaminated and preferably say to be heavy polluted in dry seasons. Particulary, Klong U - Tapao flows through Haadyai municipality which various industries. So, Klong U - Tapao is a dumping place for fresh sewage from Haadyai municipality and Industries both liquid and solid wastes. The most important industries that pay major role are fishmill factories, Alcohol Distillery and Rubber Processing Plants. All of these plants namely now were not effect the water quality of Lake Songkla (Thale Sap Songkla) but Klong U - Tapao itself was polluted by these wastes. The study found that Klong Pawong's B.O.D. was 97 mg/l

d) Bottom Sediment Quality, N, P and heavy metals were collected and analysed. The finding can be summarized as follows :

- Total Nitrogen is increased ; maximum value is 784.0 ppm and minimum is 266.0 ppm.
- Total Phosphorus is increased ; maximum value is 367.97 ppm. and minimum value is 44.48 ppm.
- Heavy metals were measured by Atomic absorption spectrophotometer. The results shown that the heavy metal of Outer is greater than the Inner Lake