

Suwannee Yootemsuk 2006: Study of Water Quality and Hydrodynamic Circulation on Salt Water Protection Embankment in Samut Songkhram. Master of Engineering (Irrigation Engineering), Major Field: Irrigation Engineering, Department of Irrigation Engineering. Thesis Advisor: Associate Professor Bancha Kwanyoun, Ph.D 204 pages.
ISBN 974-16-2031-4

The objectives of this research were to study water quality between old and improved gate on western salt water protection embankment, to compare water quality in the drainage system on western side of Mae Klong river, and to study water quality, water flow and hydrodynamic circulation on eastern salt water protection embankment. The parameter for this study consisted of EC, Temperature, pH, DO, nitrate concentration and BOD. The MIKE11 modules were used in the study of hydrodynamic circulation.

The study of water quality between old and improved gate on western salt water protection embankment showed that the water quality at upstream and downstream of improved gate were as follows: EC equaled to 2.223 and 20.897 ms/cm, temperature equaled to 29.527 °C and 29.834°C, pH equaled to 7.098 and 7.253, and DO equaled to 3.911 and 4.638 mg/l. In addition, water quality at upstream and downstream of old gate were as follows: EC equaled to 3.811 and 21.097 ms/cm, temperature equaled to 30.052 °C and 30.422 °C, pH equaled to 7.052 and 7.383, and DO equaled to 2.615 and 4.030 mg/l. Consequently, DO and EC at the improved gate were better than the old gate.

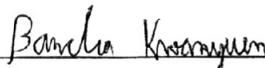
In summary, most of water quality indices in the drainage system on western side of Mae Klong river was within the standard for surface water except BOD which was out of the standard for surface water.

The results of water quality at Mae Klong regulator which was part of the eastern salt water protection embankment showed that water quality in Sunakhon drain was worse than other drains on eastern salt water protection embankment because of the tidal effect from Mae Klong and Tha Chin rivers. However, water quality was still within the standard for surface water type 3.

Result of the study on hydrodynamic circulation on eastern salt water protection embankment by MIKE11 showed that roughness coefficients (Manning's n) of the Sunakhon drain were between 0.022 and 0.028 which were close to the reviewed value. Finally, MIKE11 model has been applied to compute water level at upstream of the gate in case of gate close in January. Result of the study showed that the difference of water level on the upstream and downstream were increased about 10 centimetres.



Student's signature



Thesis Advisor's signature

1 / 06 / 06