

Jatuporn Punyawattano 2010: Application of SWAT2000/GIS Modeling for Spatial Dispersion Evaluation of Nutrient from Utapao River Basin to Songkhla Lake. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Mr. Suchat Leungprasert, Ph.D. 217 pages.

Application of SWAT2000/GIS modeling for Spatial Dispersion Evaluation of Nutrient from Utapao River Basin to Songkhla Lake that has objective for Study the efficiency of SWAT2000/GIS Modeling to evaluated water quality on Thai area. The case study is evaluation of nutrient from Utapao River Basin to Songkhla Lake.

The secondary input data which were used in SWAT2000/GIS Modeling have 2 partitions 1.The data for simulating included factors of rain, soil, land use, weather and geography. 2.The data for model verification, included the hydrological station (X.90) and water quality station (SK10).

Efficiency of the modeling after adjusting factors is Relative Difference of Mineral Nitrogen between the Observed value and the Simulated value equaled to 30.40 %, Correlation Coefficient of Sediment value equaled to 0.1 Sutcliffe Efficiency Coefficient (NS) value equaled to 2.74 and Relative Difference of Total phosphorus between the Observed value and the Simulated value equaled to -129.4 %, Correlation Coefficient of Sediment value equaled to 0.04 Sutcliffe Efficiency Coefficient (NS) value equaled to -23.07

The resulting, The SWAT 2000/GIS Modeling is not suitable for Evaluation of Nutrient from Utapao River Basin to Songkhla Lake cause of the secondary water quality data at Thai institute has not enough quality for adjusting the data and SWAT2000/GIS has not microbial factor. However, this study can be used to evaluation of the other area of Thailand where has enough quality data.

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Thesis Advisor's signature