

Prapachuen Chanthachai 2006: Determination of Water Quality in Lower-Maeklong River Basin by Using WASP 7.0 Model. Master of Science (Watershed and Environmental Management), Major Field: Watershed and Environmental Management, Department of Conservation. Thesis Advisor: Associate Professor Sittichai Tantanasarit, Ph.D.
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The study on determination of water quality in lower Maeklong river basin by using WASP 7.0 model has objective is determination of water quality in dissolved oxygen and biological oxygen demand in 2002 and next 5, 10, 15 years. Separated Maeklong river to 21 segments collected and analyzed water samples in dissolved oxygen, biological oxygen demand, temperature, pH, nitrate nitrogen, and phosphorus. Measured cross section, flows rate and determination BOD loading from communities and industrials that were 0 – 1 kilometer buffer along the river in 2002 and determination of BOD loading from community in 2007, 2013 and 2017, enter all of information to WASP 7.0 model.

The result showed that water qualities in 2002 were acceptable in standard river quality class 3, BOD loading from community was 2,215.26 kilograms per day and from industry was 209.2770 kilograms per day. Determination BOD loading in 2007, 2013, and 2017 were 4,222.17 6,966.29 and 10,416.20 kilograms per day respectively. Result of operation WASP 7.0 model found that dissolved oxygen and biological oxygen demand in 2002 had $r^2 = 0.7955$ and 0.6820 respectively. Water qualities simulation in 2007, 2013 and 2017 found that dissolved oxygen had tendency decreased but still in standard water quality class 3 and biological oxygen demand had tendency increased, that in standard water quality class 4. According to the studied, municipals near the river should be treated waste water before released to Maeklong river for sustainable water quality management.

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