

**LAKE WATER QUALITY MODELING:
YUVACIK DAM LAKE AQUATOOL MODEL
CASE STUDY**

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EXPERTISE THESIS ABSTRACT

In this study, AQUATOOL model developed by Valencia Polytechnic University in Spain was applied for Yuvacik Dam Lake and the validity of the results is compared with the criteria in the literature and the applicability of the model has been demonstrated.

The dam water budget was established with the SİMGES module of the AQUATOOL model and the water quality status for the dam lake was determined with the GESCAL module. With the water quality model of Yuvacik Dam Lake, calibration and validation has been carried out in order to perform scenario analyzes. The model was calibrated with chlorophyll-a, dissolved oxygen, nitrate and dissolved reagent phosphorus parameters between 2010 and 2012. The validation process was carried out between 2012 and 2013 with the data set.

The results of the AQUATOOL model with calibration and validation were statistically analyzed with the Mean Absolute Error (MAE), Root Mean Square Error (RMSE) and Percentage Bias (PBIAS) evaluation criteria in the literature and the AQUATOOL model proved to represent the Yuvacik Dam Lake well.

Key Words: Water quality, modelling, AQUATOOL, SİMGES, GESCAL, Yuvacik Dam Lake