



University of Zabol
Graduate school
Faculty of Water and Soil
Department of Water Engineering

**Thesis for Abtaning a Mosters Degree in
Water Structures**

Titel:

**Estimating sediment Rating Curve
Models in the Diversion Canal of Chah
nimeh Reservoirs.**

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Abstract

Sedimentation along the rivers is one of the biggest problems of surface water resources, causing damages to buildings and farms and redirection of rivers. Different methods are used to estimate the sediment load, but their utilization and accuracy are less considered. In this research, the amount of sediment load entrance to the Chah-Nimeh reservoirs of Sistan were investigated. In this study, 26-year-old data of the flow and sediment discharge of the Chah-Nimeh reservoirs were used during the period of years 1369 to 1395. The research data were categorized monthly and seasonally to increase the accuracy. The estimation of suspended sediment was carried out with 6 statistical methods: one-line, two-line, middle of the classes, FAO, logarithmic and nonlinear transformation. In this research, an optimization method using genetic algorithm was used to determine the failure point in the two-line method to consider the importance of determining of it. Two assessment methods of the mean of relative error and root mean squared error were used to select the appropriate method for estimating suspended sediment. The results of the research showed that the nonlinear method in all methods of without, seasonal and monthly classification with the mean square error of 30739.11, 28280.93, and 2695.33, respectively, yields the best results, and monthly classification of data increases accuracy and decreases the root mean squared error in the the Chah-Nimeh reservoirs. In the end, the annual sediment yield of the Chah-Nimeh reservoirs on the basis of nonlinear , classification methods was calculated 1.2 million tons.

Keywords: Reservoir, Suspended Sediment, Rating Curve, Chah Nimeh