Simulation of Ghareaghaj Basin total dissolved solids using MIKE11 software and statistical assess of results.

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Abstract

In this paper describe one dimensional hydrodynamic and salinity transport model for the Ghareaghaj basin along the north of Persian Gulf. The natural system of river represented through the one dimensional model MIKE 11. The numerical model has been calibrated and validated through water level and salinity measurements. The model predicts water level, discharges, depth-averaged velocities and salinities across the Ghareaghaj basin. The validated model will be used as a tool to evaluate proposed restoration and management strategies.

Keywords : Simulation, Salinity, Advection- Dispersion, Ghareaghaj basin

1-Introduction

The Ghareaghaj Basin is the biggest river systems in Fars Province . The main river is originated from anar mountain in kazeron parish and flowing through east south. The basin of these rivers encompass four subbasin: Ghareaghaj-bandbahman, Ghareaghaj-aliabadkhafr, Shorjahrom, Mond-tangkarzin. The river flows to Salman Farsi dam and joints with the Mond River at Boushehr Province and flows to the Persian Gulf.

Over the years, some alterations increased salinity include: gradual dissolution of the crossing of the ground layer, interaction of sea water, the return water from irrigated fields and waste water, sea salt that transported by wind and… .

The natural system of rivers across 255 km represented through the one dimensional model MIKE11. MIKE11 solves the standard Saint-Venant equations. The Saint-Venant equations in MIKE11 are solved numerically using 6-point Abbott scheme. This study uses the MIKE11 module of the DHI modeling system to assess salinity of water in these rivers. One of the objectives was to investigate the ability to simulate saline, Another objective was to use the model to determine changes in water salinity in the future.