

عنوان مقاله:

Modeling of sea currents in coastal mangrove region in Nayband Bay

محل انتشار:

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خلاصه مقاله:

Mangrove-covered coastal areas offer excellent conditions for aquatic creatures and, consequently, their protection has become an important environmental issue. Nayband Bay is a valuable wetland of that kind in Persian Gulf, located near the South Pars industrial area, in Boushehr province, Iran. The ecosystem of the area has gone through major changes in the last years due to water pollution caused by the industrial activities, resulting in unfavorable living conditions for aquatic creatures and mangrove plants. However, prior to the planning and implementation of protection policies, it is necessary to explore the main hydrodynamic features by hydrodynamic measurements and mathematical models. In this paper, due to shallowness of Nayband Bay, MIKE21 is used to simulate the current pattern, which is a 2-D unsteady flow model. The vertically integrated governing equations are approximated by a method of finite differences. The flow variables and the topography are discretized on a 2-D, horizontal Cartesian grid. Tidal levels extracted from regional model (Persian Gulf) are used as the boundary conditions to the local model (Nayband Bay) along its southern and western boundaries. Current pattern of the bay is simulated considering four different scenarios. Calibration of the model has been carried out based on the water level measurements of the only tide gauge located in Nakhle Taghi port. Results of these scenarios have been compared and some recommendations are made.

کلمات کلیدی:

Sea currents – Nayband Bay – Shallow water equations – Finite difference method – MIKE21 flow model

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