Hydrodynamics and water quality management in lake Mariout, Egypt using Delft3d

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The Lakes have attracted attention as dynamic aquatic ecosystems with high sensitivity to the pollution. The importance of this water reservoir stems from a consideration that it is a primary storage of freshwater flow coming from rivers and natural flood deterrent. Moreover, the lakes have a very important socio-economic role according to its multi-functional usage as a source of fresh water for domestic, agricultural, fisheries and industrial purposes, as well as hydropower generation and a recipient for wastewater. Lake Mariout is one of the major sources of conveyance of land-based pollution to the El-Mex Bay, the first priority hotspot on the Egyptian Mediterranean coastline. This study aims to identify the best applicable simulation scenario for water quality management at Lake Mariut using Delft3d. Hydrodynamic and water quality models were developed to assess the current situation of the lake in relation to the pollution sources. The model will enable the study of flow circulation, transport and advection of the substances and the cross flow.