

Y-IV6

Input/output conceptual model for the Chromium in the Mex Bay

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SUMMARY

Chromium enters Mex Bay (West of Alexandria) marine environment from tanneries effluents and an agricultural drain. Chromium was measured by AAS in effluents, sea water, biota of different trophic levels and sediments of the Bay. The rates of input and output of chromium to and from the Bay were estimated. Box models were used to describe the relation between the problem and the ecosystem, as a first step in modelling.

Y-IV7

Simulation model for Mercury pollution in Mex Bay, Alexandria (Egypt)

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SUMMARY

A simulation model for mercury pollution in Mex-Bay was constructed, on the basis of data obtained by the Aquatic Pollution Unit of the University of Alexandria.

OBJECTIVES OF THE MODEL:

- to set up a mass balance of mercury for the bay.
- to relate effluents quantities of mercury with mercury concentrations in biological components. Of special interest is the mercury concentration of fish used for human consumption.
- to predict future trends in mercury concentrations in sea water and biological components, if the discharge of mercury is not reduced or is reduced to a defined level
- to give a better understanding of the mercury cycling in Mex Bay.

MODEL DESCRIPTION:

- As the proposed model is relatively complex, it was preferred to present the model by use of several conceptual diagrams.
- The governing equations are based upon the mass conservation principle.
- The model consists of forcing functions, state variables, processes described as equations and parameters.
- The processes (equations) relate forcing functions and state variables. Given the forcing functions (e.g., discharge of mercury and meteorological conditions), the model will give the state variables.
- The model still requires calibration and validation.

This model can be considered as one of the first simulation models all over the Mediterranean to solve the mercury problem in a given area.