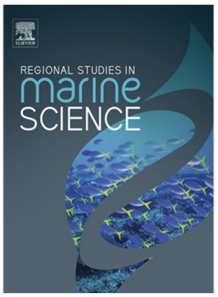
Accepted Manuscript



Monitoring and modeling land-based marine pollution

Kağan Cebe, Lale Balas

PII: S2352-4855(18)30044-6
DOI: https://doi.org/10.1016/j.rsma.2018.06.010
Reference: RSMA 396

To appear in: *Regional Studies in Marine Science*

Received date : 6 March 2018
Revised date : 22 June 2018
Accepted date : 22 June 2018

Please cite this article as: Cebe K., Balas L., Monitoring and modeling land-based marine pollution. *Regional Studies in Marine Science* (2018), https://doi.org/10.1016/j.rsma.2018.06.010

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

MONITORING AND MODELING LAND-BASED MARINE POLLUTION

Asst. Prof. Dr. Kağan Cebe[1] and Prof. Dr. Lale Balas[2]

[1]Nevşehir Hacı Bektaş Veli University, Faculty of Engineering and Architecture, Nevşehir, TURKEY, kcebe@nevsehir.edu.tr

[2]Gazi University, Sea and Aquatic Sciences Application and Research Center,

Ankara, TURKEY, lalebal@gazi edu.tr

Highlights

- Water quality parameters were measured for a year in Izmir Inner Bay, Turkey.
- Effects of land-based pollutant sources on coastal water quality were modeled.
- Izmir Inner Bay coastal waters were evaluated to be hypertrophic.
- SWMM and HYDROTAM-3D successfully simulated land-based marine pollution.
- Marine water quality can improve after remediation of land-based pollution.

Abstract

An integrated numerical coastal water quality model was developed to simulate the effects of land-based pollutants. The model was applied to Izmir Inner Bay, Turkey. Water temperature, salinity, conductivity, pH, turbidity, dissolved oxygen, total dissolved solids, ammonium, nitrite, nitrate, total dissolved and inorganic phosphorus, and total dissolved and organic carbon were measured monthly, for one year. Land-based pollutant loadings were estimated using the USEPA's Storm Water Management Model (SWMM, v5.1). The study considered the loads washed off from the surrounding basin of the Izmir Inner Bay, namely, total suspended solids, biological and chemical oxygen demand, inorganic phosphorus, ammonia, nitrite, and nitrate concentrations, from urban and as well as industrial effluents. The coastal circulations and changes in the water quality parameters were simulated by HYDROTAM-3D, a three-dimensional coastal hydrodynamics, transport, and water quality model. The concentrations of water quality parameters, namely, total dissolved phosphorus, ammonia,

Download English Version:

https://daneshyari.com/en/article/8872499

Download Persian Version:

https://daneshyari.com/article/8872499

Daneshyari.com