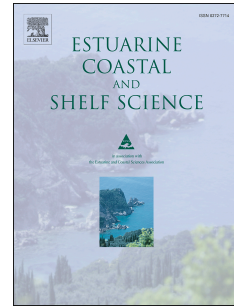


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An integrated approach for the assessment of land-based pollution loads in the coastal zone

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## 1 **An integrated approach for the assessment of land-based pollution loads** 2 **in the coastal zone**

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### 16 **Abstract**

17 The identification and prioritization of pollution sources is essential to coastal zone  
18 management. This task is complicated when a variety of pollution sources are found and by  
19 limited data availability, which can result in an inconclusive assessment and differing  
20 public perceptions, ultimately hindering the progress of management actions. This is the  
21 case in Cartagena Bay (Colombia), a Caribbean hot-spot of pollution, which receives large  
22 freshwater discharges from the Magdalena River drained via the Dique Canal along with  
23 coastal industrial effluents and untreated domestic wastewater from parts of the coastal  
24 population. This study presents a methodology for the integrated assessment of  
25 anthropogenic pollution sources discharged into the coastal zone by estimating their loads  
26 and comparing their relative contributions to receiving coastal waters. Given the lack of  
27 available data on discharges and water quality, an integrated approach is applied by  
28 combining various methods of load estimation while emphasizing the importance of  
29 calculating confidence intervals for each load value. Pollution loads from nearby sources of  
30 domestic wastewater, coastal industrial effluents and continental runoff were assessed with  
31 respect to their contributions of coliforms, total suspended solids, nitrogen, phosphorus, and  
32 biological oxygen demand (BOD). Loads from the canal's surface runoff were calculated

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