

## **Sediment quality in California bays and estuaries**

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### **ABSTRACT**

Sediment quality in California bays and estuaries was evaluated using the multiple lines of evidence (MLOE) assessment framework proposed for use as part of the State Water Resources Control Board's new sediment quality objectives. Chemistry, toxicity, and benthic community data from 6 surveys conducted over 8 years were used to classify 381 sites into 6 condition categories: Unimpacted, Likely Unimpacted, Possibly Impacted, Likely Impacted, Clearly Impacted, and Inconclusive. Assessments were conducted at both a statewide level and for three regions: northern coastal embayments, southern coastal embayments, and San Francisco Bay. Approximately 83% of the 1295 km<sup>2</sup> of California marine embayments included in the analysis were classified as having some degree of impact related to sediment contamination. Most of the area was classified as Possibly Impacted and less than 1% of the area was classified as Clearly Impacted. Large variations in sediment condition were present among the three geographic regions. The North region had the best sediment conditions, with 58% of the area classified as Unimpacted and no sites classified as Clearly Impacted. Somewhat poorer sediment quality was observed in the South, with 43% of the area classified as Unimpacted and 2% classified as Clearly Impacted. A different distribution of sediment condition categories was present in San Francisco Bay; no sites were classified as Unimpacted and the proportion of area classified as Possibly Impacted (77%) was more than three times greater than that measured in the other regions. The large percentage of Possibly Impacted area within SFB suggests that sediment contaminants are more widespread and less concentrated in this region, possibly due to contaminant dilution and redistribution as a result of greater rainfall, high runoff inputs from urban and agricultural sources, and tidal mixing. The results of this study's integrated analysis using the SQO assessment framework produced a more comprehensive and robust assessment of statewide sediment quality than has been achieved previously. Moreover, this study's assessment of sediment conditions on both statewide and regional scales can be used as a benchmark for future studies.

### **Full Text**

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