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## Habitat-related benthic macrofaunal assemblages of bays and estuaries of the western United States

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### ABSTRACT

Data from 7 coastwide and regional benthic surveys were combined and used to assess the number and distribution of estuarine benthic macrofaunal assemblages of the western United States. Q-mode cluster analysis was applied to 714 samples and site groupings were tested for differences in 4 habitat factors (latitude, salinity, sediment grain size, and depth). Eight macrofaunal assemblages, structured primarily by latitude, salinity, and sediment grain size, were identified: (A) Puget Sound fine sediment, (B) Puget Sound coarse sediment, (C) southern California marine bays, (D) polyhaline central San Francisco Bay, (E) shallow estuaries and wetlands, (F) saline very coarse sediment, (G) mesohaline San Francisco Bay, and (H) limnetic and oligohaline. The Puget Sound, southern California, and San Francisco Bay assemblages were geographically distinct, while Assemblages E, F and H were distributed widely along the entire coast. A second Q-mode cluster analysis was conducted after adding replicate samples that were available from some of the sites and temporal replicates that were available for sites that were sampled in successive years. Variabilities due to small spatial scale habitat heterogeneity and temporal change were both low in Puget Sound, but temporal variability was high in the San Francisco estuary where large fluctuations in freshwater inputs and salinity among years leads to spatial relocation of the assemblages.

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