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Patterns in estuarine vegetation communities in two regions of California: Insights from a probabilistic survey

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ABSTRACT

Monitoring wetlands at the ecoregion level provides information beyond the site scale and can inform regional prioritization of management and restoration projects. Our study was a component of the United States Environmental Protection Agency's 2002 Environmental Monitoring and Assessment Program Western Pilot and is the first quantitative comparison of regional condition of California estuarine wetland plant communities. We measured indicators of estuarine emergent wetland condition in southern California and San Francisco Bay at probabilistically selected sites. In southern California, we also assessed potential anthropogenic stressors (presence of modified tidal hydrology, intensity of surrounding land use, and population density). Southern California salt marsh exhibited higher species diversity and greater percent cover of invasives. Seven of eight common plant species showed less variation in their distributions (zonation) across the marsh in southern California than in San Francisco Bay. Modified tidal hydrology was associated with absence, in our data, of certain native species, and higher relative percent cover of invasives across the marsh; however, our measures of landscape-level anthropogenic stress did not correlate with cover of invasives. We discuss lessons learned regarding the use of probabilistic site selection combined with our spatially complex data-collection arrays, and comment on utility of our protocol and indicators.

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