SALT MARSH RESTORATION:
ASSESSING A SOUTHERN CALIFORNIA EXAMPLE

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ABSTRACT

In San Diego County, California, construction of a flood control channel and highway project caused a loss of coastal salt marsh area. As mitigation, the California Department of Transportation modified a disturbed high marsh area. The site was graded and, in 1984, planted with Spartina foliosa and middle marsh vegetation to create habitat for the endangered Light-Footed Clapper Rail. The area, called the "Caltrans connector marsh," connects two natural marshes, Paradise Creek and Sweetwater marsh. To evaluate the restoration effort, I reviewed the plans and implementation of the vegetation transplant program. The 1987-1988 status of the Caltrans connector marsh vegetation and soils was compared with that of Paradise Creek marsh.

Based on other assessments of natural and artificially created coastal salt marshes, it was hypothesized that Spartina foliosa in the artificial marsh would be less extensive, have lower density, and be more patchy than Spartina in Paradise Creek marsh. Also, it was hypothesized that connector marsh soils would be more coarse, lower in organic matter and less saline than those of Paradise Creek marsh. Only the salinity hypothesis was

rejected.

Vegetative cover was measured using a line-intercept method at the elevation that appeared to support the most dense and robust Spartina foliosa. The artificial marsh had less total cover, more patchy cover and more sparse and bare areas than Paradise Creek marsh. To characterize the extremes of Spartina establishment, stem were measured at permanent quadrats in areas of greatest and least Spartina cover. In high-cover areas, the Paradise Creek Spartina was more dense and had more total aboveground biomass than the connector marsh. In the sparse areas, the sites did not differ in density or biomass. Overall, Spartina in Paradise Creek was more dense than in the connector marsh but the mean stem lengths were the same. From 1987 to 1988, Spartina density in sparsely covered areas increased in both Paradise Creek and the connector marsh while the density in high-cover areas decreased.

The connector marsh soils were more coarse than the natural marsh soils with about half as much organic matter. Although coarse soil texture was expected to improve drainage and result in lower soil salinity, there was no overall difference in salinity of the two sites. Soil salinity, texture, and organic content did not vary with plant cover.

To test the artificial marsh's ability to support Spartina foliosa transplants, an experimental planting was

done where the original transplants had failed. After four months the new transplants were still alive. This suggests the establishment of the original transplants was not a function of the soils or hydrology; planting techniques may have affected plant success.

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