THE EFFECTS OF SOIL AMENDMENTS ON THE GROWTH OF AN INTERTIDAL HALOPHYTE, SPARTINA FOLIOSA

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ABSTRACT

Soils were amended with inorganic nitrogen, alfalfa, and straw to improve the growth of cordgrass (Spartina foliosa) in a newly constructed salt marsh at San Diego Bay. Aboveground biomass and stem densities were significantly higher on soils amended with alfalfa at the end of the first growing season. Sediment nitrogen and carbon pools were not significantly increased by the amendments at the end of two growing seasons. Decomposition was fastest for the nitrogen-rich alfalfa. Nitrogen loss from both alfalfa and straw was extremely fast (50% to 66% in 2 weeks). A nitrogen budget suggested that less than 4% of the nitrogen potentially available for uptake was actually recovered in aerial tissue. High decomposition rates and sandy soils are site characteristics that may make it difficult for constructed marshes to develop sediment nutrient pools equivalent to natural marshes.

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