Subaqueous Soil-Eelgrass Distribution Relationships in a Shallow Subtidal Wetland. (S10-stolt204903-Poster)

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Abstract:

Eelgrass (Zostera marina L.) is the most common species of submerged aquatic vegetation along the north Atlantic coastline. In this study, we investigated the relationships between subaqueous soil properties and eelgrass distribution in order to begin to develop soil-based strategies for eelgrass restoration. Subaqueous soils were sampled and eelgrass cover determined for fourteen different soil-landscape units within a 116-ha area of Ninigret Pond, RI. The Lagoon Bottom, Flood-tidal Delta Slope, and the Barrier Cove subaqueous soil-landscape units had the highest eelgrass cover. These units typically have soils that classify as Hydraquents, Sulfaquents, or Fluvaquents. Soils with relatively high levels (>90 ug/g) of acid-volatile sulfides (AVS), high salinity levels (34 to 44 ppt), fine textures (silt loam), and relatively high total nitrogen levels (> 0.15%) had the highest eelgrass cover. A predictive sequential linear regression model indicated that eelgrass distribution could be explained by three soil properties: AVS, total nitrogen, and organic carbon (R-square = 0.85).

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 3:00-6:00 pm
Poster Board Number: 1608

Keywords:

subtidal wetlands, hydric soils, submerged aquatic vegetation