

Can Oregon marshes keep up with the rising tide? A study of short and long term marsh accretion.

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Abstract

More frequent inundation of Oregon coastal marshlands associated with rising sea level threatens these important and diverse habitats. Accretion rates determined by the marker horizon method and longer term peak Cs¹³⁷ detection in nine marsh systems from Coquille to Tillamook were found to vary depending on a number of factors including plot elevation and plant species present. From 2009 to 2013, marker horizon plots in the low marsh generally accreted more, with a maximum observed accretion rate of 2.3 cm y⁻¹ at one *Carex lyngbyei* dominated plot directly adjacent to the lower Siletz River. Inundated less frequently, high marsh plots had lower annual accretion rates which were often times below the current rate of sea level rise for the region. These results agree with long term accretion rates determined from Cs¹³⁷ deep (~0.5 m) cores. Our results suggest that low marsh habitat in Oregon estuaries may be able to keep pace with the current rate of sea level rise. Accretion rates from this study will also be compared to other rates in the region and data gaps identified.