Predicting Change in Eelgrass Distribution Due to Sea Level Rise

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The eelgrass species *Zostera marina* is the dominant estuarine seagrass on the Pacific Northwest coast of North America and provides important ecosystem services and functions. The loss of eelgrass bed acreage due to environmental pressures is of world-wide concern, yet predicted spatial redistribution of intertidal eelgrass beds under climate change induced sea-level rise is largely unexplored through spatially explicit modeling. Here, we construct a model predicting the spatial redistribution of the intertidal eelgrass *Zostera marina* under varying sea-level rise scenarios in three estuaries on the Oregon coast using ArcGis tools. Using remarkably few spatial datasets, the model exploits known relationships between eelgrass and physical constraints to bed expansion to provide coefficients to a predictive regression. At this stage of development, the model dubbed BATHTUB (Bathymetry Affecting Tidal Habitats Toward Upland Boundaries) explores only the effects of bathymetric changes and not other climate change induced effects in temperature, salinity or precipitation.