

Tidal salt marsh is especially sensitive to deterioration due to the effects of accelerated sea level rise when combined with other anthropogenically linked stressors, including crab herbivory, changes in tidal hydrology, nutrient loading, dam construction, changes in temperature and precipitation, and introduction of non-native species. In this study, we inventory the elevation of five Rhode Island salt marshes, which vary widely in geographic setting, soil type, tidal range, and marsh loss trajectory. We inventory elevation relative to geospatial datums, water levels, and the elevation of maximum plant productivity to identify the vulnerability of salt marshes in Rhode Island to marsh deterioration from sea level rise. We also identify salt marsh deterioration over time at these sites by digitizing the extent of salt marsh, tidal channels, and unvegetated interior depressions on historic maps and air photos. In contrast to studies conducted elsewhere in the mid-Atlantic and northeast, where marsh elevation was found to be supra-optimal relative to maximum productivity of *Spartina alterniflora*, we instead found that maximum productivity of *Spartina alterniflora* is at elevations above the current marsh platform, and therefore is likely to decline with increased inundation. We also find evidence that inundation times are longer in marshes with ongoing die-back, suggesting a strong role for sea level rise in ongoing marsh deterioration, even though proximate causes found at individual marshes may be linked more strongly to crab herbivory, disruptions to natural hydrology, or poor water quality.