

Characterizing Boron Isotope Variation in Wetland Plants from Setauket Pond

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In North America, most major cities can be found in coastal zones at risk from rising sea level (RSL) and increased storm intensity. Coastal wetlands provide protection from RSL and storm surge, but wetland acreage is significantly decreasing across the continent. This loss is exacerbated by RSL and decrease in sediment deposition. In this process, wetlands, and surrounding groundwater, undergo increased salinity and easily flooded low marsh zones expand. Understanding how Long Island wetlands respond to RSL is increasingly important, particularly if increased salinization of wetlands and surrounding groundwater is a possibility. Boron isotopes may be one way to investigate both how plants behave in a wetland and how a wetland responds to increased salinization and RSL. We report boron isotope data from Setauket Pond and Conscience Bay in comparison with boron isotope data from Plum Island (MA). These data show the extent to which seawater can influence boron isotopes in a wetland system, e.g., the water, soil, and plants. Further, boron isotope analyses on *Phragmites* spp., an invasive plant that thrives in all kinds of wetland ecosystems, point towards a complex boron uptake mechanism in its plant physiology that may complicate its use in isotope investigations of wetland economies and land use.