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ASSESSING THE IMPACTS OF SALINITY AND NUTRIENT STRESS TO *RUPPIA MARITIMA* AND *ZOSTERA MARINA*

Healthy seagrass beds were once found throughout the shallow areas of Narragansett Bay, R.I. but have disappeared due to infilling, pollution and disease. In Greenwich Bay, a highly developed embayment within Narragansett Bay, *Ruppia maritima* has colonized an area on the northern shore once dominated by *Zostera marina*. This area is sandy, which may allow groundwater seepage. *Ruppia* is extremely salinity tolerant, and may also be more nutrient tolerant than *Zostera*. A six week microcosm experiment at two salinity (20 and 30 ppt) and 4 nutrient (0, 5, 10, and 30 µM inorganic N) levels to test their relative tolerance was conducted in 2014. Treatments were renewed daily to simulate tidal flushing and the exposure water was dosed with ^{15}N for the first week of the experiment. At the end of the experiment, the plants were weighed and measured, and dried for later isotopic analysis. In the first experiment, *Ruppia* had significant structural responses to both nutrients and salinity; there was a slight decline in root weight and a decrease in the total number of shoots with increasing nutrients. Average *Ruppia* blade length decreased with increasing nutrients and this decrease was more evident at 30 ppt. In contrast, *Zostera* had no significant structural differences. For both species, there were no differences in shoot or root/rhizome weights in any treatment, nor were there differences in isotopic results due to salinity. However, $\delta^{15}N$ in the tissue increased with increasing nutrient levels for both species. For *Zostera*, %N also increased in the root and rhizomes. The second experiment is being run this summer (2015), with lower salinity (5 and 30 ppt) and higher nutrients (0, 30, 100, 300, and 1000 µM inorganic N). This experiment should determine *Zostera*'s tolerance to nutrient and salinity stress and confirm the previously observed *Ruppia* results.