Effects of nutrients on the abundance of *Spartina alterniflora* in Sandy Point Saltmarsh

Simon Bishop
Department of Biology and Environmental Science Major: Marine Biology
Dr. Jean-Paul Simjouw

Abstract
Spartina alterniflora is one of the major plants found in New England salt marshes. However, its location is limited due to the nutrients available as well as competition with other salt marsh plants. This project set out to determine whether in Sandy Point salt marsh the nutrient levels in the sediment have a correlation with the abundance of *Spartina alterniflora*. For this experiment a porewater sampler (peeper) was created to allow for the measurement of the porewater in the sediment in locations where *Spartina alterniflora* was abundant, semi abundant and non-existent. Alongside each of the peepers two cores were taken to help verify the results of the peeper. Each core was spun down in a centrifuge to separate out the porewater. Ammonia levels of the porewater samples were tested using an eXact® Eco-Check Advanced Photometer whereas the sulfide levels were tested using a LaMotte Sulfide Test kit and the salinity was determined using a hand refractometer. The collected data showed that areas abundant with *Spartina alterniflora* had lower concentrations of ammonia. Areas without *Spartina alterniflora* had higher pH levels. However, the experiment was inconclusive as to a correlation. More data would be needed in order to determine whether there is a correlation between the nutrient levels and *Spartina alterniflora*.

Introduction:

Salt marshes reside along many parts of the Connecticut coastline providing important habitats for both marine and terrestrial species as well as act as filters for pollutants (Beck et al. 2001). The plant species that reside in salt marshes are affected in their zonation by many factors including salinity (Bradley and Morries, 1990), competition

Figure 3. Porewater sampler (peeper) used during the experiment.

Abundance

Locations were chosen where no *Spartina alterniflora* was growing, at the border of growth and no growth and where there was growth. At each sample site a quadrat was used to determine the abundance of *Spartina alterniflora* within a 1 m^2 around the peeper. 20-25 plants for samples with *Spartina alterniflora* 12-15 for samples with some *Spartina* and 0 for samples with no *Spartina*. These are the abundance numbers used for each of the sample sites.

Table 1. Abundance of *Spartina alterniflora* at each peeper location.

Trial Number	# of *Spartina* alterniflora
Trial 1 With *Spartina*	25
Trial 1 With Some *Spartina*	17
Trial 2 With Some *Spartina*	14
Trial 1 With No *Spartina*	0
Trial 2 With No *Spartina*	0
Trial 3 With No *Spartina*	0

Figure 5.

which might help to limit the differences between the cores and the peeper. Also salt water with a salinity similar to that of the porewater to be collected could be used instead of deionized water. Using salt water might allow for a faster equilibrium time thus speeding up the process of gathering data.

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