on one particular predator of the blue mussel: the invasive g

Surveying intertidal organism populations to study the potential causes of this crisis, including ocean

acidification and other water chemistry changes, we sought to delve further into a potentially important factor, namely the impact of predator populations on blue mussel populations. It has been found that blue mussels respond with physical changes

Carcinus maenas, which crabs on blue mussel population densities, we conducted

population surveys at five field sites along the coast of Maine: Giant's Stairs, Pott's Point, Ocean Point, Pemaquid Point and Marshall Point. Each site was chosen due to the presence of both green crabs and blue mussels, as sites with only one or the other would not provide relevant data for our study. Surveys consisted of laying out a transect line using a long measuring tape and dropping quadrats (large squares constructed out of PVC pipe) along the line. All living organisms within the quadrats were counted to the best of our ability. Additionally, crab traps were placed at each site for 24 hours to get an estimate of subtidal crab population numbers, as crabs living below the low tide line could come up the beach at high tide and consume mussels. We also used a YSI probe to obtain water chemistry data at each site, as well as collecting water samples to send to a chemistry lab for additional analysis. Finally, we collected several mussels from each site to bring back to the Schiller Coastal Studies Center for dissection to study their possible changes to shell thickness as a response to large populations of green crabs (Freeman, Meszaros and Byers, 2009). All of this data was collected so that we could investigate several possible contributing factors to the blue mussels' disappearance, as well as so my coworker Samuel Neirink and myself could have as varied a scientific research experience as possible. Our data was compiled into spreadsheets in Excel and then analyzed using the R coding language.

Unfortunately, we were not able to find a clear relationship between green crab population size and blue mussel population density across our sites. This could be due to our relatively low sample size across a time frame of only a few months, or it could be the case that green crabs are not in fact significant contributors to the decline of blue mussels in the Maine intertidal.

References:

Freeman, A. S., Meszaros, J. & Byers, J. E. 2009.