Susan Linn
October 27th, 2011

Health on the Seagrasses of the Texas Coast

Progress Report

Objective: The main goal of this project is to characterize the health of seagrass beds along the Texas Coast. Seagrass beds are a vital ecosystem that provides many, very economically important ecosystem services. Seagrass beds contribute to primary productivity, serve as habitat for many different estuarine species, provide safe nursery grounds for juveniles, and serve as erosion control for the coastline. It is vital to monitor the health of these fragile and important ecosystems so that actions can be taken to guarantee long-term persistence of these seagrass beds.

Data: Seagrass and water quality data were collected for 94% of the Texas seagrass beds between August and October of 2011. Since this data is so new, I have only received data for the 57 sampling sites in the Mission Aransas National Estuarine Research Reserve (MANERR). For those sites, the only parameters that have been processed are the percent cover of each seagrass genus. The original scope of this project included all 567 sampling sites along the Texas coast, but if the data processing is slower than expected, I will probably limit the study to the MANERR and Corpus Christi Bay.

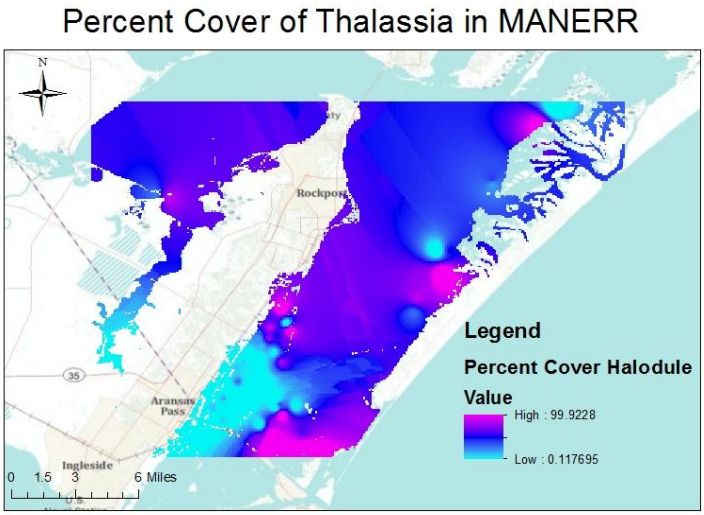

Figure 1

Methods: I began by plotting the sampling sites using the GPS recorded locations in decimal degrees. Then I converted the percent cover of each seagrass genus to a raster by using IDW interpolation (Figure 1). Using excel, I calculated the dominant seagrass for each site, and then I assigned each site with a number from 1-7 corresponding to the dominant genus. I then joined these values to my existing attribute table in Arcmap, associating each integer with a unique site. I then changed the symbology of that layer to display the dominant seagrass genus with a colored point (figure 2).

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Dominant Seagrass Genus per Site in MANERR

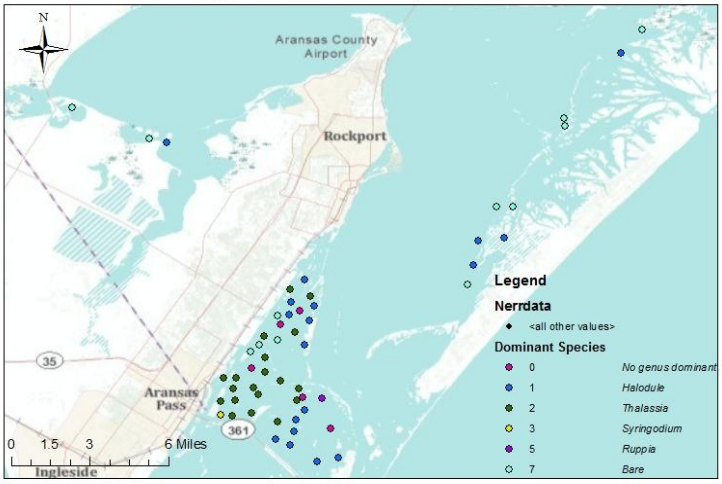

Figure 2

Future Work: Once I receive more data, I will be able to associate the percent cover and species composition of each site with the water quality parameters from each site. This will allow me to characterize the salinity, temperature, secchi depth and dissolved oxygen concentration of each sampling site. I plan to research each seagrass genus to determine it's optimal growing environment in order to relate the quality of the water now with what is most preferred by that genus. Finally, I plan to use the scoring system designed by Dr. Ken Dunton (http://texasseagrass.org/) to assign a letter grade to each major seagrass community along the coast. This final designation will provide the public with a general assessment of each area that reflects the synthesis and analysis of the field data collected.