



CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s) Zoie S. Andre	Project Number 35331
Project Title Soil Organic Carbon: Salt or Fresh?	
Abstract Objectives/Goals The objective is to determine whether salt or freshwater marshes store the most soil carbon on the wetlands of northern Humboldt Bay. I predicted that the salt water marshes store (sequester) the greatest amount of soil organic carbon because of the anaerobic environment caused by saltwater tides. Methods/Materials Randomly select six sample locations, three freshwater and three saltwater. Next the samples were extracted using a soil probe. The samples were then weighed before and after being heated in a muffle furnace to determine percent weight loss on ignition (LOI). Results The freshwater marshes store 2.03% soil organic carbon and the saltwater marshes store 1.76% soil organic carbon. Conclusions/Discussion Unlike my hypothesis, the freshwater marshes store slightly more soil carbon than the saltwater marshes in my study area at Humboldt Bay. In conclusion, although freshwater marshes store slightly more soil organic carbon, protecting and restoring saltwater marshes may be more important for helping reduce climate change impacts because they do not release methane (CH ₄), a powerful greenhouse gas, where freshwater marshes do.	
Summary Statement I measured soil organic carbon content in salt and freshwater marshes.	
Help Received Equipment from father (Mark Andre) and supervision in lab and lab equipment from Rachel Hernandez	