



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

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<b>Project Title</b> The Effect of Temperature on Salt Marsh Plant Growth	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study was to analyze the effects of temperature on salt marsh plant growth and cover. The study's one-sided hypothesis states that an increase in temperature will cause a decrease in plant cover, a prediction based on historical and current geographical locations of salt marshes in the United States.</p> <p><b>Methods/Materials</b> For our experiment, measurements in the Cabrillo Salt Marsh were made every other week for four months. To assure reliable data, measurements were taken only during low tides and from two specific regions. A transect, quadrat, and thermometer were used: a transect measured out the test areas, a quadrat quantified cover, and the temperature of soil was recorded every meter.</p> <p><b>Results</b> Linear regression tests were applied to determine the significance of findings. Pickleweed, a nesting plant for an endangered bird and several other species, presented a strong negative correlation to temperature, with p-values of 0.0214 and 0.0091 for the two areas at an alpha of 0.05, confirming the hypothesized relationship. However, other plants, such as cordgrass, yielded insignificant results and supported the null hypothesis of temperature having no effect on plant cover.</p> <p><b>Conclusions/Discussion</b> Salt marshes, once common on the west coast, are shrinking and disappearing at an alarming rate. This study supports the conclusion that as temperatures rise, some important plant populations will diminish and endanger species: climate change imperils our salt marsh environments.</p>	
<b>Summary Statement</b> Data was recorded and statistical tests were carried out in order to understand the relationship between salt marsh plant growth and temperature.	
<b>Help Received</b> Approval to test in salt marsh and tools to do so given by the Cabrillo Marine Aquarium, along with help in identifying plant species. Supervised by Dr. Kiersten Darrow.	