



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> Alisa Smith; Ian Sophie	<b>Project Number</b> <b>S1911</b>
<b>Project Title</b> <b>How Does Water Salinity Affect the Plant <i>Armeria maritima californica</i>?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of our project was to see how different levels of water salinity affect the plant <i>Armeria maritima californica</i> over the course of two months.</p> <p><b>Methods/Materials</b> We bought 12 <i>Armeria maritima californica</i> plants and planted them in four separate planter boxes# three plants per box, with each box representing a separate trial. The first box, planter box A, received pure distilled water. Planter box B received water with 3.5 ppt salinity, planter box C was watered with 8 ppt salt water, and planter box D was watered with 31.5 ppt salt water.</p> <p>Every three days we measured and recorded the growth of the plants in both the area and heights. We did so by finding the three tallest leaves of each plant and measuring the height, in centimeters, that each leaf stuck up above the top of the planter box.</p> <p>Area was measured by taking pictures of each plant from above at a consistent height and lighting. These pictures were then uploaded onto the computer and put into Photoshop where we measured area by a color selection method that selected the green pixels of the plant. We compared the pixels of each plant by a 10 cm by 10 cm white square that we calculated the pixels of previously.</p> <p><b>Results</b> Group D, the test group receiving the highest concentration of salt water that was almost that of the ocean off our local coast, had the lowest average growth of area. On average, it lost 3 mm in height. Control group A, the group receiving pure water, had the highest average overall growth in area at 57.7%. Group B, the group that received the lowest concentration of salt water, showed the most growth in height with an overall growth of 9 mm.</p> <p><b>Conclusions/Discussion</b> Our results show that a plant receiving high amounts of salt water is not healthy for a plant, supporting our hypothesis. However, the test groups receiving lower amounts of salt water didn't differ too much from each other. In the future, we might try testing a greater variety of salt water concentrations in order to observe the tipping point at which a plant can thrive with salt water and when salt water proves detrimental.</p>	
<b>Summary Statement</b> Our project is about how a native coastal plant to Northern California is affected when exposed to water of increasing salinity levels.	
<b>Help Received</b> Grandpa helped in designing the experiment, Mother and Father helped assemble board	