



# CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

|  |                                       |
|--|---------------------------------------|
| <b>Name(s)</b><br>Allysun R. Robie   | <b>Project Number</b><br><b>J1127</b> |
| <b>Project Title</b><br>Jolly Giant Creek Watershed: Solve the Dissolve  |                                       |
| <p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>The purpose of this project is to determine if different sites on the Jolly Giant Creek are consistently healthy enough to sustain aquatic life forms by measuring the viability of the fish habitat in this creek.</p> <p><b>Methods/Materials</b><br/>Two sites on Jolly Giant Creek in Arcata were established. Site #1 is located on 17th Street/Alliance Road in the rural area of Shay Park near a small bridge. Site #2 is located on K Street/9th Street in an urban area. Both sites were tested at the same time each day, over a seven day period of time. Each test was repeated a total of three trials each day at site #1 and site #2, to establish validity. Dissolved oxygen was measured using a Hach Dissolved Oxygen kit, according to the test kit procedure. A control group was measured by obtaining three 1 liter container specimens at the site. One container was heated to 30 C and dissolved oxygen was measured. Another container was chilled to 5 C and dissolved oxygen was measured. All measured data was recorded on a chart for analysis.</p> <p><b>Results</b><br/>The site #1 (17th Street/Alliance Rd) total mean for water temperature was 9.6 C. The measured DO mean was 10.5 mg/L and the mean for % saturation was 93.7%. The site #2 (K Street/9th Street) total mean for water temperature was 9.86 C. The measured DO mean was 10.34 mg/L and the mean for % saturation was 91.9%. The DO fluctuated daily more at site #2 than site #1. The overall mean DO over 7 days at site #2 was a similar level to site #1. The lowest DO measured at site #2 was on 2/7/11 measuring 9.3 mg/L and the % saturation was 83%.</p> <p><b>Conclusions/Discussion</b><br/>The results of my data indicate that Jolly Giant Creek has adequate dissolved oxygen levels to sustain aquatic life forms. Dissolved oxygen levels in water that have a measurement 9 mg/L or greater supports abundant fish populations and does not impair production in salmonid waters. Site #1 and site #2 had mean dissolved oxygen levels greater than 10 mg/L. The measured dissolved oxygen at site #2 fluctuated more than site #1, however, the dissolved oxygen measurement at site #2 measured greater than 9 mg/L. These results indicate that Jolly Giant Creek can support a healthy fish habitat at the rural and urban sites. These results verify that my hypothesis is correct.</p> |                                       |
| <b>Summary Statement</b><br>This experiment measured dissolved oxygen, temperature and saturation at two different sites in the Jolly Giant Creek to determine if the creek was consistently healthy enough to sustain aquatic life forms.   |                                       |
| <b>Help Received</b><br>Parents ordered equipment needed for this project and assisted me in getting to the testing site each day; Science advisor Greg Ennes provided guidance with MSDS.   |                                       |