



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Finn A. Horsley	Project Number J1112
Project Title Impacts of Recreational Boating on Copper Levels in Bays and Marinas	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In San Diego, we all live relatively close to the ocean and therefore we have to make sure we are taking care of it. I discovered people are concerned about copper pollution in our bays. Upon doing further research, I hypothesized that much of the copper pollution comes from copper biocide paints and that copper levels in local waters would be higher around boats.</p> <p>Methods/Materials I collected a total of 36 water samples from local bays and beaches. I performed a variety of tests with copper kits, but needed a more sensitive testing method. I decided to use a Hach DR 890 Colorimeter to measure the copper levels in parts per billion. I then compared the copper levels from the various locations.</p> <p>Results Sixteen samples were from locations with boats (marinas and bays) and 18 samples were from beaches. The samples from marinas and bays contained an average of 12.2 parts per billion copper. The average beach sample only contained 2.9 parts per billion copper. These results supported my hypothesis that copper levels would be higher near boats. The copper standard for marine life is only 3.1 parts per billion.</p> <p>Conclusions/Discussion These results suggest that copper biocide paints may impact copper levels. Because of the harmfulness of copper paints, marine life would benefit more if boaters switch to an eco-friendly paint option. Boaters are slowly making this change. I hope my project promotes awareness of how prevalent this problem is in our local bays and marinas and encourages more boat owners to make the switch.</p>	
Summary Statement I tested the copper levels in the bays marinas in parts per billion to determine the impact of copper biocide paints.	
Help Received My mom drove me to the bays and marinas. My science teacher helped me find some test kits to use. My dad rented a hach colorimeter that I used to test my samples.	