



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Luke M. Pusateri	Project Number J1120
Project Title Cardiff Lagoon Effluent: Is the Water Safe?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Heavy metal contaminants and coliforms may sometimes pose threats to humans at our local beaches. I wanted to find out if these contaminants might be present in the lagoon outlet at Cardiff Beach at levels that might impact water quality. I thought that relatively small amounts of heavy metals would be in the Cardiff effluent, but that the water might be contaminated with bacteria.</p> <p>Methods/Materials The equipment I used to conduct this experiment including a dipper, La Motte TesTabs, Hach test strips, sterile water bottles, thermometers, an incubator, and 43 plates of Coliscan Easygel. I tested eight water samples from four sites on two different days by collecting the water from the effluent using a dipper. After I arrived at the school lab, I tested for nutrients, heavy metals and coliforms.</p> <p>Results In total I tested 80 water samples with LaMotte TesTabs and Hach test strips. I found that the water was surprisingly low in nitrates (0 ppm) and fairly low in phosphates (1 ppm). I tested a positive control nitrate sample to be sure my test tablets were working. Copper, chromium and iron were all at 0 ppm. The bacterial results, for my 40 sample plates, many of the plates contained coliforms too numerous to count, and a total of 45% of the plates exceeded the state standard for contact water quality due to excessive coliforms, E. coli or both.</p> <p>Conclusions/Discussion I concluded that the water at Cardiff effluent was not safe for swimming since so many plates exceeded California standards for safe water contact. The Cardiff effluent should probably have advisory signs posted to warn people who use the beach for recreational purposes. A recommendation I would make would be to test a larger sample size to confirm my results. Water quality evaluation is very important for deeming whether bodies of water are safe for recreation.</p>	
Summary Statement My project tested for bacterial contaminants, metal contaminants, and other water quality indicators at a local lagoon effluent beach contact area.	
Help Received My teacher supervised me while testing.	