



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Aarin B. Henning	Project Number J1709
Project Title Bacterial Levels in Ocean Water	
Objectives/Goals My purpose of doing this science fair project is to see what ocean water, out of Manhattan, Hermosa, and Redondo Beaches, has the highest levels of bacteria, so I am conscious of it.	
Abstract Methods/Materials 9 Petri dishes, Cotton Swabs, Gloves, 3 Small glass containers, logbook, Permanent markers, Plastic bags, Pen	
Results In my experiment, my results differed from my hypothesis. In Petri dish one, Manhattan Beach had the most bacteria present, with 40 colonies, followed by Hermosa Beach, 31 colonies, and eventually Redondo Beach, with 18 colonies of bacteria. In Petri dish two, Redondo Beach had the most colonies of bacteria, with 61 colonies, though it had the most, the colonies were rather small compared to the other beaches. Manhattan Beach had the next most, 54 colonies, and finally Hermosa, with 44 colonies of bacteria. In the last Petri dish, Manhattan Beach had the most, by far. Manhattan had 78 colonies, while Redondo had 33, and Hermosa had 22 colonies of bacteria. On average, Manhattan Beach had the highest amount, 57 colonies, Redondo was next with 37 colonies, and Hermosa came in a close third with 32 colonies of bacteria. Although Redondo had the next highest amount of bacteria compared to Manhattan Beach, it took about a day longer to grow than the other two beaches, and Manhattan clearly began growing first in all Petri dishes.	
Conclusions/Discussion I thought that Redondo Beach's water would be the most polluted, because it has the largest population, therefore more waste, and more bacteria. Unfortunately, I was wrong. I tested at Manhattan, Hermosa, and Redondo Beaches, which all had an A+ grade (Healthebay.com). Manhattan Beach had the most bacteria according to my results. As healthebay.com shows, water quality differs in other areas, depending on the conditions; for instance, El Segundo's beach is generally very polluted, and often closes due to so much waste from the refinery. Humans can also have an effect on the water quality, due to the bacteria given off from their bodies when swimming in the water (Hill, Valerie 2009). Therefore, my results make sense because, Manhattan Beach's bacteria began growing before the other beaches, and it is closer to the refinery in El Segundo. The overall results proved my hypothesis wrong, even though this happened, my project ran fairly smoothly, and I was happy with my results.	
Summary Statement My project compares the bacterial levels in the ocean water in Manhattan, Hermosa, and Redondo Beaches.	
Help Received My family members helped collect ocean water samples, so the samples would be taken at the exact same time.	