



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Evin R. Wieser	Project Number J1930
Project Title Attracting Great Whites	
Abstract Objectives/Goals To attract Great White Sharks to the surface using their sense of electroreception so researchers can study them. I believe that if a small pulsing electric field is put below the surface of the ocean, then more Great Whites will come to the surface compared to a control. Methods/Materials I built the device by modifying a standard industry timer so it generated a small electric field that pulsed at the same rate as an elephant seal's heart. I added a waterproof case and leads. I tested the device as follows: Exp 1: Farallon Islands, CA: I contacted TOPP researchers and they agreed to test my devices during their October shark tagging. I built 3 devices, a control, .5V, and a 3/9V (exchangeable battery) and since I couldn't go on the boat, I gave them to researchers to test. Exp 2: Shark's Cove, HI: I built 4 more devices using a better sealant and adding a circuit check switch. I tested each device in 3 locations in the cove and 1 location in the ocean for 30 minutes each. Exp 3: Neptune Islands, South Australia: The first 2 days I tested each device by attaching it to the shark cages. The second two days I tested them by rotating each one on the bait line and on a fishing line for 1 ½ hours each. Results Exp 1: The .5V device was put in a seal decoy and within 5 minutes, a Great White shark attacked the device. The 3/9V device flooded when tested. The control was tested inside the decoy and did not attract any sharks. Exp 2: The .5V device attracted fish every time it was tested. None of the devices flooded and all the circuits could be checked and were working. Exp 3: The first day a Great White took a close pass at the .5V device on the surface cage. The second day, a Great White took a pass at the .5V device on the dive cage. The third and fourth days were stormy and there was no shark activity. Fish were attracted to the .5V device every time it was tested. Conclusions/Discussion It is difficult to obtain data on Great White Sharks. Although there wasn't enough data to support my hypothesis, the .5V device was attacked once in exp 1 and two different sharks took passes at it in exp 3. I would like to continue testing the .5V device and also test .25V and .1V. TOPP researchers already have plans to test the devices again in the Farallon Islands in Oct. 2007. The .5V device attracted fish every time it was placed in the water so it might be useful in the fishing industry.	
Summary Statement My project is about creating a device that generates a small pulsing electric field and testing it in the ocean with the purpose of attracting Great White Sharks to the surface so researchers can study them.	
Help Received My Grandpa taught me circuit design and Sal Jorgenson and Scott Anderson did the first test in the Farallon Islands since I couldn't be on the boat. Andrew Fox gave me a research internship in Australia to do my research on his boat. My father helped me to get my diving certificate for this experiment.	