



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Jacob A. Paoletti	Project Number J0120
Project Title How Do Different Centerboards Affect the Hydrodynamic Drag on a Club Dinghy Racer?	
Objectives/Goals My objective was to find out how different sailboat centerboards affect hydrodynamic drag. I thought that the CFJ centerboard would have the least hydrodynamic drag, then the Laser centerboard, and finally the Opti centerboard, which would have the most drag.	
Abstract	
Methods/Materials I set up a spinnaker pole which is about 16 feet high. I rigged it with a pulley system that could pull a boogie board 8 meters through the water with different wooden centerboards in it. The centerboards would be a Laser, CFJ, and Opti centerboards. I ran 10 trials with each centerboard. I timed how long it took for each centerboard to travel the 8 meters, assuming that greater hydrodynamic drag would result in a longer time.	
Results The results shows the three different times for the each centerboard. The average time for the CFJ centerboard was 6.544seconds, the average time for the Laser centerboard was 7.192seconds, and the time for the Opti centerboard was 7.591 seconds.	
Conclusions/Discussion My hypothesis was that the CFJ centerboard would have the least hydrodynamic drag, or the fastest time, and then the Laser centerboard would have the next fastest time, then finally the Opti centerboard would have the most hydrodynamic drag, and the slowest time. It turned out that my hypothesis was correct. This seems to indicate that a CFJ centerboard has the least hydrodynamic drag of all the centerboards that I tested. I think that the results turned out this way because the CFJ centerboard is shorter and is shaped closest to a shark fin. I think that the Laser centerboard came next because it is at an angle, slanting back, and is a longer centerboard so the board would run into more water. I think that the Opti centerboard came in with the most hydrodynamic drag because it is rectangular.	
Summary Statement My project was designed to determine how different centerboards shapes affect the hydrodynamic drag on a club dinghy racer.	
Help Received Father helped cut out centerboards, drove me to testing site, and toke some of the pictures.	