



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Sara Z. Shah	Project Number J0126
Project Title Torpedinidae in the Bay: Salinity Altering Viscosity, Changing the Velocity	
Objectives/Goals This project focuses on how the salinity of water influences the travel of a torpedo. My initial thoughts on the outcome of this scientific experimentation was that as salinity increased, the lower the velocity, time, and distance traveled. I hypothesized this because I researched that salt adds density to water, and the denser the liquid, the more problematic it is for an object to travel through it. I resolved my question by building a model torpedo and launching it through water with four varying levels of salinity.	
Abstract My procedure was extended and complex; it included building the torpedo based off of a model rocket design, a runway setup process, and a lengthy testing procedure in which time and distance were collected (velocity was calculated). My independent variable was the differing levels of salinity, and my main dependent variable was the average velocity of the torpedo. I controlled the slope of the runway, the amount of water, guide wire positioning, and engine size, among other variables. A surprising event that occurred while testing was that the torpedo actually flew out of the runway once and landed nose down in the dirt! A remarkable fact I learned was that one cubic foot of water will produce 1700 cubic feet of vapor at sea level pressure!	
Methods/Materials The torpedo traveled at the highest velocity in the control test, where the water's salinity level was 0 psu (1.89 meters/second). Other rates included 1.64 m/s (15 psu), 1.86 m/s (25 psu), and 1.63 m/s (35 psu).	
Results Parents and brother helped while testing; Parents helped put together board, binder	
Summary Statement How does salinity affect the velocity of a torpedo?	
Help Received Parents and brother helped while testing; Parents helped put together board, binder	