



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

<p>Your Name (List all student names if multiple authors.) Rebecca M. Feinberg; Rita M. George; Stephanie A. Hass</p>	<p>Science Fair Use Only</p>
<p>Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) Surf's Up</p>	<p>J0508</p>
<p style="text-align: right;">Division <u>X</u> Junior (6-8) _ Senior (9-12)</p>	
<p>Preferred Category (See page 5 for descriptions.) 5 - Earth Sciences/ Planetary Sciences/ Physical Environments</p>	
<p>Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.</p> <p>Is it possible to alter ocean waves to improve their form for surfing? To answer this question we built a wave tank. First, we visited our local beaches and asked the lifeguards what the shoreline looked like under the water. With this information we tested three different artificial shorelines against our control shoreline, which resembled a typical Manhattan Beach shoreline. The three formations that we tested were a horseshoe, a diagonal rock formation (which ran diagonal to the beach), and an inverted V.</p> <p>We tested each shoreline in a homemade wave tank, which was six feet long, three feet high and three feet wide. It contained one thousand pounds of sand. Our wave tank was constructed of Plexiglas with a wooden frame and bottom. Each formation was first shaped with rocks and covered with sand. We propelled the waves with a basic push paddle at one end of the tank.</p> <p>The various formations gave us different results. Whether the size, shape, or power changed, each wave was unique. On a scale from one to three, we averaged each wave's score. The diagonal formation proved the most successful for shape of the wave, although the wave's power and size was not as strong as we would have hoped. Our other rock formations produced waves that had more power but did not have the desired barrel shape (in which the wave breaks gradually from one end to the other).</p> <p>In conclusion, we found that we can change the way waves form and break by altering the ocean bottom. We hope that with this information we can improve our local beach's waves for surfing and therefore spread out the surfing population.</p>	
<p>Summary Statement (In one sentence, state what your project is about.) By altering the ocean bottom we are able to change a wave's shape, power, and size. .</p>	
<p>Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Dad helped use power tools in construction of wave tank.</p>	