



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

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<b>Project Title</b> Wave Power: Capturing Usable Energy from the Ocean	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project was to design a small scale device that can capture the energy in ocean waves.</p> <p><b>Methods/Materials</b> The design of the device was based on the historical water wheel. It was constructed with curved paddles and a housing which funneled water into the wheel. This increased flow through the system and allowed the water to flow in and out in both directions simultaneously. A voltmeter was used to measure the energy generated. The device was tested in a plexiglass water tank in a see-saw-like motion to generate waves. Three different water levels were tested.</p> <p><b>Results</b> Energy was successfully generated by the device at all three water levels with the water flow in either direction. The highest average voltage was generated with the water level half-way up the device.</p> <p><b>Conclusions/Discussion</b> These results show that this prototype holds promise as another possible way to capture energy from the ocean. Unlike current wave energy devices which depend on tides or those that freely float on the surface, my device has the potential to work in other areas of the ocean, including deep or shallow water away from shorelines, and areas where internal waves may be found.</p>	
<b>Summary Statement</b> A small scale device (modified water wheel) was designed and built which harnessed the bi-directional wave energy in simulated ocean waves.	
<b>Help Received</b> None	