



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Somil Bhushan	Project Number J1004
Project Title Solar Desalination: An Eco-Friendly Solution for California's Water Independence	
<div><div>Objectives/Goals The objective is to determine if solar desalination of ocean water can be used to help end California's water issues.</div><div>Methods/Materials A solar panel was used to capture energy from the sun and convert it into electrical energy. This energy was stored in a 12V DC rechargeable battery and used to power a water pump. The salt water was pushed by the pump into a Reverse Osmosis (RO) system. The RO system generated clean water and also waste water also known as brine. A total of 5 salinity solutions were desalinated under varying pump pressures over an 8-day period.</div><div>Results As the pump pressure was increased, the time taken to collect the same amount of clean water decreased. It was also noted that as the salinity of feed water into the RO system increased, the amount of energy it took to clean that water sample also increased.</div><div>Conclusions/Discussion The conclusion was made for the salinity levels tested (0.5gm/liter to 1.5gms/liter), the most optimum pressure point is somewhere between 60 and 70psi. Going beyond this pressure point resulted in a greater energy usage for very little gain in clean water collection. It was also observed that the rate of brine production far exceeded the rate of brine treatment via osmosis</div></div>	
Summary Statement The project is being executed in order to determine if solar desalination is a viable solution to help end California's drought problem.	
Help Received Mentored by Dr. Matthew Stroud	