



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <p align="center"><b>Tre' Risk</b></p>	<b>Project Number</b> <p align="center"><b>J1511</b></p>
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**Project Title**  
**Waste Not Want Not: Reducing Aquifer Depletion through Increased Recycled Water Consumption**

**Abstract**

**Objectives/Goals**  
 In the Coachella Valley, the golf industry consumes an enormous amount of water. Golf courses need to have well-manicured, visually pleasing water features. They frequently use aquifer water to achieve this. However, this resource is limited. The other two water sources are Colorado River water which is fed through a canal system and Reclaimed water which is treated waste water. My goal was to mix different percentages of Reclaimed, Aquifer, and Colorado River water to find a solution that encourages little to no algae growth.

**Methods/Materials**  
 33 5-gallon buckets; 16 gallons of aquifer, 15 gallons of reclaimed water, 14 gallons of Colorado River water; Microscope; Test Strips; Color Chips to measure algae development.

**Results**  
 I ran 11 various combinations of water sources (from the Colorado River, the Aquifer, and Reclaimed Water). 3 tests of each sample type were made. I sampled each water combination for a total of 33 tests and examined the samples for algae growth. Algae started growing in the second week of the tests and continued throughout the study. At the end of the six week period, I had the following results:

Composition:	Algae Growth
100 % Aquifer	4.3
100% Reclaimed	2.0
100% Colorado	5.7
33% Aquifer/33% Reclaimed/33% Colorado	2.3
50% Aquifer/20% Reclaimed/30% Colorado	3.0
30% Aquifer/50% Reclaimed/20% Colorado	2.7
20% Aquifer/30% Reclaimed/50% Colorado	3.7
50% Aquifer/30% Reclaimed/20% Colorado	2.7
60% Aquifer/20% Reclaimed/20% Colorado	3.3
20% Aquifer/60% Reclaimed/20% Colorado	2.3
20% Aquifer/20% Reclaimed/60% Colorado	5.0

**Conclusions/Discussion**  
 Colorado River water and its high percentage combinations allowed the highest levels of algae growth. Reclaimed water is highly treated and as a result, it hinders the algae growth the most in the initial growing period stages.

**Summary Statement**  
 In order to conserve as much aquifer water can I find an alternate water source combination that hinders algae growth.

**Help Received**  
 The Coachella Valley Water District provided water samples that I used.