



CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

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Project Title Men with a Lot of Mussels Part 2: Revenge of the Turban Snails	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our goal is to explore the biodiversity of the Davenport Landing tide pools along a pre-established vertical transect. Our investigative question is: How will a plot's abundances of organisms vary with respect to the plot's biodiversity along the Davenport vertical transect? Our hypothesis is: a site's biodiversity has an inversely proportional relationship to mussel presence within the mussels in the mussel's intertidal range; a site's biodiversity also has an inversely proportional relationship with turban snail populations in the turban snail's intertidal range.</p> <p>Methods/Materials We have been monitoring the vertical transect, established in 2002, twice a month (as conditions allow) during low tides since June 2010. We measure wind speed, tides and temperature. Then using permanent eyebolts, we secure a tape measure and center a quadrat over the transect every 3 meters out to 21 meters. Following LiMPET'S protocols (Long-term Monitoring Program and Experiential Training for Students), we count and record the abundance of 30 species of invertebrates and algae in each quadrat and also note bare rock and sand. After we collect the data, we find the counts and proportions of the organisms, and find the biodiversity using the Shannon-Weiner Index, which finds the biodiversity using both species richness and total richness.</p> <p>Results Our results showed that plots within the upper tidal zone and with extreme amounts of turban snails and mussels had lower biodiversity compared to the plots with more moderate amounts of turban snails and mussels. This indicates an inversely proportional relationship between mussel abundance and turban snail counts.</p> <p>Conclusions/Discussion We have concluded that in support of our hypothesis, there is an inversely proportional relationship between a site's biodiversity and both mussel presence and turban snails within the mussels and urban snails respective tidal zone (upper tidal zone / splash zone. We believe this is in part due to the fact that mussels are very competitive for the abiotic factor of space which prevents other invertebrates and algae from inhabiting that space. As for turban snails, this inversely proportional effect with biodiversity, we believe, is due to great amounts of turban snails at some plots consuming many of the algae reducing biodiversity.</p>	
Summary Statement Our project is about monitoring the health of the tidepools at Davenport Landing State Beach by looking at the biodiversity and populations with respect to turban snails and sea mussels.	
Help Received We would like to thank our mentor Dr. John Pearse, Professor Emeritus, UCSC, and SLVHS.	