Conclusion

Although the data was gathered accurately and according to schedule, there lacks enough evidence to prove my hypothesis true. I sought out to attempt to prove that El Ni�o would cause drops in the number of organisms found in coastal tide pools. Although the data does not necessarily negate this hypothesis, it lacks sufficient evidence to prove it as concrete.

As seen in the previous page's graphs, ([Experiment Page](http://docs.google.com/exper.htm#data)), both temperature and salinity were off. The average temperatures for coastal tide pool waters in which these organisms live range between 9�-11� C. The data collected certainly proves that warmer waters are indeed present, but proving El Ni�o's presense is not enough constitute the assumption that organisms are leaving as a result of this. Proving this temperature increase *does* however allow me to speculate on other factors that are dependent on temperature, such as salinity.

The salinity curve produced on the experiment page has a quite probable explanation. Because salinity is measured in solute/solvent (in this case, salt/water), any imbalance on either part will cause a change in concentration. During the months of January and February, as a result of El Ni�o, there was a considerable amount of rainfall (freshwater) that was added to this system. It is possible that this caused the concentration of salt to fall slightly. Although this may be true, it there is no evidence to suggest that the salinity changes were significant enough to drive any variety of tide pool organism from it habitat. It should be noted that Life Magazine recently investigated the effects of El Ni�o on tide pools and found that smaller populations of all life was observed, in addition to the sparse populations of fish found; no fish were present in the researched tide pool or its surroundings.

The primary reason for a lack of diffinative evidence is the timeframe involved in a project such as this. While four months may appear to be considerable time to collect such data, the reality is that a project of this magnetude and nature must have at least one year's observations. To diffinatively say that El Ni�o causes a change in organism numbers, there would have to be allowed time for observation in a non-El Ni�o year. With a four month investigation, controls must acquired through researched material rather that actual recorded material. Had one year been allowed for such an investigation, the results would have been far more conclusive.

There is also a concern for factors outside of my control, the most predominant being other human beings. Because the research location is accessable to virtually anyone, it cannot be readily determined whether the organisms that decreased in number did so because of changes in the ecosystem or because of some ignorant human beings who cannot read big red signs that say "DON'T TOUCH OR REMOVE SEA LIFE". I'm sorry to say that in the case of the sea stars, the later may be true.

While I would have liked to have more solid data, this was inevitably not possible simply due to the time constraint. I nonetheless feel, however, that the data collect would have produced powerful results had the experiment been more long-term. The readings collected and compared to seasonal averages were abnormal and could in the future constitute a confirmation of the hypothesis given; until then, it remains undetermined.