# CALIFORNIA STATE SCIENCE FAIR
## 2004 PROJECT SUMMARY

**Name(s)**

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**Project Number**

**S1909**

**Project Title**

# Ecology of the Intertidal Zone: A Study of the Impact of Mussels on the Biodiversity of Conspicuous Biota

**Abstract**

**Objectives/Goals**

In this study a transect in the intertidal zone of Davenport Landing State Beach is monitored to determine if the population of mussels impacts the biodiversity of the community. In the1970?s, this same 15 x 3 m transect was chosen to monitor a mussel bed, in order to establish a baseline for comparing future changes. It is hypothesized, that a large mussel population restricts other organisms from inhabiting the substrate: thus lowering community biodiversity.

**Methods/Materials**

Over thirty species are counted(including anemones, coralline algae and chitons) in four random quadrats along the transect at low tide, twice a month. The biodiversity of each quadrat (H?) is calculated (using the Shannon Diversity Index) by comparing the relative proportion of each species compared to the total number of all individuals. Results were found by comparing the biodiversity (H?) to the number of mussels versus bare rock.

**Results**

The preliminary results indicate that the biodiversity is higher in quadrats with less mussel abundance and a greater proportion of bare rock. Our study demonstates that where mussels are less abundant species such as anemones, coralline algae and chitons increase in number, therefore supporting our hypothesis.

**Conclusions/Discussion**

It appears that space is the limiting factor in determining biodiversity in the intertidal zone and where there are less mussels(less competition for space) there is a greater diversity of intertidal organisms.

**Summary Statement**

In this study a transect in the intertidal zone of Davenport Landing State Beach is monitored to determine if the population of mussels impacts the biodiversity of the community.

**Help Received**

Lynda Rogers, Santa Cruz County Office of Education, Science Fair Workshops, Dr. John Pearse, University of California Santa Cruz, Field Mentor Jane Orbuch, San Lorenzo Valley High School, Classroom mentor Mary Lanctot, David Wood, Parents, Microsoft