



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Laura J. Botzong	Project Number S1506
Project Title How Does Nitrate and/or Phosphate Pollution Affect the Survivorship of Purple Sea Urchin Larvae?	
Abstract Objectives/Goals The purpose of this experiment was to determine how nitrate pollution and phosphate pollution affect the survivorship of purple sea urchin larvae. It was hypothesized that a mixture of nitrates and phosphates would positively affect the survivorship of purple sea urchins. Since the algae on which the larvae feed thrive in conditions with high nutrient levels, conditions with more nutrient pollution will be beneficial to the larvae. Methods/Materials In order to test this, purple sea urchin larvae were raised in four tanks: a control tank, a tank with added nitrates, a tank with added phosphates, and a tank with both nitrates and phosphates added. The number of larvae in each tank was counted after 28 and 32 days. Results The data did not support the hypothesis, as the control tank had the highest number of larvae, followed by the nitrate tank. All the larvae in the phosphate and nitrate-phosphate tanks perished before the data collections were performed. Conclusions/Discussion In conclusion, phosphates and nitrates at the levels tested are detrimental to the survival of purple sea urchin larvae, with phosphates having a stronger negative effect than nitrates. Evidently, the negative effects of the nitrate and phosphate pollutant chemicals on larval development outweighed any additional algae growth they may have caused.	
Summary Statement This research investigates a possible correlation between nutrient pollution and purple sea urchin survival.	
Help Received Mentor Kiersten Darrow; aquarists Ben Higgins, Andres Carrillo, Cora Webber; used lab equipment at Cabrillo Marine Aquarium's Aquatic Nursery; high school teachers Ms. Wood and Mrs. Moeller	