ENSO and *Loligo*

Purpose: Investigate possible relationship between annual landings of California market squid, *Loligo opalescens,* to El Nino and La Nina years.

Hypothesis: Make a prediction on whether or not trends might be found. State the type of trend you would expect if any.

Background: Research and write two paragraphs on the biology and ecology of *L. opalenscens.* Be sure to include reproductive strategies. Research and write two paragraphs on the El Nino/La Nina (ENSO) phenomenon.

Investigation: Carefully observe the maps illustrating the temperature anomalies of ocean currents. Make a chart listing which years were El Nino events and which years were La Nina events.

Make a bar graph of annual squid landings by dates listed. Color code each bar with a warm color for an El Nino year and a cool color for a La Nina year. Give your graph a title, key, and labels for X and Y axis's.

Analysis: Observe the graph for trends. Write a paragraph describing what the graph has shown.

Discussion:

- Was your hypothesis accepted?
- Is there a relationship between the ENSO phenomenon and annual squid landings?
- What do you think happens to the squid during the years when relatively fewer are caught?
- What other marine life might be affected in the same way?
- Choose another species and describe how you would research similar trends.
- What affect might global climate change have on marine species?