Name: Jerry Huang and John Young  
Project Title: **Mud Analysis with Van Veen Mudgrab**  
Abstract: Question: What was the difference between mud found on land and the mud found in the sea? The mud on land provides a home for organisms such as worms. The mud found in the sea provides a home for bottom dwelling sea life, which are an integral part of the food web.  
Methodology: We decided to use the Van Veen Mudgrab to pick up the mud from the bottom of the ocean; we then brought it up and tested its temperature with a thermometer, observed its texture, and looked at the color.  
Results: We observed that the mud in the harbor was not brown, but a greenish color because of the deceased organisms that fertilized it along with the dead plants. The texture was also different from land mud; it was not very thick and slimy, as we had known land mud is from past experiences, but, actually, the ocean mud was very thin and full of sediment. Finally, we found that the temperature of the mud was about 18--19 degrees Celsius. In conclusion, we have discovered that land mud and sea mud are different because they are in different environments.

Name: Ashley Fong, Nichole Adrian, and Hannah Galloway  
Project Title: **Water Conditions in the L.A. Harbor and the Rock Pile**  
Abstract: Question: How are the conditions of the water different between the two trips in regards to visibility and the color of the water?  
Methodology: We collected water samples at two sites, the Rock Pile and inside the L.A. Harbor and used the secchi disk and the Forel--Ule Color system.  
Results: The Forel--Ule color was more on the brownish--greenish side whereas the water near the harbor on the Forel--Ule color was a blue--green. For visibility, the water at the Rock Pile was 10.5 meters deep and in the harbor the visibility was only 3.5 meters. In conclusion, the water conditions may differ greatly from pollution, but further testing must be performed to confirm this idea.

Name: Alex White and Maddie Lawrence  
Project Title: **One Fish, Two Fish, Red Fish, Blue Fish!**  
Abstract: How are the looks of the halibut and the queenfish different? Finding this out is an important way to identify the fish and learn a little bit about their behavior. We received our data by taking a boat trip, and using an otter trawl inside the L.A. Harbor. We measured the fish using their standard lengths, as well as compared mouth sizes and shapes. The halibut was much larger and has a bigger mouth which allows halibut to eat other large fish. While the queenfish was much smaller, and has an expandable jaw, which is helpful for eating smaller food such as macroplankton, crustaceans, and small fish.
Name: James Schuchert and Ridge Abraham and Russel Paulson  
Project Title: **Temperature**  
Abstract: On May 21, 2004 our sixth grade class took a trip to the Los Angeles Harbor and went on a voyage. When we went there we did an experiment to compare the surface temperature of the harbor to outside the harbor. This question is important because it greatly affects sea life. When we stopped outside the harbor we had a bucket of surface water and three thermometers. We put the thermometers in the water for 2 minutes and recorded the temperature, which was 19.2oC. On our way back we stopped in the harbor and took another reading of the temperature, which was 19.5oC. We believe the results are different because the LA Harbor is created by a huge jetty or wall of rocks. The jetty limits water circulation so the temperatures become different.

Name: Haylee Schiavo, Chelsea Brewer, Veronica Viayra  
Project Title: **Sea Stars**  
Abstract: What are the different colors, sizes, and textures of the sea stars in the ocean? This is important because we are studying sea stars in class, which made us more curious about them. First, we used a bottom grab to pull up the specimens from the "Rock Pile". Next, we observed all of the sea stars that we pulled up and recorded our findings. We found out the common colors are beige, red, light brown, orange, and purple. The sizes range from about one inch to three inches. The different textures included smooth, rough, and spiny. Hopefully this information will inspire more people to learn about these amazing creatures.

Name: Carsan Dittman and Paris Nelson  
Project Title: **Brittle Stars**  
Abstract: Are there more brittle stars inside the harbor with the otter trawl or outside the harbor with the bottom grab at the rock pile? We found this interesting and wanted to learn more about brittle stars. First, we dropped the otter trawl in the LA Harbor. Next, we dropped the bottom grab at the Rock Pile. We counted the organisms collected. There were about three brittle stars from the bottom grab and none in the otter trawl. We believe the reason there were more brittle stars in the rock pile is because brittle stars live on the rocky sea floor. Although two different devices were used to collect the data, we believe the data is still good because brittle stars prefer the rocky sea floor over the sandy open bottom.

Name: Katelyn Nelson  
Project Title: **Secchi Disc**  
Abstract: How many feet will it take for the secchi disc to disappear? This is an important question to ask because it tells you how deep the sunlight is penetrating for autotrophs.
The methodology was to tie a rope through a secchi disc, marked in feet intervals, and lower it into the water. Then write down the number of feet it took the secchi disc to disappear.
So many boats on the Colorado River combined with the windy and choppy conditions made it difficult to complete the experiment. The shallowness of the water and strong currents also made this experiment impossible. Therefore, I was not able to complete this experiment.

Name: Aazim Rajani and John Scudiero
Project Title: **Fish and Shrimp Project**
Abstract: We were trying to answer if there are more fish or shrimp in the LA Harbor. We thought this question would be interesting because we are curious about the variety and numbers of organisms in the ocean. We got the information by using an otter trawl to catch the organisms. The result: we found out that there are more shrimp than fish in the LA Harbor. After collecting our data and research we discovered that there are more shrimp in the LA Harbor because all of the pollution in the water kills fish, but shrimp are able to handle the conditions better.

Name: Kristen Sato and Shannon Bezic
Project Title: **Sea Lions**
Abstract: What is the difference between the number of sea lions on the harbor’s buoys vs. the number of sea lions on the buoys out of the harbor? This is an important question because it can be beneficial in learning about sea lion behavior. While aboard the boat, Vantuna, we frequently scanned the water with our binoculars for buoys that had sea lions on them. We concluded that there were more sea lions on the buoys in the harbor than out of the harbor. Because there were more buoys in the harbor, it would be more likely for sea lions to get on them.

Name: Sally Yoshimura and Christine Whittemore
Project Title: **Changing Water Color**
Abstract: How much does the water color change from inside the harbor verses outside the harbor? This question is important to us because we thought it was fascinating how the water color can change from different areas, and maybe the water color has an affect for the animals living inside the water. Lowering the Secchi disk until we couldn’t see it anymore, we measured 2.5 meters inside the harbor. As we held the Forel/Ule Scale inside the harbor, we got the number sixteen, which turned out to be a greenish color. Then we sailed out to the site Rock Pile and did the exact same thing. It turned out to be 10.5 meters deep for visibility, and the color number was three, a turquoise. Finally, we concluded that it was eight meters in difference. Using our data, we learned that even though the sites are close to each other, there is a great difference between the two sites regarding visibility and the
color of the water. Perhaps inside the harbor, people are polluting the water and this reason may affect the water color and visibility.

Name: Malek Khulusi and Riley Burke  
Project Title: Halibut in Season?  
Abstract:  Are there more halibut in the winter or in the spring in the L.A. Harbor? This is important for fisherman to know what seasons are good to catch halibut. Using an otter trawl in the L.A. Harbor we counted the number of halibut the first trip on February 23. Then, compared it to the second trip on May 21. On the first trip (February 21) in winter, we caught three halibut from the otter trawl. On the second trip (May 21) during spring, we caught one halibut. It appears from our research, that it’s better to go fishing for halibut in winter because halibut migrate north during the summer and fall.

Name: Jason Nguyen  
Project Title: Plankton Net or Not A Plankton Net: That is the Question  
Abstract: Which catches more plankton, a plankton net, or a homemade plankton device? This allows scientists to know which one to use to catch more plankton and to maybe find a new species. I used the plankton net first to catch plankton. Then I used a homemade catching device which was a test tube tied to a fishing rod to gather plankton. Then I went to the lab to see the difference in the amount of plankton. The results were obvious. The plankton net caught were more numerous in number and variety. While the homemade catching device caught only one plankton. The reason for this might be that the test tube had nothing to keep a hold of the plankton so the plankton went out. The plankton net had a bunch of fiber that kept a hold of the plankton as well as the net was able to concentrate the amount of plankton unlike the homemade device.

Name: Kelly Johnson and Lauren Scott  
Project Title: Water Temperature  
Abstract: We were trying to answer: is the water warmer inside the harbor or outside the harbor? This is important because if we take fish out of the water and back to land we need to put them in the same temperature water or else they could die. We got the information to answer this question by getting the temperature off the surface from both places. Then we used a thermometer to measure the temperatures. We concluded that both inside and outside the harbor were close to 20ºC. Outside the harbor was 20ºC and inside was 19ºC. We think that the temperatures are similar because the sun hits on the water in both places.

Name: Lizzie McNamara  
Project Title: Ocean’s Actual Color!
Abstract: The question that I was trying to solve was the color difference in and out of the harbor to see if the chemicals from the boats have an affect. By using the Forel-Ule scale and the Secchi disk at two different sites, it measured how clear the water is and the color of the water. There was difference in color and visibility, perhaps the boats sitting in the harbor actually change the color. The color in the harbor was number 16, or a yellowish-greenish color. Outside of the harbor, where the boats move quickly, instead of moored or idling, this color was number 3, or a light green. From the difference in color, I think it is either because of the boats or it could be the number of plankton that make the color vary in different areas.

Name: Wendy Whitcombe and Morgan Thomas
Project Title: So Little Yet So Much
Abstract: The question we were trying to answer is what is the difference in number of plankton inside the harbor verses outside. Plankton is the basis of the food web in the ocean and where there is more plankton, there could be more sea life. My partner and I obtained a plankton sample inside the harbor using a plankton net. We then got another plankton sample outside the harbor at the site Rock Pile. We dragged both nets in the water for exactly nine minutes. I would conclude that our hypothesis was right because there were more plankton outside the harbor than in. We were able to acquire this information by going into a lab where there was a microscope. Then, with help from a scientist, we estimated the number of plankton in the droplet of water by looking from the top of the test tube and both sides. Overall, this experiment has taught us that the open sea contains more plankton than the inner harbor.

Name: Hannah Galloway and Nichole Adrian
Project Title: Sea Lion Sightings
Abstract: The question we were trying to answer is this: How many sea lions were sighted on the first trip as opposed to the second trip? We think this important to us because we enjoy looking at sea lions and we want to know where to look for them. We gathered this information by scanning the horizon frequently, looking for sea lions on buoys and in the water. We saw forty-four more sea lions the second time. That supports our hypothesis that sea lions have more young sea lions in spring than in winter. We had a wonderful time on the boat trips and hope to go again soon!

Name: Brianna Walter and Austen Wright
Project Title: Water Temperature
Abstract: Does the temperature of the water change as the water level gets deeper? This is an important question to ask because maybe a type of fish has to live in a certain temperature. The crew on the Yellow Fin used a Niskin device to collect surface water in and out of the harbor. Then, we used thermometers to take the temperature of each sample. The temperature of the surface water was 20
degrees C in and out of the harbor, and at 10 meters deep, it was 18 degrees C which means that the deeper you go, the colder the water gets. This supports the concept that the sun's rays can warm the surface water, but cannot reach very far down to warm the deeper waters.