



COASTAL CURRENT

VOLUME 11.4 SUMMER 2007

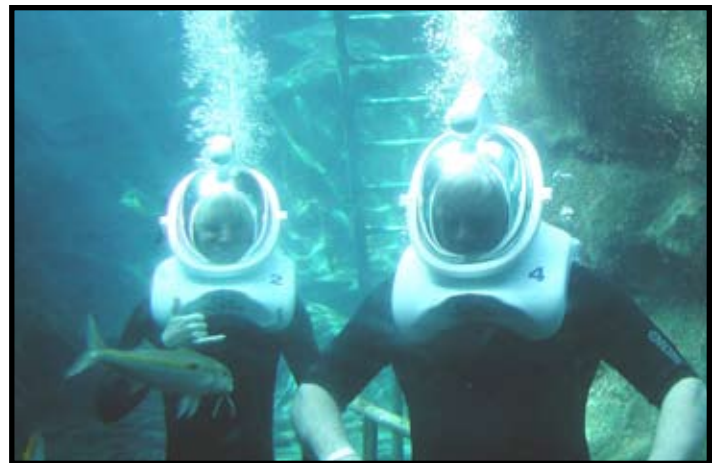
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LIVING THE DREAM IN HAWAII

Since the early 1970's, the Cabrillo High School Aquarium program has been providing school-to-career opportunities for young people. Students have traveled throughout the United States working on advanced degrees from Marine Science to Education to Environmental Engineering and other cross-curricular pursuits. However, few young men and women have had an opportunity to work in a first class marine program such as Sea Life Park in Oahu, Hawaii.

Ryan Haley-Schaeffer graduated in 2005 as one of our most outstanding Aquarists. He spent four years assisting both Dave Long and Greg Eisen and working with peers and visitors of all ages from throughout the Lompoc Community. Chris Ward, Dive Safety Coordinator (and also Ryan's boss) made the statement, "Ryan was the perfect match to support the staff at Sea Life Park."

Ryan is completing his second year at the University of Hawaii majoring in Marine Studies. His goal at this point is to specialize in either Dolphin Behavior or Coral Reefs. His full-time studies at the University of Hawaii take up the majority of his weekly hours, but his position at Sea Life Park is his passion.



Ryan and Mr.Long enjoying their time under water with the fish.

Dave and Elaine Long, members of the Aquarium Executive Committee, recently had a chance to visit with Ryan who works with a team of full-time Aquarists. Ryan is certainly the low man on the staff and will willingly admit he still has a lot of knowledge to gain from his coworkers. Ryan stated that to have the opportunity to work with such a diverse staff is helping to prepare him to work in his ultimate dream job as an Aquarist.

Each day Ryan is in the water feeding and cleaning the habitats that deal with turtles and fish. When asked if he is ever intimidated by the huge animals, Ryan admitted that the size of the dolphins, not their aggressive behavior, but their body mass is intimidating. They sometimes become more friendly than is comfortable when cleaning the tanks.

Dave Long had an opportunity to slip into one of the large seventy-five pound diving helmets and descend into the large Reef Tank with Ryan and staff to feed the turtles, large rays and fish living in the habitat.

Ryan stated that if it were not for his experience of working as a Curator for the Cabrillo High School Aquarium, his application may have been quickly passed over. His ability to submit with his application a DVD and outline of his Senior Project in which he built a coral reef tank made it easy for his application to stand out.



Ryan and Mr.Long head off for their adventurous day at the Sea Life Park

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SENIORS SHINE IN SHOWCASE EVENT!

By: Amanda Schaller



Behind the scenes of KJ's Senior Project.

All seniors at Cabrillo High School are required to do Senior Projects and present them in front of a panel of judges. KJ Herron, a three year member of the Aquarium program, decided to create a video documentary of a Marine Science field trip to a local rocky shore. The purpose of the trip, and consequently her documentary, was to establish an intertidal monitoring site at Seal Beach on Vandenberg Air Force Base. The participating students placed grid line quadrants along tide-zone areas at a local beach. They tallied all living plants and animals found in the quadrants. This data was recorded on spread sheets to be placed on a website data base called LIMPETS.

When asked why she chose to create the documentary to be her Senior Project, she replied, "Because it had a lot to do with my background in video photography, and I knew that I'd grow a lot from the experience." KJ continued to explain how her involvement in this project would help her later on in life when she applies to UCLA. "They work with the same editing programs that I used while working on my Senior Project. They also use similar camera equipment."

Like every project, it had its ups and downs. KJ revealed one of the "highlights" from the project was the positive attitudes of the students during the field trip. Another was, the help she received from her mentors: Mr. Eisen, and Bill Smith, from Tap TV. KJ feels that she could not have finished this project without the help that she received from the camera crew: Lisa Scott, James Copeland, and Casey Lehman. She only had a few hardships during her project, such as getting the correct data from students and powering through some editing problems. She wants to thank all who helped during the field trip.

KJ stated that her project required a lot of discipline and planning. She was required to sign out expensive camera equipment and sign up for editing time at the Tap TV studio in Lompoc where she edited her project.

Every senior at Cabrillo must give a presentation about their project. When finished with the presentation, KJ said, "I was a little nervous but also very excited to present what I have been working on for the whole year."

By: Danford McCann

"Mysterious" is a good word to describe the ocean. Even today with our advanced technology, there are so many mysteries about the deep blue. For my Senior Project I have created a way to solve some of the mysteries in ocean exploration. I built a deep-diving Remote Operated Vehicle (ROV) called "Sherlock I".

ROV's are unmanned submersibles that are controlled by pilots above the surface. Their main purpose is to explore harsh environments like the deep sea or hydrothermal vent communities (where hot water spews out at temperatures that can melt lead!). Using ROV's can minimize risk to human life and can greatly reduce the cost of exploring our final frontier - the ocean's depths.

There were several reasons why I chose to build a deep-diving ROV for my project. First of all, engineering has always intrigued me and I love to create things with my hands. Secondly, I have always wanted to help mankind to answer some of the questions that we have about our earth. Finally, I have had several years experience building ROV's prior to my senior year and I wanted to push the envelope to see how far I could advance the ROV's capabilities.

The process of building this robot was somewhat difficult. Most of the ROV was custom-built and figuring out the wiring for the electrical components and the control box that I designed was quite challenging. Also, it was tough finding certain parts and getting them to fit in with my overall design. Luckily, my mentor, Mr. Eisen, was able to give me a contact from Remote Ocean Systems(ROS) of San Diego who was looking to donate underwater equipment to the Aquarium. After showing Jeff Conger of ROS my blueprints, he gave me close to \$7,000 worth of equipment! Donated items included underwater lights, a camera housing, and a color camera. I am very grateful for the help that both Mr. Eisen and Mr. Conger gave me.

I learned many important lessons by doing this project. I had to teach myself to be more patient and to set smaller, intermediate goals for myself. I also learned the importance of networking; I was able to establish several lines of communication with "experts" who were able to help me when I was frustrated with a problem. Overall, I feel that this project has definitely given me skills and experiences that will be useful to me in the future.



Danford unveils "Sherlock 1" at his Senior Project presentation.

MORE JELLIES ON DISPLAY!

By: Lisa Scott



Lisa Scott at Senior Project presentations.

I have had many unique experiences and opportunities while working in the Cabrillo High School Aquarium. For example, last year I got to attend a field trip to Monterey Bay Aquarium and meet Chad Widmar, their world-renowned senior aquarist in charge of all their sea jelly displays. I already knew that I wanted to work with moon jellies for my senior project. Specifically, I wanted to get Moon Jellies to complete their life cycle in our Aquarium. I knew that I had a huge challenge before me because this had never been successfully accomplished at the high school level before. However, the opportunity to “pick the brain” of one of the best jelly experts in the world and get a behind-the-scenes tour of Monterey Bay’s jelly habitats gave me the confidence that I could get the job done.

I spent the summer before my junior year researching the aquaculture of jellies and designing the display that I would have to build. Jellies live their lives in two body forms or stages. There is a polyp or attached stage which resembles tiny sea anemones (jellies and anemones are actually related) and a medusa or free-swimming stage. The trick to getting jellies to go through their life cycle (both stages) is to get the attached polyps to begin budding off new juvenile jellies. This may sound

simple enough, but the polyps actually are very comfortable just staying as polyps. You actually have to “trick” them into budding by changing some of their environmental conditions such as temperature, water chemistry and/or nutritional factors.

The system that I designed and built consists of two tanks that are connected to one another. The newly budded medusae must be separated from their polyp brethren or else they may get eaten. So the polyp tank sits slightly higher than the medusae tank and the water flows from one to the other. The water then flows into a sump hidden in a cabinet below the display. Finally, I have a fluidized bed filter to keep the water clean and a chiller so I can control the water temperature.



One of Lisa’s juvenile jellies feeding on brine shrimp.

Even after I built the system, I had many challenges that I had to overcome before I could house juvenile jellies. For example, I had to keep the jellies from being filtered into the sump by using a screen mesh, but I had to design a way to keep the jellies from getting stuck on the mesh itself. I was able to solve this problem by designing a spray bar that squirts water on the mesh so that the jellies roll right off instead of sticking to and clogging the screen. Now, I have approximately two dozen jellies that range in size from a pin head to a 50 cent piece and they are growing every day!

Once I had solved all the problems of my system I still had one more challenge: to make my project look like a learning display that fit in with the overall design of the other Aquarium displays and not look like a laboratory experiment. The fully completed display was officially unveiled at our April Open House. I feel like I was successful because many people were enthused about my project and wanted to learn more about jellies and their importance in ocean ecosystems. Now, people around the Aquarium have come to call me the “Jelly Queen”. I want to thank everyone who helped me in this ongoing project. Lisa Scott, Head Curator.



Lisa’s Moon Jelly display.

