Beneath The Surface Overview
By: Elizabeth Sikkema

Department of Biological Sciences
California Polytechnic State University
2013
Abstract

As a Wildlife Biology major at Cal Poly, I was able to express my passion for the ocean and beaches in planning and co-designing a beach and dive clean up Earth Day celebration as my senior project. This event took place at Avila Beach on April 21st and was hosted by the Central Coast Aquarium. It was open to the public in attempts to promote outreach and awareness of coastal conservation, allowing volunteers to participate in the clean-ups and visit the Aquarium. The event was a success, involving over 100 volunteers, collecting and recycling 150 pounds of trash and also attracting the media’s attention. We received an abundance of positive feedback from the public as well as several media reporters, evident in interviews and articles. We were able to not only clean a beach and a part of the ocean floor, but we were able to spread conservation awareness and education to the public. I gained knowledge, experience and multiple skills from my involvement of the event that will help me with my professional goals of further promoting and educating people on conservation and awareness of coastal communities.
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I. Overall Goal and Motivation

Sand, waves, dolphins, whales, sea otters, beach volleyball, bonfires, boats, water. All of these things flood my mind when I think of the ocean, beaches, and coastal areas. I am only listing a few, but there are multiple reasons why I love the beach. It is my passion. Growing up in Haddonfield, New Jersey, my favorite activity was going to the beach, playing in the waves and feeling the sand beneath my bare feet. I always nagged my mom about making the hour drive to the Jersey shore, every weekend I had free. I could not get enough of it; I loved everything about the beach, the ocean, the atmosphere, the people who shared the same passion as me. I knew early on that once I reached the age to steer my life, I would maneuver it in the direction of the ocean. Attending Cal Poly was a step closer to the ocean, my senior project being the foot in the water.

One of the major goals I had in mind going into my senior project was to educate people about the oceans; educate them on the importance of maintaining a clean environment and how it can benefit them. I wanted to spread awareness, to get the idea out there, to stimulate emotions and actions toward conserving our marine and coastal ecosystems to the public. Sharing and expressing my passion became a part of my future plans. In educating people about how important our oceans and beaches are locally and globally, to the marine life that inhabits them, I achieve a sense of accomplishment, a feeling that I am actively helping the world stay a beautiful place.

Volunteering at the Avila Beach Sea Life Center, renamed as the Central Coast Aquarium, in 2013, I have been able to work closely with the beach and ocean and help educate and spread awareness. The Aquarium had previously hosted a beach and dive clean up the year before,
engaging the public and promoting the importance of taking care of our beaches and oceans. I was able to start working on co-designing and planning the event for this year, with Jess Ferrentino, the Aquarium’s Program Director. She worked with me, mostly as a back-up, handing the reins over to me. As an intern for the event, hosted by the Aquarium, I was in charge of planning and putting the it all together. The main goals of this event were to promote public awareness of ocean and beach conservation, education of sustainability and how local actions can lead to global effects.

The Central Coast Aquarium, located in Avila Beach, Ca, exhibits an array of local sea life, providing the opportunity for hands-on experiences with the sea organisms and educating the public about the ocean. The aquarium offers tours, lectures, hands-on exhibits, outdoor excursions, and laboratory lessons to anyone interested in oceans. “The mission of the Central Coast Aquarium is to cultivate a community dedicated to ocean stewardship. [It was] born from a passion for the sea and community and is committed to providing opportunities centered around education, engagement and action” (Central Coast Aquarium). The Central Coast Aquarium also works with schools and students to promote conservation of ecosystems that cover over three-quarters of the earth’s surface. For more information on the Aquarium, visit their website at http://www.sealifecenter.org/about-us/our-story.

II. The Event

Partnered with Jess Ferrentino with the Central Coast Aquarium, I planned and organized an event that created conservation awareness of coastal and marine ecosystems. The event brought together local businesses, elementary schools, and the general public from all over San Luis Obispo County for a day of celebration in regards to Earth Day. It tied in the themes of
pollution/marine debris and climate change how these factors affect the ecosystems that are basically our backyard. At the end of the day, the public and services together walked away with a cleaner beach, a more open mind on conservation, the realization of the importance of clean ecosystems, and a smile on their faces.

Locally, we were able to clean up one beach for a day and a small part of the Avila Bay, which does not seem globally effective to many. However, the awareness and realizations that these actions sparked were the major effects of this event.

The main sponsors for the event include a list of local businesses and non-profit organizations that share the goal of keeping our oceans and beaches clean. The largest financial donations we received came from San Luis Obispo County, PG&E, Rabobank, Cuvee, Avila Grocery and Deli, Keller Financial, and Port San Luis. These sponsors allowed the Central Coast Aquarium to donate a two hour Discovery Lab to an elementary school class, improve the aquarium with incorporating a new tank and the tropical area as well as cover the cost of the excess expenses from the event. Depth Perceptions, a local dive shop, provided the Dive Clean-up with dive masters and gear to those who volunteered. EcoSlo, a nonprofit organization that promotes sustainability in San Luis Obispo, provided the buckets and trash picks for the Beach Clean-up. Avila Wine and Roasting donated coffee, House of Bagels donated breakfast and Fattoush offered lunch for all of the volunteers who participated in either clean up. Alien Records provided us with a musician, Fielding, to perform and COSEA, part of COSAM, allowed for the display of students trash art projects. Smart Studios hosted the Trash Art Workshop at the event while also providing supplies. Riley Marshall, a Graphic Communications major at Cal Poly, designed the event poster (Figure 8).
To include the youth, the next generation of people, we incorporated an art contest among separate grades of local elementary schools before the event. Each class was given a poster board, donated by Beverly’s Fabrics, to create an artistic representation of “School of Fish.” Five classes participated, including third, fourth and fifth grade classes. The artwork was submitted prior to the event where they were hung up during the beach clean-up for volunteers to vote (refer to Figure 1). The winning class received a two hour Discovery Lab at the Central Coast Aquarium. The discovery lab is an educational and fun lab where students get to explore parts and pieces of the oceans and how they work.

The Dive Clean-up took place at the Harford Pier in Avila Beach in the morning from 7AM to 11AM. Depth Perceptions, a local dive shop, provided dive masters and dive gear for the volunteer scuba divers. The divers submerged underneath the end of the pier and collected trash on the ocean floor, Fig. 2. Other volunteers waited on the pier to clean and handle any marine life that was found in the collected trash. The divers collected and removed over 100 pounds of trash from the ocean. We scraped and cleaned the trash of any marine life, see Figure 3. The trash included various objects such as glass bottles, a tire, fishing poles, a car battery and a toilet. Multiple marine organisms were occupying the toilet and glass bottles, using them as their make-shift home. About eight octopi, a few anemones and fish were all removed from the trash objects and either placed back into the ocean or taken back to the Central Coast Aquarium for educational purposes. We cleaned all of the algae, snail eggs, and barnacles off the trash before they were recycled by Port San Luis. One observer questioned, “Who would ever throw a toilet into the ocean? Why would that ever cross someone’s mind?” People were perplexed. The
dive clean-up definitely sparked people’s attention, especially when KSBY News showed up for a short interview and film segment.

The Beach Clean-up took place at Avila Beach in the afternoon from 12PM to 4PM and was sponsored by EcoSlo. Buckets, gloves, bags, and grabbers were provided for volunteers to use to pick up trash along the beach as well as around the town. Each volunteer was given free admission to the Central Coast Aquarium. From the beach clean-up, we removed approximately 50 pounds of trash from the beach. Once the trash was collected, I sorted through it, forming a recyclable and trash pile, refer to Figure 4. Over 60 volunteers participated, ranging in age from kids, as young as two, to grandparents. The majority of volunteers were kids who were very excited to pick up as much trash as they could find.

The trash art workshop, sponsored by SmART Studios providing art supplies, was a way to recycle the trash collected from the beach and oceans into something beautiful. Anyone was welcome to make art out of trash scraps and supplies, spreading the idea of how trash can be recycled and transformed into new things (Fig. 5). We were able to minimize the amount of trash disposed.

III. Booths and Outreach

Several local wildlife associated services attended the event, setting up booths of their own to exhibit their involvement marine ecosystem conservation. The Pacific Wildlife Care is a nonprofit organization that is focused on the rehabilitation and recovery of injured wildlife. They brought an opossum for the public to experience, using this animal to encourage clean environments and sustainable recycling. The Marine Mammal Center is an organization that encourages knowledge of marine mammal life, protection and rescue, see Figure 6. They
brought several items for the public to explore including pelts of otters and whale bones. The volunteers of the Center gave talks about how trash can affect marine life if discarded inappropriately. Los Osos State Park brought a few shorebird models and had games for kids to teach how certain shorebirds acquire food. This incorporated a lot of kids, educating them on how shorebirds forage and emphasizing the importance of keeping trash out of the ocean, since the birds may mistake trash for food.

I created an informational poster on climate change, highlighting the global and local effects on marine ecosystems. I incorporated the basic global effects due to climate change, sea level rise, temperature increase, decreased snow cover and local effects on marine life and their habitats (Fig. 7). The goal of the poster provided information to inspire and encourage people to join in the clean up because what we do locally can have a global effect. The poster included facts and pictures exhibiting outcomes of climate change, coral bleaching happening in the tropics and a map of Avila Beach showing the future sea level.

IV. Outcome and Responses

Overall, the event was a success. We collected over 150 pounds of trash from both clean ups, we brought the community together along with the local services to celebrate and share an Earth Day they will never forget. We sparked a local wake up call, opening the public’s eyes to how much trash is prevalent in Avila Beach, which emphasizes what the rest of the world is like. The event educated people on the conservation of the ocean, the importance of recycling and impacts on sea life. From the comments and looks on the public’s faces, I could tell we made an impact. An impact that will turn into further actions and ideas in hopes to conserve and take care of our oceans and beaches. One comment stood out to me, stated by a mother with three
daughters who volunteered in the beach clean-up. She said, “I was amazed at how much trash there is on the streets, not even on the beach. We filled up three entire buckets of trash only covering about one block of the town! This really opened my eyes to what we have to do in the future.” She also asked, along with her three daughters, when is the next one (meaning beach clean up)? People who attended, especially kids, seemed very enthusiastic to grab a bucket and gloves, bringing them to the beach to pick up as much trash as they could spot. The same result came from the dive clean up. Not only did the divers get a chance to experience this clean-up but those who were taking a stroll on the boardwalk, passer by all were caught by surprise and ended up watching and waiting for whatever sea creature would crawl out of the next trash item brought up from beneath the surface. The public’s general expression was amazement at the site of what kind of trash was being resurrected from the depths of the ocean, especially the toilet. For those who did not attend, a segment on the news and an article were released soon after, providing facts on the amount of trash collected and what was accomplished. This was only the second time a publicized dive clean-up took place within the area and from the results, it should happen more often.

V. Recommendations for Following Years

Improvements for the years to come are small, however, can help provide a better result and outcome of the event. Contacting sponsors for the event needs to happen at least two months in advance, in order to reach businesses before their allotted sponsorship fund is depleted. Also, contacting large companies that make matching donations would be worth a try in order to reel in large amounts of money. Advertising for the event must start about a month in advance to attract the public’s attention and make its way onto calendars before they become filled. As for the
clean ups, scrapers, gloves and nets are necessary for the dive clean ups to successfully remove all sea life off the trash before it is discarded. Also, a truck that can transport all of the trash collected from the pier to the beach for the beach clean up is a great way to show the public what was accomplished under water.

VI. What I Learned

What I learned from putting this event together were many different skills that I will benefit from in the future, not only in the workplace but life in general. I developed organizational skills on how to manage my time more efficiently. I was set with high work loads and tight deadlines and learned a way to perform well under stress. I worked with new partners, becoming more aware of how to work with a team, being persistent and direct with people when necessary. Also, I learned new ways to engage youth to global and local concepts of recycling as well as spreading awareness in an exciting way. I was able to outreach to a broad group of people, influencing their understandings and realizations of the importance of conservation. Throughout contacting sponsors, I practiced my communication skills, conversing with managers of businesses and corporations, figuring out ways to get myself heard and receiving an outcome. With the media covering the event, I was able to practice my public speaking skills on camera and on paper. This experience will help me in my professional goals, spreading conservation and sustainable awareness around the world. I hope to become involved in a program that helps communities, especially in developing countries, with education and practice in sustainability and conservation of coastal areas. My passion lies in teaching locals on topics of recycling and conservation of ocean and surrounding beaches. I wish to promote education and action, maybe getting involved with schools in after school programs that include sustainable practices such as
beach clean ups and composting workshops. My Cal Poly Wildlife Biology education, the “Learn by Doing” motto, has taught and provided my with an abundance experience in exploring and understanding the wildlife of California and the importance of its conservation. I gained skills in educating others through outreach, successfully spreading awareness and receive positive feedback. Overall, I am more experienced with public relations, media, public outreach and education, and planning events after this project. I feel confident going out into the “real world” after college and pursuing my future, with the “Learn by Doing” experience under my belt.

VII. Figures

Figure 1. A few art contest posters on display, “School of Fish.”
Figure 2. Volunteer divers submerging beneath the surface during the dive clean-up.

Figure 3. Volunteers on the Harford Pier with a piece of trash collected from the dive clean-up.
Figure 4. Trash collected from the beach clean-up.

Figure 5. Trash art workshop with SmART Studios, volunteers making art out of recycled trash.
Figure 6. Marine Mammal Center informational booth on Central Coast Aquarium lawn.

Figure 7. Climate Change poster, created by Sikkema, used for outreach and education.
Figure 8. Poster of the event, designed by Riley Marshall.
Cal Poly student cleans up ocean for senior project

Posted: Apr 21, 2013 5:44 PM by Connie Tran, KSBY News
Updated: Apr 21, 2013 9:05 PM

In honor of Earth Day, which is on Monday, a fourth-year Cal Poly wildlife and biology major teamed up on Sunday morning with the Avila Beach Sea Life Center for an ocean and beach clean up day.

Among the trash found: fishing poles, bottles, a tire, and a toilet.

"Who would throw that in there, you know?" said Lizzy Sikkema, the student organizer from Cal Poly.

Sikkema said she's always had an interest and love for the ocean and marine life. She said it's that passion that has led her to protect the living in the sea, and that is why she wanted to work for the Avila Beach Sea Life Center and help them clean up.

She said, "I'm glad we are doing this now, to get everything out, and help people realize that, 'oh maybe we should do this more often'."

Over 25 divers participated, scouring beneath the Harford Pier in Port San Luis. They found trash, and some living treasures, including octopi.

Diver and fourth-year Cal Poly student Josiah Shelton said, "It's a little annoying, especially when you see the sea life that's down there. And you know, it adapts, like you'll see sometimes something living in it, using it as their home, and a way that's kinda cool, and they adapt and they make it work, but at the same time, they shouldn't have to."

Shelton said he believed it was very important to clean up man's mess in the ocean.

"You wouldn't want someone to go in your house and throw their stuff on the floor, you know, you gotta respect the other person's house," said Shelton.

The event, which drew dozens of volunteers and interested passersby on the pier, will also count as Sikkema's senior project at school.

Sikkema said, "I want to basically spread awareness on how important it is to recycle and use like trash sustainability."

Sikkema reported that approximately 100 to 150 pounds of trash and recyclables were collected on Sunday. She said she hopes next year's event with the Avila Beach Sea Life Center is bigger and better.
Video and Article available at:

Cal Poly Student Organizes Earth Day Beach Cleanup April 21

April 11, 2013

Contact: Jess Ferrentino
805-595-7280; info@sealifecenter.org

SAN LUIS OBISPO — The community is invited to the second annual “Beneath the Surface” Earth Day celebration and beach cleanup to be held Sunday, April 21, in Avila Beach. Organized by Cal Poly biology student Elizabeth Sikkema and sponsored by the Surfrider Foundation and EcoSLO, the cleanup is a chance to give back, learn a little and have some fun.

The day will kick off with a dive cleanup from 9 - 11 a.m. Certified divers are invited to meet at Hartford Pier at 9 a.m. Depth Perception, a local dive shop, will provide equipment and master divers to direct the efforts. Trash collected during the dive will be used in a trash art workshop that afternoon.

The beach cleanup will be from 12 - 4 p.m. In addition to the trash art workshop, there will be live music, a display on how climate change affects tropical areas, and information on coastal and marine birds and mammals.

The event will be headquartered at the Avila Sea Life Center, which will also display posters by local third-, fourth- and fifth-grade classes explaining why it's important to conserve the oceans. The winning class will receive a free lab experience at the center.

Sikkema became interested in the event because of her passion for conservation. "I wanted to help spread awareness of conservation," Sikkema said. "We need to come together and keep our local backyard clean, and that, in turn, will have a global effect."

http://cosam.wcms.calpoly.edu/content/news/2013/cal-poly-student-organizes-earth-day-beach-clean-up-april-21
Great Earth Day Event!

Earth Day event

April 21st marked the second annual Dive Clean Up and Earth Day Celebration hosted by the Avila Beach Sea Life Center. On this sunny afternoon, our hardworking volunteers put on a smile along with a pair of gloves and went to work cleaning up the trash around Avila Beach. Acoustic tunes floated through the air as kids engaged in the educational games at the wildlife booths. The volunteers’ enthusiasm for teaching about pollution, seabirds, and sea otters was directly mirrored in the eager participation of the kids, teens, and parents alike. With buckets, grabbers, a good attitude and trash bags in hand, everyone went to work and by the end of the day volunteers collected over 200lbs of trash!

The clean-up kicked off in the early morning with the “Beneath the Surface” event in which local divers rounded up any trash located on the ocean floor. It was both interesting and horrifying to watch what the divers collected just a few hundred yards off the shore. Beer bottles, toilet seats, cans, clothes, plastic soda rings, and a stereo were among the items lugged up from the depths of the ocean floor. Many sea animals were greatly affected by the trash and attempted to live inside or were trapped by some of the debris. Volunteer divers kept getting inked by frightened octopuses whose habitat was infiltrated with man-made objects!

Once the trash was brought to the surface, Sea Life Center volunteers sifted through the debris and organized it into piles of recyclables and non-recyclables. Every piece of trash collected during the dive that didn’t warrant immediate disposal was donated to our local “Sm(ART) Studio.” There, the usable trash was repurposed into various works of art!

Later in the afternoon individuals were invited to join in the clean-up on Avila beach and its surrounding areas. Buckets, grabbers, gloves, and bags were all provided by the Sea life Center and offered to those willing to help out the cause. These trash collecting items contained no plastic and were donated by the generous sponsors of the Sea Life Center as a means of promoting sustainability. Scouring the beach for trash wasn’t very difficult as it seemed every person who volunteered to pick up trash returned with full bags. One volunteer was surprised at the amount of trash she was able to collect—“It’s very eye opening how much trash there is when you look for it.”

This sentiment was shared by multiple participants who all agreed that Avila doesn’t seem as dirty as it is because we tend to ignore the trash around us. Another concerned volunteer commented on this issue of disregarding trash on the beach saying, “It’s about changing the mindset of beach-goers. If none of us want to deal with dirty beaches than we all have to take responsibility for the trash we bring. But it’s not just about self-awareness; if you see a piece of trash on the ground that you didn’t create, pick it up anyways. If we’re all going to relax on our beach then we need to look out for each other as well.”
To help promote this sense of ocean stewardship, the Sea Life Center offered free admission of the marine life institution to all participants of the beach clean-up. Once inside, people had access to view the sea life tanks as well as the touch tanks. Sea Life Center volunteer, Nicole, led the “Shark Talk” by lecturing about the swell shark located in one of the Center’s touch tanks. Parents and children excitedly gathered around the tank in order to experience touching the swell shark with the gentle two-finger touch. Nicole’s informative and entertaining “Shark Talk” taught us about their eating habits and temperament (swell sharks love to eat squid and cuddle each other) while she slowly allowed each person experience the feeling of the diamond shape scales on the swell shark’s back. Talk about hands-on learning! The most amazing part of the Shark Talk wasn’t simply the marine expertise of the Sea Life Center volunteers, but how faces lit up at the opportunity to come into such close contact with a creature so foreign to them. The most interest came from the kids whose critical thinking ran rampant with questions for Nicole to answer as they pointed and gathered around the glass.

Other booths that caused a splash were Pacific Wildlife Care, Marine Mammal Center, and Sea Bird Protection booths. Each had something intriguing to present along with their environmental messages. The Pacific Wildlife Care booth showcased a juvenile opossum that attracted a lot of attention. This sweet little girl was rescued after being hit by a car and nursed back to health in order to care for her 9 babies. The Pacific Wildlife Care aims to rehabilitate any injured wildlife and return it back to its natural habitat. The PWC shares the Sea Life Center’s mission to respect and care for the environment we share with animals. The Marine Mammal Center had a display of sea otter and sea lion pelts as well as elephant seal skulls in order to show how these animals have efficiently adapted to their marine environments. They allowed interested passers-by to touch the thick pelts and learn about the rescue methods of elephant seals, harbor seals, and California sea lions. The Sea Bird booth offered a variety of games for kids as well as educational brochures. Their goal to decrease disturbance of sea bird habitats during mating season was introduced after kids had a chance to earn their “Sea Bird Protection” badge through the games. The “Pelican plunge” and the “Pelagic Cormorant Dive” mimicked the different methods various sea birds catch fish and showed the importance of the sea bird’s role in the marine environment. These wildlife and marine booths helped to spread awareness of our effect on ocean pollution in a tangible way by presenting real life cases of rescue and rehabilitation.

The success of the Earth Day event was made possible by all of our awesome sponsors whose generosity made this day possible. We would like to whole-heartedly thank everyone who contributed to keeping Avila clean and endorsing marine education, especially: PG&E, OSPR The County of San Luis Obispo, Port San Luis Harbor District, Rabobank, New Times, Sm(ART) Studio, Alien Records, CUVEE, The Marine Mammal Center, Avila Grocery & Deli, Beverly’s, House of Bagels, Eco Slo, Avila Village Inn, Avila Wine and Roasting Company. Because of these sponsors’ great contributions we were able to prevent a huge amount of trash from polluting our oceans. Not only is our local beach cleaner and healthier, but our efforts have inspired many people to continue the fight against ocean pollution. The energy and force of the Earth Day trash clean up inspired one participant to exclaim, “We’re definitely coming back next year and we’ll make sure to pick up trash regardless of where we visit!”

We would like to thank everyone for coming out and supporting the event. We hope to see you enjoying the freshly clean beach of Avila soon!
Beneath the Surface 2nd annual Beach and Dive Clean Up

Public - By Lizzy Sikkema

Going (45)
- Lizzy Sikkema (Host)
- Alexa Colburn
- Riley Marie Pete Marshall
- Giorgia Gudicelli
- Jackie Sikkema

Sunday, April 21, 2013 9:00am until 4:00pm
Avila Beach and Harford pier

Come out to Avila Beach to celebrate Earth day with the Avila Beach Sea Life Center and the SLO county community! Help protect and keep our marine ecosystems clean while having fun doing it! P.S. ITS FREE!
You get a FREE REUSABLE BAG and FREE FOOD FROM FATTOUSH for volunteering!

Details:
The Dive Clean up will be taking place at the Harford pier at 9–11am where Depth Perceptions Dive Shop will provide equipment and dive masters for those certified volunteer divers to clean up the ocean floor! Coffee and bagels will be provided.

***If you want to volunteer dive, you must call Depth Perceptions prior to the date to pre–register call (805) 595–3631. Breakfast and pre-registration/suit up will go from 7–8 am and dive will follow 8–11 am.

The Beach Clean up will take place following the dive at Avila Beach from 12–4 pm for anyone who wants to volunteer to pick up trash on the beach with supplies sponsored by Eco–Slo. An acoustic artist, Fielding, will be performing during the clean up as well, there will be a trash art workshop run by Smart Studios for anyone who is feeling artsy and wants to create art out of trash, maybe even the trash they picked up from the beach that day!

Also, the Avila Beach Sea Life Center will be open until 4:00PM for anyone interested in checking out the local fish we have in the aquarium, maybe even touch some sharks and hold sea stars!

Come out and help keep our beaches and oceans clean while celebrating Earth Day with the community!

Special Guests:
Surfrider Foundation Cal Poly
Marine Mammal Center
Pacific Wildlife Center–live animal for show!
Hearst Castle Bird Sanctuary
XII. Appendix E: Alien Records 805 Coverage: Episode 2 Beneath the Surface

http://www.youtube.com/watch?v=HYCAO42Rp5k
XIII. Appendix G: Photographs of the Event