



FIELD TRIP REPORT

Field Trip Overview

From Oct 25-28, 2007 SEEDS conducted a student field trip to the University of California at Santa Barbara's Coastal Long Term Ecological Research (LTER) program. Attendees included 22 students from 19 schools across the country and Puerto Rico, three SEEDS faculty advisors and five staff members from the Ecological Society of America. A list of attendees is in Appendix A.

SEEDS field trips allow students to explore their interest in ecology by learning more about the science, exploring career options, and seeing the practical applications of ecology. Students have the opportunity to find out more about what ecologists do through hands-on experiences with professionals, training in specific areas, and networking with students and professionals.

Many activities took place during the field trip. Participants met with faculty, staff and graduate students involved in the LTER. The first day of the field trip involved exploring the coastal ecosystem of the kelp forest. The second day students were given a tour of three watersheds along with an introduction to some of the instruments used for monitoring watersheds. A full field trip itinerary can be found in Appendix B and a list of the host professionals in Appendix C.

Students were asked to keep journals, and were given a field note book. Samples from their journals are in Appendix D. In addition to individual notes, rotating groups of 4-5 students were responsible for writing about each day's events, which was then edited by SEEDS staff and compiled to create this report. The sketches are also from the group reports. This report reflects the voices of the students who attended the field trip.

Group 5 Thursday

Maria Sevilla, Claudia Vargas, Anne Stahley, Warren Sconiers

We arrived at the Santa Barbara Airport, met our drivers Scott and Dana, and set out for Camp Whittier. Once we settled into our cabins, some of us explored the area while others rested from the long journeys. We soon gathered in the dining area to begin our scheduled activities. Through personal introductions, we discovered that despite coming from many different places and having different interests, we share the same passion for ecology.

Before dinner, we met our hosts from Camp Whittier who gave us a warm welcome and introduction to our temporary home. Warnings about mountain lions, bears and rattlesnakes set the mood for an extraordinary weekend. Two faculty members from the Santa Barbara University joined us after dinner to give us a preview of the diverse ecosystem in Santa Barbara. Dan Reed, the lead investigator at the Long Term Ecological

Research Center (LTER), talked to us about the many ongoing research projects off the coast of Santa Barbara. Among other elements, the research on kelp forest was the one that we would focus on during the rest of our field trip. The giant kelp is the largest and fastest growing alga, and furthermore is the foundation of its ecosystem (providing food and shelter for diverse organisms). Jenny Dugan focused on the home of the kelp forest - the Channel Islands Reserve. She also talked about the tectonic activity in the area and effects of the interactions between the different water currents. When cold water meets warm, the result is maximum biodiversity. Afterwards, a night hike provided for some bonding time before showers and sleep time

Group 2 Friday Morning

Jenna Maria Ervin, Michelle Chang, Brenda Castro, Mara Castro, Valentina Fontiveros

We left camp Whittier at 7:30 am and arrived at Santa Barbara Harbor at 8:00 am. We took the research vessel Cormorant to Mohawk Reef. There we observed the kelp forest. On the boat ride we observed numerous marine life including dolphins, seals, sea lions and shore birds. We met with Dan Reed and a post doc in his lab, Bob Miller. We also met with David Salizar, a research tech, who showed us the instruments used to measure temperature, salinity, water currents and primary production. We were interested to learn that David Salizar did not start out as a post doc but began his research career as an undergraduate. This opened our eyes to alternative routes to becoming a researcher and how one may progress through the ranks as a scientist. Dan Reed pointed out that while ocean currents affected kelp forest structure and location; kelp forests also function in changing the currents. Dan Reed's research involved estimating the growth rate of kelp and calculating the net primary production of the overall kelp forest. Two divers brought up a kelp specimen in order to demonstrate the challenges involved in sampling the kelp forest. The divers also brought up several other algae and some invertebrates attached to them. The staff mentioned that sea urchins play a major role as kelp predators. We wondered about the role that other invertebrates played as competitors and nutrient recyclers within the kelp forest. We also had questions about predator-prey relationships within the kelp forest. What organisms depend on the forests, directly and indirectly? Also, what is the impact of the harbor on the forests? Does oil leaked by boats have an effect on the health or productivity? What is the role of the general disturbance due to the harbor?

After docking, we walked down the working harbor with Carrie Culver, a sea grant public relations specialist. Carrie Culver works as a liaison between scientists and stakeholders in the community. She talked about the local fishing industry and gave examples of how scientists and community members can work in conjunction with the community to do research and identify solutions to ecological issues.

We ended our walk at the Santa Barbara Maritime museum. There we met with Julie Bursick. She gave a small presentation on the geography of the Santa Barbara channel. She introduced us to Roberta Cordero who is a member of the Chumash tribe. She helped relate the geography of the area to the history of its human habitation by discussing the traditional names and culture surrounding the islands and mainland areas. She gave a talk on the indigenous cultures. We were struck by how the culture lent a close relationship with the land. She made us consider the importance of working with the land for its understanding and management. Also she emphasized the significance of a sense of

place. She presented a video about her people reconnecting with their culture through their traditional canoes called Tomals.

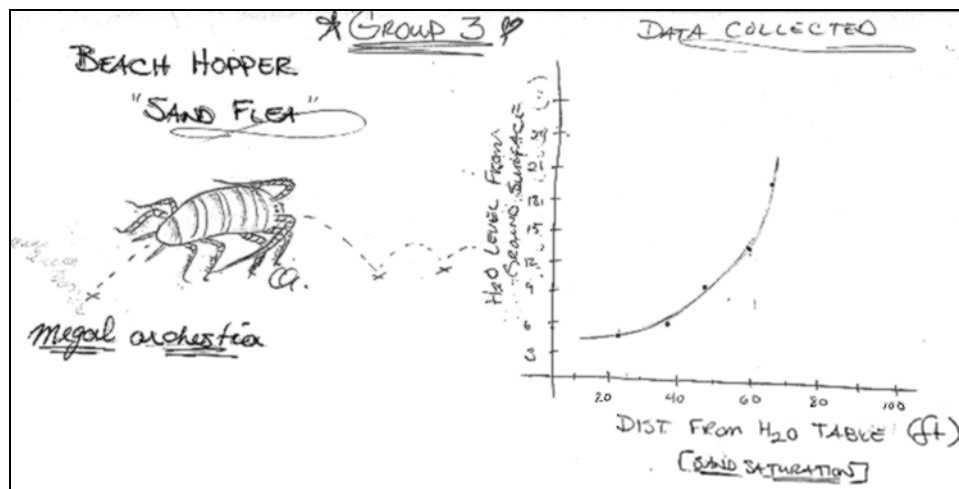
Group 3 Friday Afternoon

Charlee Glenn, Richard White, Irene Hale, Michaele Lindeman

Beach hopper (*Orchestoidea*) observational study with Jenny Dugan:

Not enough time! Probably the best part of this trip. We were engaged and participating in science. We dug holes at progressive distances from the saturated sand and measured the depth at which water was found. Water was present at increasing depths with increasing distance from the saturated shore.

Pairs of students then caught beach hoppers or *Orchestoidea*, stuck him in a cup at the shore line, let him orient himself and let him go. We then followed his path and measured the distance from where he started to where he burrowed.



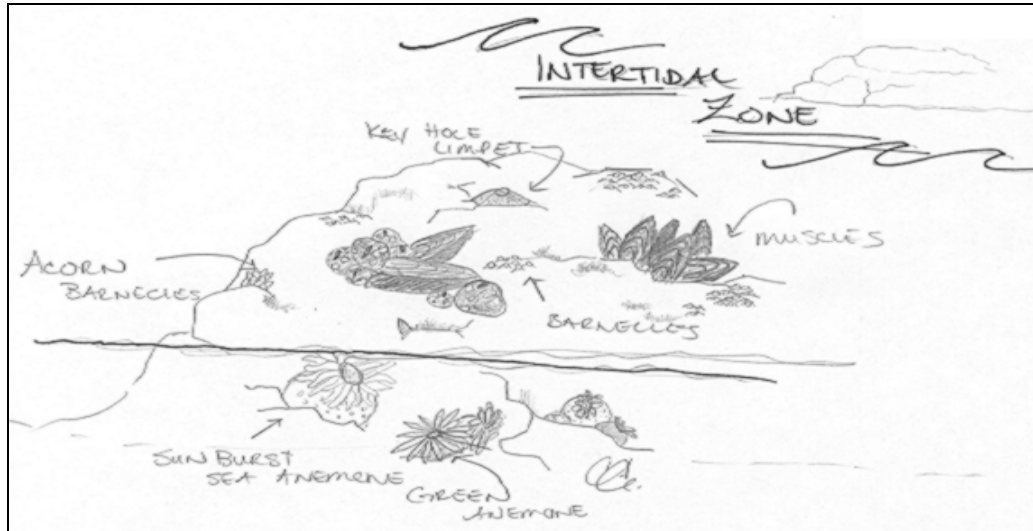
We had to infer the connection between digging holes and the beach hopper. A discussion should have been included, talking about the purpose of our activities, even if the questions were posed to us. We could have had some confirmation or rejection of our answers. We think we dug the holes to illustrate the fact that water saturation in the sand has to do with where the *Orchestoidea* burrows. Saturated water seems very difficult for the *Orchestoidea* to burrow in when compared to dry sand.

Rocky Intertidal Survey:

We were given an introduction to the conditions the organisms living in the rocky intertidal face, and the layering of organisms caused by these specific conditions. We then were split into two groups of three, randomly assigned a transect and had to count the number of species found, and the density of each within that transect. These data are collected on a regular basis, to follow the competition and replacement of organisms in the zone.

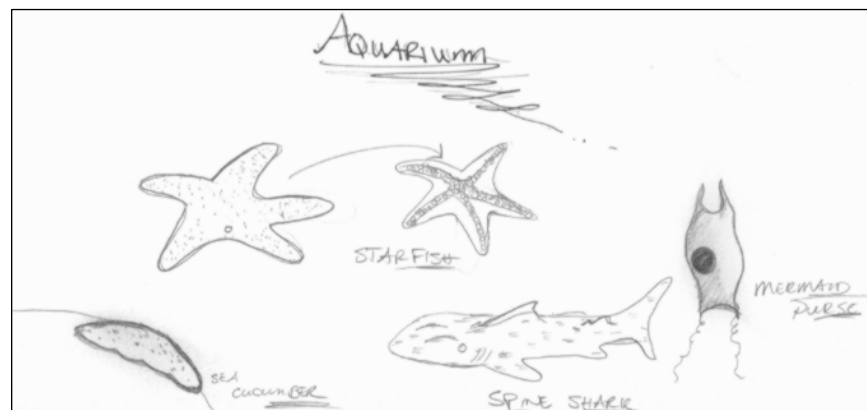
At the Rocky Intertidal we saw mussels, keyhole limpets, acorn barnacles, giant green sea anemone, sunburst sea anemone, sea lettuce. They were layered. Anemones, mussels and barnacles were layered in this order on the rock side, from low to high.

We could have taken more data, maybe compared it.



REEF (Research, Education and Experience Facility):

We loved the REEF. Braden, Chelsea, and Lauren were awesome. They were very attentive and engaging. We got to touch and pick up so many critters. We learned that urchins have five teeth, sea stars have



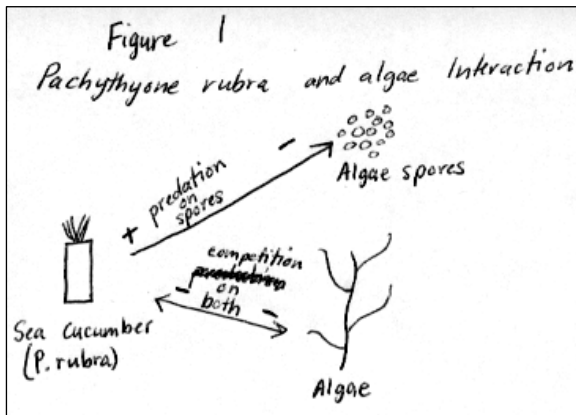
between five and seven arms, but stars are multicolored, but other sea stars are one color. Sea cucumbers can squirt out of their stomach and intestines to get away from predators. We learned a lot and the time period allotted worked well for the small aquarium.

Group 1 “THE LUCKY STARFISH” Friday Evening

Fredrick Abott, Alexa Azure, Alejandro Benhumea, Lorin Biggs

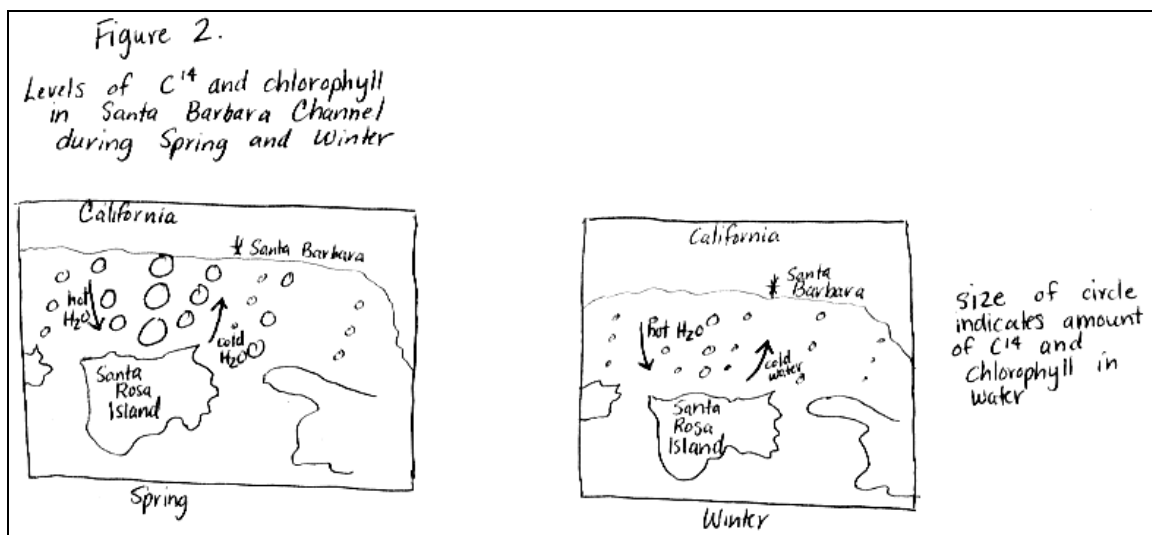
On Friday, after an eventful morning and afternoon (for our group) we arrived at the immaculate, infamous “Cliff House.” As we arrived, we were able to relax & ponder the day’s activities while enjoying the view from the Santa Barbara coastline. After a brief intermission, we congregated in a circle to bounce ideas & discuss any thought that might have accrued during the field trip up until then. The discussions were provocative and insightful. Once this was complete, everyone walked away feeling as though we were all

here for a single purpose, united by our ideas and discussions. After we all ate, we were introduced to our first presenter, a PhD student from University of California at Santa Barbara, Kyle Cavanaugh. His presentation entitled "Remote Sensing as a tool for research" - discussed using remote sensing to measure biomass changes in giant kelp beds."

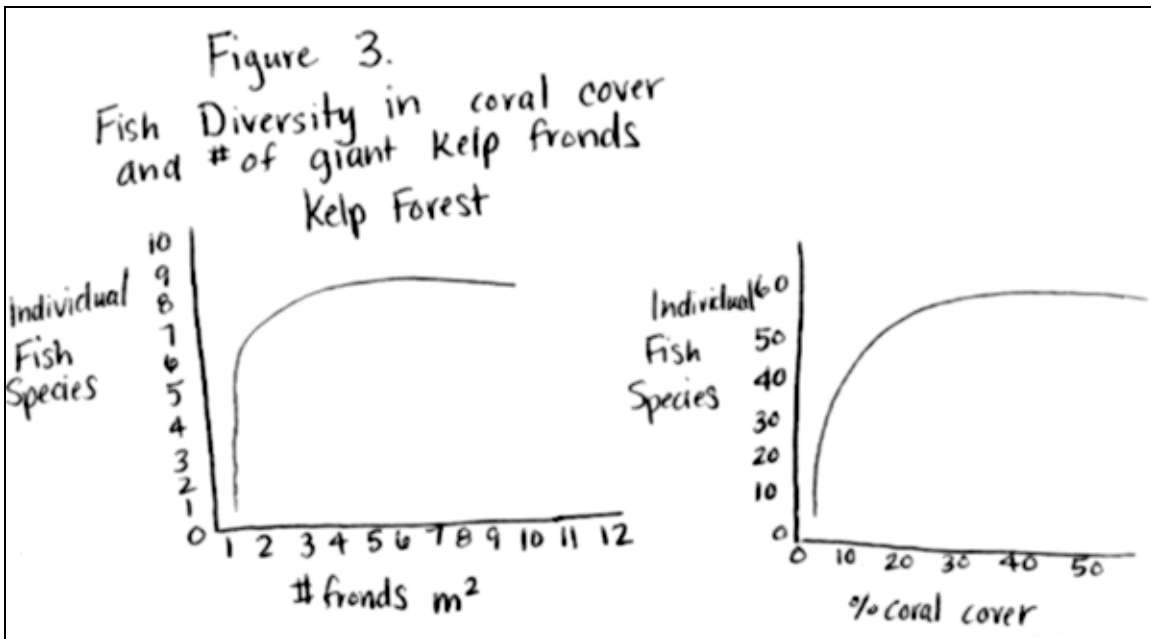


The second speaker was Andy Rassweiler, another PhD student from UCSB from the Department of Ecology, Evolution and Marine Biology. His presentation was on distinct states and changes between the *p. rubra* and algae. The sea cucumber and algae compete for space, while the sea cucumber also consumes the spores of the algae to restrict the algae population (see fig 1).

Carla Guenther then shared her life journey which consisted of multi-continental kayaking and blind folding lobsters. This all led up to an exciting research endeavor of commercial fishing and surveys of fishermen. Dr Mark Brzezinski gave a Power Point presentation on primary production by benthic and giant kelp (see fig 2).

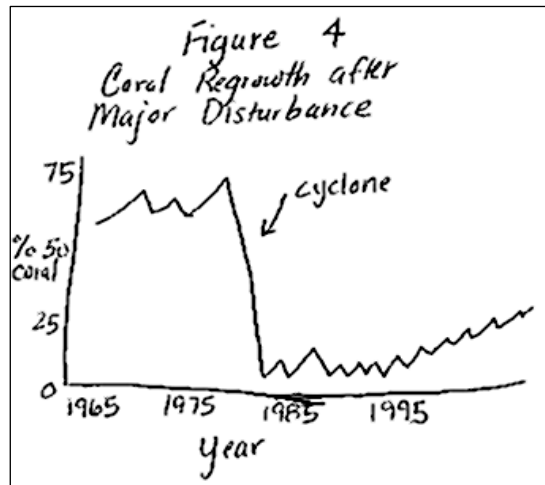


Next was Dr. Sally Holbrook, who discussed the parallels between two foundation species; the giant kelp and coral. One of the parallels is illustrated in figure 3.



Another aspect of kelp forests is that they have frequent intense disturbances, but rapid recovery. With coral, the intense disturbances are rare but recovery is slow (see fig 4).

Once all research presentations were complete, the plugs for grad school began.....As a group; we conclude that while the research was enthralling, we would have liked to have more time for discussion. Maybe in future expeditions, after supper rather than lectures, we should be able to have more intimate interactions with the scientists and researchers.



Group 4 Saturday

Cynthia Oपुरum, Belén M. Rosado, LeAnn Rutledge, Ashley Scioneaux, Miranda Lopez

There is a strong difference between disturbed and undisturbed habitats. Dr. John Melack and Darcie Goodman (PhD student) gave the SEEDS students presentations about the watersheds around Santa Barbara. SEEDS students visited watersheds at Refugio State Park, Arroyo Hondo, Devereux Slough and Rocky Nook Park.

The most disturbed watershed, Devereux Slough, is an estuary. It is classified as an estuary due to the high abundance and diversity of organisms. This estuary is highly disturbed because the nearby golf course and offshore oil rig are impacting the habitat.

The second most disturbed watershed is the Rocky Nook Park. This park has a small creek running through an upscale neighborhood. The creek is impacted by artificial rock that surrounds the creek. Because the creek is small, any amount of rain could cause the creek to overflow. This allows pollution from the neighborhood to go into the creek and kill the fish.

The moderately disturbed watershed is Refugio State Park. This is because it is a popular camping ground; however it is never permanently camped. In addition, construction around the creek causes pollution to run into the creek, but some of the creek runs underground and serves to limit some of the run-off pollution. The least disturbed watershed is Arroyo Hondo. This is because the topography drastically limits the amount of construction that can occur; therefore, there is no construction there.

Evaluation

Field trip participants were asked to evaluate the trip through a questionnaire comprised of a combination of free-response and questions where they had to rate choices on a scale of 1-7, 7 being the highest. This section contains a summary of the responses in the questionnaire with all rating scores averaged. The questionnaire and a summary of the ratings are in Appendix E. 21 students and two faculty members completed the questionnaire. Suggestions for individual activities of the trip are included in the daily summary section of the report.

Students expressed that active engagement with the research site and the people involved helped increase their interest and understanding of ecology. The REEF (Research, Education and Experience Facility) program coordinated by Scott Reed was highly rated by all. Students found it attractive that the program recruited undergraduate researchers as early as their sophomore years. Being able to touch various marine organisms at the REEF aquarium was also considered a great opportunity. The boat ride to the kelp forest was a field activity that the participants found invaluable. Being able to do some field work at the beach was another experience that the students appreciated.

Students felt that the informal interaction at the dinner presentation at the Cliff House with various ecologists and graduate students was an opportunity to learn more about various fields in ecology. The informal nature of the dinner made it easy for the students to have their questions answered and get to know the people at UCSB at a more personal level. Students were also inspired by the passion that the ecologists brought to their work, both in their research as well as in their relationships with the graduate students. For some, it was revealing to have the role of local communities in the marine ecosystem discussed during the course of the field trip. They valued the talk by Roberta Cordero on the Chumash tribe and Dr. Carrie Culver's talk about the local fishermen. Other informal activities like hikes taken during free time and bonding with students who share the passion for studying ecology also contributed to the success of the trip.

Journal writing and seeing what ecologists do were rated the highest at 6.3 each for activities that increased their interest and/or understanding of ecology. The presentations at the Cliff House were rated the lowest at 5.0. Networking was considered an important aspect with student networking and meeting with ecologists receiving scores

of 6.2 and 6.1, respectively. A student also saw the experience as an opportunity to try out and narrow down various interests within the field of ecology.

When queried about the single most aspect that contributed to their interest or understanding of ecology, students responses were evenly split between “hands on experience” and “seeing what ecologists do.” The boat trip to the kelp forest, the visit to the REEF and the activities at the beach were enumerated as the hands-on experience. These experiences helped reinforce their interest and gain insight into research. Hands-on work also appealed to the students as this has proven to be an effective learning method in the past. Seeing ecologists at work provided students with a better idea of what ecologists do as part of their daily routine. The opportunity to ask questions was also considered very helpful. It was inspiring to see the ecologists at work as they were role models to the students.

Students were also asked to rate their pre- and post-field trip understanding of ecology, ecology as a profession and the activities of the ESA. The category with the most improvement was the ‘awareness of the diverse areas of study and career options in ecology’ with a 1.8 point increase. The two other categories with the most increase were ‘awareness of the diverse students and professionals interested in ecology’ and ‘understanding of ESA and its role in the profession’ with both categories showing a 1.6 points increase. ‘Commitment to pursue a career in ecology’ and ‘interest in ecology’ showed the least increase, but, these categories were highly rated to begin with. The other categories showed a less than 1.2 point increase.

As a result of the field trip students are most likely to ‘talk to friends about their experience’ and ‘apply to another SEEDS experience’ with both categories receiving the maximum possible score of 7. These categories were followed by talking to family members about the trip, which was rated 6.9. With a score of 5.7, the students were least likely to give a presentation about their experience in school. Renewing their ESA membership and contacting some of the professionals involved were rated 6.3 and 6.2 respectively.

The participants were moderately satisfied with the logistics of the field trip. Pre-trip communication, food, lodging and transportation received scores of 6.4, 6.3, 6.2 and 6.7 respectively. The schedule/pace of the trip was rated low at a score of 4.4. The pace of the trip was too hectic. Having strict break schedules to prevent exhaustion was suggested. The participants felt that field work could have been emphasized more during the trip. Students suggested having more hands-on experiences at the site with activities like hiking to engage more with the ecosystem. The faculty respondents shared similar concerns. They would like to see students being more actively engaged in the ecosystem. They also felt that the presentations at the Cliff House were too long and at times repetitive. This detracted from the time that could have been spent having one-on-one conversations with ecologists. The equipment demonstration on Saturday could have been done at one site, instead of spending time driving around. The articles assigned prior to the visit were not discussed. As students had taken time to read them, they felt the articles should have been given some consideration. Time should also have been allotted for general socializing and reflecting on the day’s activities.

Appendix A

FIELD TRIP PARTICIPANTS

Participant	Institution
Alejandro Benhumea	University of Texas at El Paso
Alexa Azure	United Tribes Technical College
Anne Stahley	Clayton State University
Ashley Scioneaux	Xavier University in Louisiana
Belen Rosado	University of Puerto Rico at Bayamon
Brenda Castro	University of Puerto Rico at Río Piedras
Charlee Glenn	Clayton State University
Claudia Vargas	New Mexico State University
Cynthia Oporum	Livingstone College
Fredrick Abbott	University of Puerto Rico at Humacao
Irene Hale	San Diego State University
Jenna Ervin	New College of Florida
LeAnn Rutledge	North Carolina A&T State University
Lorin Biggs	Iowa State University
Mara Castro	University of Puerto Rico at Humacao
Maria Sevilla	Miami Dade Honors College
Michaele Lindeman	United Tribes Technical College
Michelle Chang	University of California Irvine
Miranda Lopez	Texas A&M University-Corpus Christi
Richard White	South Dakota School of Mines & Technology
Valentina Fontiveros	Stanford University
Warren Sconiers	University of California, Irvine
Concepcion Rodriguez (faculty)	U of Puerto Rico, Bayamon
Cynthia Wilber (faculty)	Jasper Ridge Biological Preserve
Joe Fail (faculty)	Johnson C Smith University

Appendix B FIELD TRIP ITINERARY

SEEDS Field Trip Santa Barbara Coastal (SBC) Long Term Ecological Research Project (LTER) October 25-28, 2007

Thursday October 25th

Participants arrive in Santa Barbara for pickup at Santa Barbara Airport
2:00 pm First group of participants depart for Camp Whittier
4:00 pm Second group of participants depart for Camp Whittier
5:00 pm SEEDS introduction and explanation of journal writing exercise
6:00 pm Welcome dinner at Camp Whittier and field trip orientation
Welcome talk by SBC Principal Investigator Dan Reed & Jenny Dugan
Overview of trip by Ali Whitmer
Handout packets and sleeping bags

Friday October 26th

7:00 am Breakfast at Camp Whittier and pack lunches to go
7:30 am Vans depart for Santa Barbara Harbor
8:00 am Trip on the Research Vessel R/V Cormorant to the kelp forest at Mohawk Reef Teams 1, 2 and 3 (Bob Miller, Dan Reed)
Working Harbor tour & Maritime Museum for Teams 4 & 5 (Ali Whitmer, Jenny Dugan)
10:00 am Trip on the Research Vessel R/V Cormorant to the kelp forest at Mohawk Reef : Teams 4 & 5
Working Harbor tour & Maritime Museum for Teams 1, 2 and 3
12:30 pm Sack lunches on University of California Santa Barbara (UCSB) Campus
1:30 pm Visit the REEF (Research Experience and Education Facility) of the Marine Science Institute and intertidal field activities (Scott Simon, Ali Whitmer, Jenny Dugan)
4:30 pm Break, discussion, and journal writing
6:00 pm Dinner with UCSB graduate students and SBC investigators at Cliff House
Research Presentations and discussion (Andy Rassweiler, Carla Guenther, Kyle Cavanaugh, Mark Brzezinski, Sally Holbrook)

Saturday October 27th

8:30 am Breakfast at Camp Whittier and pack lunches to go
9:15 am Vans depart for UCSB campus & Santa Barbara Watershed tour (John Melack et al)
Over 40 different watersheds are within the SBC LTER, we will visit examples that differ in the level and type of human use (i.e., urban, agricultural, undeveloped) and in their potential influence on the coastal ocean and kelp forests.
Noon Sack lunches at Rocky Nook park, located between the upper and lower Mission Canyon watershed
1:00 pm Continue watershed tour
3:00 pm Free time in downtown Santa Barbara
5:15 pm Vans depart for Camp Whittier
6:00 pm Dinner at Camp Whittier
7:00 pm Field trip discussion and journal completion, evaluations

Sunday October 28th

4:30 am First group departs for airport
7:45 am Second group departs for airport
9:00 am Final group departs for airport

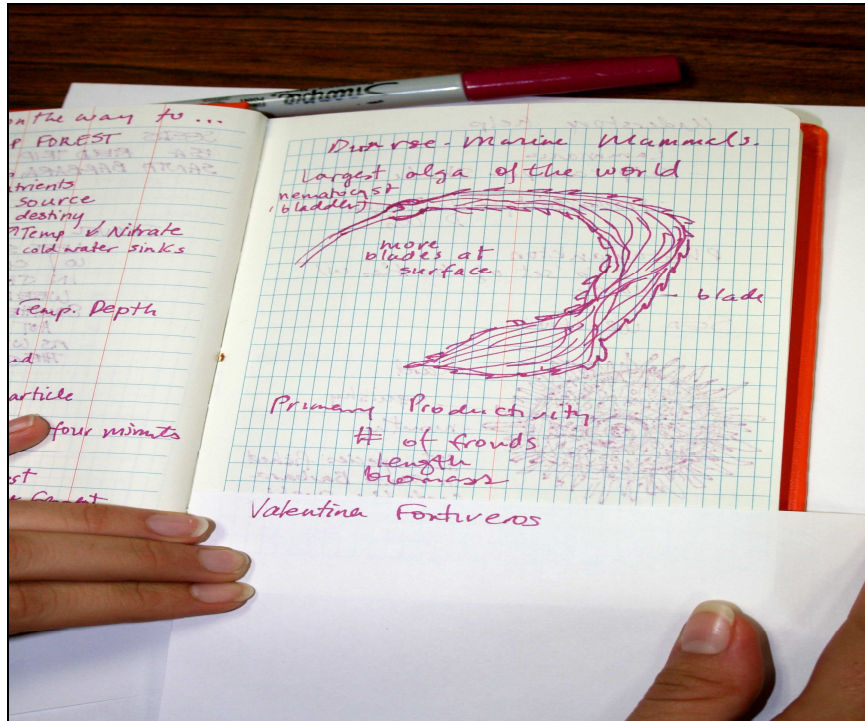
Appendix C

UCSB STAFF AND FACULTY

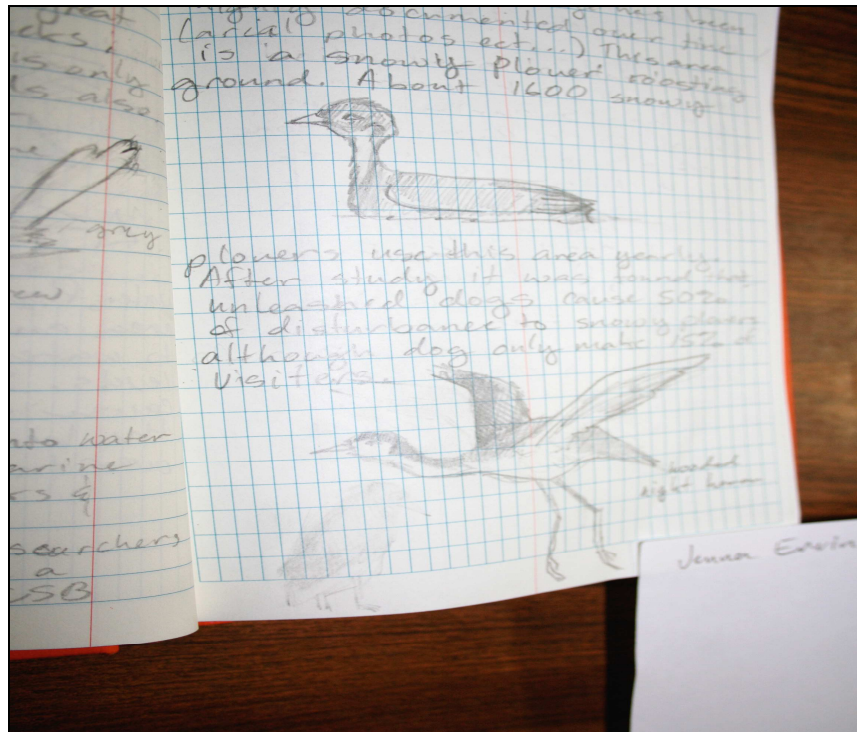
Dan	Reed	Marine Science Institute	University of California
Jenny	Dugan	Marine Science Institute	University of California
Clint	Nelson	Marine Science Institute	University of California
Shannon	Harrer	Marine Science Institute	University of California
Carrie	Culver	Marine Science Institute	University of California
Dave	Salazar	Marine Science Institute	University of California
Dana	Nakase	Marine Science Institute	University of California
Scott	Simon	Marine Science Institute	University of California
Sally	Hollbrook	Ecology, Evolution and Marine Biology	University of California
Russ	Schmitt	Ecology, Evolution and Marine Biology	University of California
Mark	Brzezinski	Ecology, Evolution and Marine Biology	University of California
Andy	Rassweiler	Ecology, Evolution and Marine Biology	University of California
Darcie	Goodman	Bren School of Environmental Science and Management	University of California
Carla	Guenther	Bren School of Environmental Science and Management	University of California
Blair	Goodridge	Bren School of Environmental Science and Management	University of California
John	Melack	Bren School of Environmental Science and Management	University of California
Kyle	Cavanaugh	Geography Dept.	University of California

Appendix D

Journal Writing Sample



Valentina Fontiveros



Jenna Ervin

Appendix E

FIELD TRIP EVALUATION

How much did the following field trip aspects increase your interest and/or understanding of ecology? If not at all circle 1 (one); If it is a major increase you might circle 7 (seven).

	Not at all						Very
Presentations at UCSB / Institute tour	1	2	3	4	5	6	7
Research presentations at Cliff House	1	2	3	4	5	6	7
Student networking	1	2	3	4	5	6	7
Hands-on experience	1	2	3	4	5	6	7
Journal writing	1	2	3	4	5	6	7
Meeting ecologists, seeing who they are, socializing	1	2	3	4	5	6	7
Seeing what ecologists do	1	2	3	4	5	6	7

Please describe any other aspects about the field trip that helped increase your interest and/or understanding of ecology.

From the list above or from your own responses, what one aspect most increased your interest and/or understanding?

Why?

Using a seven point scale, and thinking about before and after your participation in the field trip, what was your:

Pre Field Trip								Post Field Trip						
None			Great					None			Great			
1	2	3	4	5	6	7		1	2	3	4	5	6	7
							Interest in ecology							
1	2	3	4	5	6	7		1	2	3	4	5	6	7
							Understanding of ecology							

Pre Field Trip								Post Field Trip						
None			Great					None			Great			
1	2	3	4	5	6	7	Understanding of what ecologists do	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Belief that ecology is a rewarding career option	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Awareness of the diverse areas of study and career options in ecology	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Awareness of the diverse students and professionals interested in ecology	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Understanding of ESA and its role in the profession	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Interest in graduate school for ecology or a related field	1	2	3	4	5	6	7
1	2	3	4	5	6	7	Commitment to pursue a career in ecology	1	2	3	4	5	6	7

After this field trip, how likely are you to do the following:

	Not at all						Very
Give a presentation at your school	1	2	3	4	5	6	7
Talk to friends about the trip	1	2	3	4	5	6	7
Talk to family about the trip	1	2	3	4	5	6	7
Apply again to a SEEDS experience	1	2	3	4	5	6	7
Renew your ESA membership next year	1	2	3	4	5	6	7
Contact some of the professionals involved	1	2	3	4	5	6	7

How satisfied were you with the following field trip logistics?

	Not at all						Very
Pre-trip communication from SEEDS	1	2	3	4	5	6	7
Food	1	2	3	4	5	6	7
Lodging	1	2	3	4	5	6	7
Transportation	1	2	3	4	5	6	7
Schedule / Pace of the trip	1	2	3	4	5	6	7

Please describe any concrete suggestions for improvement.

Summary of Evaluation Responses

	How much did the following field trip aspects increase your interest and/or understanding of ecology?																					MEAN		
Presentations at USCB/Institute tour	7	7	7	4	4	7	7	7	7	6	6	5	7		6	3	4	7	7	7	5	5	6	6.0
Research presentations at Cilff House	4	6	7	3	4	7	4	3	7	5	4	2	7		7	3	6	5	4		6	6	5	5.0
Student networking	7	6	7	6	7	7	7	7	7	7	7	4	7	6	7	7	5	7	3	4	7	5		6.2
Hands-on experience	4	5	7	5	5	6	5	7	7	7	6	4	7	7	7	7	2	7	3	7	7	7	7	5.9
Journal writing	6	7	7	6	7	6	5	5	7	7	6	7	7	7	7	7	6	6	7	7	6	4	6	6.3
Meeting ecologists, seeing who they are, socializing	6	7	7	7	5	7	6	6	7	6	5	4	7	6	7		7	6	3	5	7	6	7	6.1
Seeing what ecologists do	5	7	7	7	5	7	7	7	7	7	7	4	7	6	5	4	6	7	7	7	7	7	6	6.3
(PRE FIELD TRIP)	Using a seven point scale, and thinking about before and after participation in the field trip, what was your:																							
Interest in ecology	7	7	7	3	4	5	7	7	7	6	6	7	6	5	7	6	6	7	7	7	5	7	5	6.1
Understanding of ecology	7	6	3	5	3	6	7	7	7	5	3	7	5	3	5	4	4	7	5	4	6	5	4	5.1
Understanding of what ecologists do	7	7	3	4	4	4	7	6	7	7	3	7	5	6	7	4	4	6	6	5	4	5	5	5.3
Belief that ecology is a rewarding career option	7	5	5	3	4	3	7	5	7	6	6	7	7	6	5	4	4	6	7	7	5	7	4	5.5

Awareness of the diverse areas of study and career options in ecology	7	4	5	3	3	3	6	6	5	5	2	7	7	2	7	6	2	6	5	3	3	4	6	4.7
Awareness of the diverse students and professionals interested in ecology	7	3	5	3	3	5	5	7	5	5	6	7	7	3	4	6	2	7	5	3	5	3	4	4.8
Understanding of ESA and its role in the profession	6	5	4	4	4	4	6	6	7	4	5	7	7	4	7	5	1	5	7	5	4	3	5	5.0
Interest in graduate school for ecology or related field	7	6	5	6	3	6	6	6	7	6	3		6	2	7	5	6	6	6	7	3	7	3	5.4
Commitment to pursue a career in ecology	7	7	4	3	3	5	6	6	7	5	4	7	5	2	7	5	6	6	7	7	2	6	7	5.4
(POST FIELD TRIP)	Using a seven point scale, and thinking about before and after participation in the field trip, what was your:																							
Interest in ecology	7	7	7	6	5	7	7	7	7	7	6	7	7	6	7	7	6	7	7	7	7	7	7	6.7
Understanding of ecology	7	7	7	6	4	6	7	7	7	6	6	7	7	6	7	6	6	7	6	5	7	6	6	6.3
Understanding of what ecologists do	7	6	7	6	5	6	7	7	7	7	5	7	7	6	7	6	6	7	6	6	6	7	6	6.4
Belief that ecology is a rewarding career option	7	7	7	6	4	7	6	7	7	7	4	7	7	7	7	6	7	7	7	7	6	7	7	6.6

Awareness of the diverse areas of study and career options in ecology	7	7	7	7	6	7	7	7	7	7	6	7	7	6	7	6	5	7	5	4	7	6	7	6.5
Awareness of the diverse students and professionals interested in ecology	7	7	7	7	5	7	6	7	7	7	6	7	7	6	6	6	5	7	5	6	7	6	6	6.4
Understanding of ESA and its role in the profession	7	7	7	7	5	6	7	7	7	7	6	7	7	5	7	7	6	7	7	6	6	7	7	6.6
Interest in graduate school for ecology or related field	7	7	7	7	5	7	7	6	7	7	7		7	3	7	6	6	7	6	7	6	7	6	6.5
Commitment to pursue a career in ecology	7	7	7	6	4	7	7	7	7	6	4	7	7	3	7	6	7	7	7	7	5	7	7	6.3
	After this field trip, how likely are you to do the following:																							
Give a presentation at your school	7	6	7	6	5	5	5	6	7	7	5		1	2	6	7	3	7	7	7	7	6	7	5.7
Talk to friends about the meeting	7	7	7	7	7	7	7	7	7	7	7		7	7	7	7	7	7	7	7	7	7	7	7.0
Talk to family about the meeting	7	7	7	7	7	7	6	7	7	6	7		7	7	7	7	7	7	7	7	7	7	7	6.9
Apply again to a SEEDS experience	7	7	7	7	7	7	7	7	7	6	7		7	7	7	7	7	7	7	7	7	7	7	7.0

Renew your ESA membership next year	7	4	7	7	4	7	7	6	7	5	2		7	7	7	7	6	7	7	7	7	6	7		6.3
Contact some of the professionals involved.	7	7	7	7	4	6	7	6	7	5	4		7	7	6	7	5	5	7	7	7	4	7		6.2
	How satisfied were you with the following field trip logistics:																								
Pre-trip communication from SEEDS	6	7	7	7	3	7	7	7	7	6	5	7	7	7	5	7	6	6	7	6	7	6	7		6.4
Food	6	7	7	6	4	6	5	7	7	7	7	4	7	7	7	7	6	6	7	5	6	6	7		6.3
Lodging	7	7	7	6	7	3	5	7	7	6	7	6	7	7	7	7	6	7	7	7	2	5	6		6.2
Transportation	7	7	7	7	7	6	5	7	7	7	7		7	7	7	7	6		7	7	7	4	7		6.7
Schedule/Pace of the trip	3	5	7	6	5	5	4	5	4	6	2		6	6	4		4	4	5	2	2	2	5		4.4