

# EnviroNews

Newsletter of the Santa Clara University Environmental Studies Institute

Volume XIII

Fall 2001

**Winter Quarter Classes:  
More Environmental Studies Classes  
Than Ever Before!**

- ENVS 1- Intro to Environmental Science
- ENVS 120 - Environ. Law & Regulation
- ENVS 144 - The Natural History of Baja
- ENVS 198 - Independent Research/ Internship
- ENVS 199 - Directed Reading and Research

**Look inside for course descriptions.**

**[www.scu.edu/ENVS](http://www.scu.edu/ENVS)**

**All the information you want about ESI, professors, news, and then some.**

ESI supports a variety of study abroad opportunities to meet all interests. To learn about the programs, please stop by Daily Science 204, or the International Programs Office (Cesar Chavez Commons, trailer A) during the day. SCU academic credit is given or can be arranged for all excursions.

Spring Break in Baja, Mexico!- 5 Units

Summer in Micronesia!- 10 units

Study with the School for Field Studies in Turks and Caicos; Baja, Mexico; British Colombia; Kenya; Australia; or Costa Rica- semester and summer programs!- varying credit depending on when you attend.

## What's Inside

Class Descriptions.....	2
GREEN!.....	2
Summer School Island Style.....	3
Operation Waste Reduction.....	4
Salmon and Cents.....	4
Ulistac Update.....	5
BioSphere.....	5
Calendar of Events.....	6

## **ENVS Colloquium:**

**Managing Trees in the Third World**  
Property rights and incentives to invest

**Keijiro Otsuka**

Foundation for Advances Studies on International Development, Tokyo

Tuesday, October 16  
Sobrato Hall, Room 19  
5:30-6:30 pm; discussion to follow

## ENVS COURSE DESCRIPTIONS:

ENVS 1- INTRODUCTION TO ENVIRONMENTAL SCIENCE: Science helps inform personal and public action. In this course, each student will have the opportunity to gain knowledge of the basic science involved in understanding local and global environmental problems. Participants will also gain an understanding of the importance of interdisciplinary approaches to environmental problem solving, and the basic ethical and moral frameworks surrounding the issue of environmental sustainability. Participants will have the opportunity to learn basic skill sets necessary for further coursework in the environmental sciences.

ENVS 120 - INTRODUCTION TO U.S. ENVIRONMENTAL LAW AND REGULATION: An introduction to the U.S. legal system's approach to environmental protection. Topics include the roles of legislatures and environmental agencies at the federal, state and local levels; the independent role of the judiciary in establishing environmental law; specific statutes such as the Clean Air Act. Fulfills the United States University core requirement.

ENVS 144 - NATURAL HISTORY OF BAJA: Examination of natural history and ecology of desert and coastal ecosystems in Baja California Sur, with special attention paid to issues of development, fisheries, and sustainability. Meets once a week during winter quarter at SCU and over spring break at School for Field Studies in Baja. Students must apply to course faculty to participate in this program. Additional course fees will apply.

ENVS 198 - INDEPENDENT RESEARCH/INTERNSHIP: Students wishing to enroll in 198A or 198B should prepare a written description of the proposed course for review by a program director in the fifth week of the term preceding the start of the project. Prerequisite: permission of program director and instructor before registration. (units to be arranged)

ENVS 199 - DIRECTED READING AND RESEARCH: Detailed investigation based on directed readings on advanced environmental topics, under the close supervision of a faculty member or the program directors. Prerequisite: permission of program director and instructor before registration. (units to be arranged)

## ES Related Courses:

Anth 3- Intro to Archaeology  
Anth 50- World Geography  
Biol 5- Endangered Ecosystems L&L  
Biol 8- Ecosystems of the Bay Area L&L  
Biol 160- Biostatistics L&L  
Econ 5- Introduction to Economics  
Econ 130- Latin Amer. Economic Devel.  
Math 8- Introduction to Statistics  
Math 11- Calc & Analytic Geometry II  
Math 12- Calc & Analytic Geometry III  
Phil 9- Ethical Issues & the Environment  
Phys 9- Intro to Earth Science  
Poli 1- Introduction to U.S. Politics  
Poli 25- Intro to International Relations  
Poli 130- Global Environmental Change  
Poli 167- Making Public Policy  
Tesp 173- Religion, Science and Environment  
Soc 1- Principles of Sociology  
Mktg 181- Principles of Marketing  
Ceng 20- Geology L&L  
Ceng 123- Environ. Reaction Engineering L&L

## GREEN!

**Grass**Roots **E**nvironmental **E**fforts **N**ow!  
is a grassroots environmental student organization focused on educating for the preservation of the environment.

Build on your college experience by doing a service to both your local community and the global environment. Attend weekly meetings and/or service projects in the greater Santa Clara community. Past projects include beach clean-ups in Santa Cruz, habitat restorations in Santa Clara, exotic species removals in Golden Gate Park, trail and creek clean-ups in local communities, and annual Earth Day festivals focused on environmental awareness. So take a break from your routine schedule and

## Summer School Island Style

by Elianna Strode, class of 2002

This past summer I studied abroad in Turks and Caicos Islands with the School for Field Studies. I had the time of my life! I know this phrase is somewhat cliché, but there really is not a better way to express the extreme height of emotions I felt during my twenty-eight day stay on South Caicos. Every aspect of life there from my classmates, instructors, and the local community to the sporadic rain, sticky heat, and shallow green waters, stimulated my mind and body. I came home with invaluable knowledge and a renewed enthusiasm for life.

Academic life on South Caicos was more rigorous than I expected. However, this did not burden me. I found each topic we studied – zoning, socio-economics and ecology of marine protected areas - intriguing and vital to my understanding of the marine environment in which I was immersed. Having the ocean as my classroom was undoubtedly the most thrilling academic experience I have ever had. The research we conducted was simple yet essential to the management of East Harbor Lobster and Conch Reserve. The concepts we touched upon were applicable to so many regions. What I learned through SFS only encouraged me to pursue further education and a career in marine environmental studies.

I found it intriguing that even within a month, 24 people of various backgrounds and ages could peaceably work together to increase not only their own environmental awareness but to also support the local community. Though, at times there was conflict of interest and personality, on the whole, we were a community. Our success as a group was largely due to the strong leadership of our attentive staff. Never before have I encountered a group of instructors so tireless and willing to work with each other and their students. They never tired of explaining to us how to tell the difference between a terminal phase princess parrotfish and a terminal phase striped parrotfish or the similarities between a *Diploria labyrinthiformis* and a *Colpophyllia natans*. They always offered new ways for us to apply ourselves to the field of environmental studies. I appreciated most of all the staff's contagious laughter, which always brought us out of our sleepy morning stupor or riled us up enough to get through evening lecture on full bellies. The staff support was also a vital element to introducing us to the local community.

Getting to know the belongers of South Caicos was a whole another learning experience in and of itself. I do not think I can make a general statement about my interaction with these people. I met many comical characters who filled our busy days with even more adventure. I met many intelligent people who offered expert knowledge and thanked us for caring about their home and for helping them find ways to maintain their marine food resources in a sustainable manner. I met many individuals who had no qualms about expanding upon the knowledge of the island and marine life that our instructors and waterfront staff had imparted on us. I also met people who resented our presence and with whom I even heatedly discussed cultural views and customs. All in all, I found that there was a respectful relationship between The School for Field Studies and the people of South Caicos.

Being completely stripped of the comforts I had always known made me realize how little I need to be happy. I did not mind having fewer clothes and doing laundry less often. I did not miss nail polish, make-up, razors for shaving, or a hair dryer. Rather, I was relieved to not need anything. I did not mind mine or anyone else's sweaty saltiness. I came to love the daily seabaths and occasional shower in the rain. The vibrant, pink sunsets and sparkly gray night skies were a sight not to be missed. The simple life I led on South Caicos was revitalizing. I miss it.

For more information on the School for Field Studies or other Environmental Study Abroad opportunities, visit the International Programs Office (Ceasar Chavez Commons- trailer 1), or the Environmental Studies Institute (DS 204).

## **Operation Waste Reduction**

by Lindsey Lockwood, class of 2004

Santa Clara University produces too much waste. Black plastic forks litter the tiles of Benson, and the stucco trash bins of Kennedy Mall spew paper cups and plates at passerbys. Plastic baggies hold tasty pastries from Mission Bakery, and water bottles bearing custom SCU labels roll lonely through the campus grounds; plastic reminders of our need to reduce the waste the campus harbors.

Santa Clara's new waste reduction program will change the way the University handles this waste. Dubbed "Operation Waste Reduction," the program seeks to reduce the ecological damage University waste creates. It will replace current plastic products with biodegradable equivalents made from renewable, organic resources (namely, corn starches and cotton fiber). Plastic products, like the clamshell containers and black plastic plates the University uses, are made from non-renewable petroleum derivatives. These products are ecologically damaging when placed in landfills; a small plastic fork, for example, takes nearly 100 years to begin biodegrading.

Currently, however, Operation Waste Reduction lacks funding. Students are working fervently with faculty to write proposals to fund the initial costs. The products use renewable, organic resources to create containers specially designed for the restaurant industry with the environment in mind. The switch-over to these products actually becomes cost-efficient and more environmentally-friendly when a composting method is adopted, since compost can be sold and reused, unlike trash. The program will also create a system that allows the University to collect these biodegradable products, along with other food waste, as compost.

Until Operation Waste Reduction is enacted, though, small changes are being made to reduce campus waste. The wax-coated paper cups in the dining hall will soon be replaced by post-consumer recycled paper cups. Biodegradable plates, made from fast-growing bamboo, are also on their way; slowly, but persistently, we are reducing the amount of waste SCU produces.

## **Salmon and Cents**

by David Zimbra, class of 2002

This Fall Dr. Peter Kareiva of the National Oceanic and Atmospheric Administration visited Santa Clara University to deliver a presentation on Salmon Conservation. Dr. Kareiva recently completed a study on the salmon population inhabiting the river networks of the West Coast states, examining the feasibility and effectiveness of possible conservation methods. Twelve species of salmon occupy these waters, and all twelve have experienced severe population reductions in the last 20 years. With many of these species nearing the point of extinction, options are being discussed in an effort to rebuild their numbers.

Dr. Kareiva described multiple factors that have slowed the reduction of salmon populations. One of the reasons for this decline is overfishing in the lakes and rivers of the west, either for sport or sustenance. Salmon hatcheries also release 'farmed' salmon into the ecosystem; they compete with the wild salmon for food and space. 'Farmed' salmon, Dr. Kareiva explained, are less robust and have smaller brains than the wild salmon who have to swim farther upstream to spawn. These aspects tend to harm the genetic makeup of the entire population when 'farmed' salmon interbreed with the wild population. Another contributing factor to the salmon decline is the existence of dams and hydroelectric power plants, which prevent the salmon from returning upriver during the breeding season.

Reducing the impact of any one of these factors on the salmon population would increase their chances for survival, but of course, the organizations that profit from the salmon or their waterways have resisted any sort of suggested modification. Dr. Kareiva, a seasoned research biologist, explained that often times solving a specific ecological problem is not the difficult part of the conservation, it is finding a political and economic solution that can be agreed upon by the people impacted by the action. Dr. Kareiva's study also compared the costs of implementing various conservation methods to the benefit derived by the ecosystem. This investigation he coined as finding the "Biggest Bang for the Buck". In the end, the corporations or individuals affected by any conservation measure will be federally compensated for their restricted activity, therefore making a cost-benefit analysis completely necessary.

As a senior in the Business School, I was excited to see the coexistence of environmental research and economic evaluation in action. In an ideal world, finance need not be considered, since the optimal solution for the environment would be implemented regardless of cost. Unfortunately in our 'real' world, everything needs to be broken down to dollars and cents. Continue the great work Dr. Kareiva, and I encourage all of you to go to colloquiums outside of your main field of study; it can be rather eye-opening.

## Ulistac Natural Area

All summer long volunteers watered and mulched the hundreds of plants that were planted last fall and winter. While all of that TLC paid off and a surprisingly large number of plants survived, some of the natives need to be replaced and there are other plants that the Community Habitat Restoration Project team has decided to plant as well.

If you have yet to see these last 40 acres of Open Space in the City of Santa Clara come on out. Your time in this restoration effort is much appreciated at any of the fall planting dates.

**REMEMBER to bring fluids and a snack.**

**Time:** 9 am –1 pm (unless noted)

**Place:** Ulistac Natural Area (Lafayette across El Camino ~3.5 miles to Hope Dr. Right on Hope, two blocks up left on Lick Mill Blvd. UNA is on your right.)

**Days:** Saturdays (unless noted)

October 20

October 27

November 4 (Sunday)

November 10

**Ulistac in a paragraph-** The last 40 acres of open space in the City of Santa Clara were preserved on January 20, 1997. Ulistac Natural Area (UNA) contains many exotic and weedy plant species, and some areas of native habitat that include willows, sycamores, and elderberry. Currently, a variety of volunteers from the community are working to transform Ulistac into a natural area where visitors can learn about native habitats such as Wetlands, Oak Woodlands, and Oak Savannah. Originally inhabited by the Ohlone Indians, the land was part of Rancho Ulistac under Spanish and Mexican rule. After duty as a pear orchard and a golf course, the land lay unused for seven years and began to serve as a home for wildlife. The goal of the Ulistac Natural Area Community Habitat Restoration Project (UNA-CHRP) is to begin restoring 6 acres of UNA with oak savannah, oak woodland, and a butterfly garden. As we observe what plant, bird, insect and amphibian species are present, remove exotic plant species, plant native plant species, and log our observations on this web site, we will help to make Ulistac a precious and vital resource for the community to enjoy.

## BioSphere:

### Global Climate Change Update

By Shana Weber, Associate Director, ESI

As time goes on it becomes increasingly clear that humans are having a profound impact on the planet's climate. In the past few years alone confidence in data and analysis techniques has risen, so that researchers can now say with a high level of scientific certainty that the changes they've observed and warned about are indeed occurring due to human activities. In January of 2001 the Intergovernmental Panel on Climate Change released its Third Assessment Report.

The 2001 Report states that global average surface temperatures rose 0.6 degrees centigrade during the 20th Century. This is a slightly higher number than that presented in the 1998 report that only included data up to 1995. According to the 2001 report, there is statistically strong evidence that the 1990's were the warmest years on record for the globe, with 1998 as the warmest year of the century. Further analysis of ice cores and other data sources indicates that in the Northern Hemisphere the 1990's, and 1998 specifically, were the warmest years of the millennium.

The most startling increases in temperature during the last half of the 20th century actually occurred at night. Increases in nighttime temperature occurred at twice the rate of increases in daytime temperatures. The results are more freeze-free days in many mid- and high latitude regions. One of the consequences of this has been about a 10 percent loss of snow cover since the 1960's, in the Northern Hemisphere. Mountain glaciers have retreated. And Arctic sea ice thickness has decreased by about 40 percent in recent decades.

All this is barely scratching the surface of what is predicted to come. During the 21st century, global average surface temperatures are projected to increase by 1.4 to 5.8 degrees centigrade. The rate of warming will be, at minimum, more than double what we experienced in the 20th century.

Keep in mind that the projected increases in temperature are global averages. It is very likely that land surfaces will warm more rapidly in some areas than the global average, and less rapidly in others. During the 20th century, northern regions of North America and northern and central Asia exceeded global mean warming by more than 40 percent. These patterns are likely to continue. In contrast, south and Southeast Asia in summer and southern South America in winter warmed much more slowly than the global average during the 20th century.

Our continued emissions of greenhouse gases are increasingly supported as the most significant cause of these changes. Fossil fuel burning is cited as the most significant source. The more we can do to increase our use of cleaner alternatives to fossil fuels, the better.

#### Reference:

IPCC. 2001. Summary for Policymakers. A report of Working Group I of the Intergovernmental Panel on Climate Change. Third Assessment Report.

# Calendar of Events- Fall Quarter

October	November	December
16- Colloquim Speaker Otsuka, 5:30-6:30 Sobrato 19 20- Ulistac Planting 9- 1 27- Audubon Wildlife Education Day 10-2, McClellan Ranch Park in Cupertino	4- Ulistac Planting 9- 1 10- Ulistac Planting 10-2 19-23- Thanksgiving Break	3-7- Finals Week

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