

# EnviroNews

Newsletter of the Santa Clara University Environmental Studies Institute

Volume XI

Winter 2001

## Winter Colloquium

### Donald Stedman, University of Denver

On Thursday January 25, Donald Stedman, Professor of Chemistry and inventor of remote sensing, will be on campus discussing the science and political economy of auto emissions. Stedman's specialties include atmospheric chemistry, chemical kinetics, and trace gas analysis. His invention, remote sensing, is a technology for measuring a car's pollutants during its normal road travel. Come learn more about the policies and controversies his invention has sparked.

This colloquium will take place Thursday, January 26<sup>th</sup> at 3:30 in Daly Science 207. We'll see you there!

## Major News!

Now that the Environmental Studies Institute has formed, it is only natural that we follow up with an Environmental Studies major, eh? While we are at it, why not add an Environmental Science major as well?

After months of planning and talking to faculty members, we finally managed to get the majors approved by the Academic Affairs Committee and the Provost. But, the interdisciplinary majors are not officially official. There is one more hurdle- the Board of Trustees. After that final approval, we will have two majors to complement the institute.

Although it may seem like a simple process, Prof. Shachter and the ESI Faculty have spent hundreds of hours writing and revising proposals and speeches to present to the various people needed to get the new majors approved. The process began last spring and will not officially be over until the Board of Trustees gives their okay, hopefully this February. While the process was tiring and time consuming, when asked if all of that work was worth it, Prof. Shachter replied, "Anything to make my students and faculty happy!"

How can you thank Prof. Shachter and the ESI Faculty, you ask? Simply change your major to Environmental Studies or Environmental Sciences!

ESI on KSCU

Tuesdays  
2:45-3pm

103.3  
FM

## Inside This Issue

- 2 *Professor Updates*- Prof. Marvier and her Salmon
- 3 *Feature Article*- Recycling in the Residence Halls
- 4 Summer Job Information
- 5 *Earth News*- Scarcity of Fresh Water
- 5 Ulistac Planting Update
- 6 *Calendar of Events*

## Need Student Project Ideas for Spring Quarter Classes?

Professors and students, ESI South Bay Stream Monitoring Project is seeking student groups to study the ecology of various stream sites. Birds, plants reptiles, anything you're interested in will do. Professors can bridge readings and lectures with hands-on experience. Call ESI (x7086) for more details or suggestions regarding how to incorporate this into your spring classes.

## ESI on KSCU

Be sure to tune in to KSCU Radio every Tuesday at 2:45 pm for new programming sponsored by the Environmental Studies Institute. The Winter Quarter program will be only be 15 minutes long, so don't miss it!

The program includes EarthNews, a brief summary of an environmental science topic. EarthNews is written by Shana Weber, the author of a similar public radio program that currently airs on WFIU in Bloomington, Indiana. Would you like to write, or read, EarthNews scripts on the air? Faculty and students are encouraged to participate.

The featured program will be the Environmental Studies Forum; faculty and students will participate in interviews or reporting on current issues in science and the environment, as well as reporting on Environmental Studies Institute research and projects. If you are involved in research or work with an environmental focus and would like to be interviewed for the Environmental Studies Forum, contact ESI at x7086 or visit DS 204.

**Environmental Art  
Spring Quarter ENVS 130  
TR 3:40-5:25**

## Energy Use

Switching from driving an average new car to a 13 mpg SUV for one year would waste more energy than if you...

- \* left your refrigerator door open for 6 years
- \* left your bathroom light burning for 30 years
- \* left your color TV turned on for 28 years

Not to mention the wasted money on gas! For more information about the visit [www.sierraclub.org/globalwarming/](http://www.sierraclub.org/globalwarming/)

[www.scu.edu/envs](http://www.scu.edu/envs)

No matter who you are, you will love it!!

## Professor Updates:

### Prof. Michelle Marvier- Salmon be dammed?

Many populations of North American Pacific salmon are in grave danger of extinction. In fact, 12 genetically distinct groups of Pacific salmon have been federally listed as threatened or endangered in the Columbia River Basin alone.

Recovering salmon from the brink of extinction will prove to be a daunting challenge for biologists and policy makers. Salmon are different from most fish because they spend time in both freshwater and ocean, travelling thousands of miles in their lifetimes. The far-ranging distribution of salmon during different parts of their life cycle has made them vulnerable to anthropogenic and environmental influences on land, and in freshwater, estuarine and ocean habitats. At each stage of their lives, salmon face serious threats: degraded freshwater spawning habitat, introduced species of fish and birds that eat young salmon, dams that block passage during migration to and from the ocean, harvest by humans in the ocean and in the rivers, and competition with huge numbers of hatchery produced salmon.

Of the myriad threats faced by salmon, the most visible threat is dams, many of which are monstrous structures that cause flooding of habitat, changes in the river's flow regime, and the death of migrating salmon that unluckily pass through hydroelectric turbines. Conservation groups have recently joined efforts to draw attention to the impacts of dams and, in a most dramatic endeavor, have called for the dismantling, or breaching, of four large hydroelectric dams in Idaho's Snake River.

Stepping into an already acrimonious debate, Peter Kareiva, Michelle Marvier (of SCU's biology department), and Michelle McClure recently published a paper in the journal **Science**, which suggests that management actions other than dam breaching may in fact be more effective at recovering Snake River spring/summer chinook salmon. Their study synthesizes information on the stage-specific mortality of salmon and explores opportunities for reversing salmon declines. Applying a demographic matrix model to long-term population data, the authors found recent improvements in dam passage, including elaborate fish by-pass systems and transportation of young salmon in barges and trucks, have dramatically mitigated the direct mortality associated with dams. In fact, their models show that, even if survival of migrating juvenile and adult salmon were elevated to 100%, Snake River spring/summer chinook salmon would likely continue to decline towards extinction. In other words, efforts that focus only on improving survival during migration are, by themselves, unlikely to recover these salmon.

On a more positive note, the authors also find that modest reductions in first year mortality or estuarine mortality would be sufficient to reverse current population declines. There are numerous ways, in theory, of increasing survival of these salmon during their first year of life and during their time in the estuary. Most importantly, many streams are stocked with non-native trout which consume and compete with native salmon. In the estuary, bird populations have increased due to the creation of man-made islands. Introduced shad, a popular species for sport fishermen, may also be limiting salmon survival in the estuary. Unfortunately, the empirical data to evaluate the feasibility of these actions do not exist because biologists have generally focussed only on dams, as though dams were the whole problem. However, as Kareiva, Marvier, and McClure's study makes clear, there are in fact many places to put the blame for salmon decline.

## Feature Article

Santa Clara University  
Facilities Department  
Building Maintenance Division

### Recycling at SCU is a "Joint Venture." Together we can make it happen!

- In 1999, we recycled over **600 tons** of material!! Let's keep it up!
- For prompt and courteous service call the Facilities Department Customer Service Center @EXT 4742 or the Recycling/Waste Management Division @EXT 4750.
- Aluminum Cans with or without C.R.V. (cash redemption value) are great. Place them in an aluminum bin.
- RINSED and emptied Glass and Plastic BOTTLES are okay in the same bin. *No food containers at this time.*
- We accept almost any paper material- loose leaf, envelopes, colored paper, etc.; however, we do not accept wax paper, carbon paper, tissue paper, or food wrappings. Also, if any paper being discarded has plastic on or around it, please remove the plastic before you recycle. Vinyl tie wraps and rubber bands must be removed too. If you plan on spring cleaning your office, we deliver courtesy containers for your use at no charge.
- Soft cover, glue back books are fine. Please, no hard cover books. You may drop off the recyclable books at the Orradre Library loading dock or give us a call. We will be happy to assist you with your needs.
- Telephone Directories are recycled between March and April each year. Please look for the annual notification flyers.
- Metal of all types? Call us for details.
- Wood products? Sorry, at this time we are limited to pallets.
- Styrofoam? We recycle only the foam/peanuts type. We do have a limited supply at Mailing Services for your packaging needs at no charge.
- Cardboard? Definitely! We do ask that you break it down and flatten the OCC material. We will treat cardboard as trash if not broken down. The cost is prohibitive and we do not have the resources.
- Shredding with and without a "Certificate of Destruction" is available. Call for details.
- Tin Cans? We accept them only if they are clean and dropped off in the container on the dock behind the bookstore.

Thanks to the Landscape Maintenance Division, campus green waste is being recycled.

# Summer Job Information

## Howard Hughes

### Medical Institute Summer Research Grants @ SCU

- work with SCU professors on their research in Biology or Chemistry
- live in a community of science scholars
- attend weekly science ethics discussions
- 10 week program beginning in June

For more information, stop by the Chem or Biol Departments and pick up an application, OR E-Res (Chem 2001 or Biol 2001)

Applications due Feb. 1st

## Sustainable

### Communities in Calif.

- ~ Paid, full-time work
- ~ Sustainable Communities Leadership Program
- ~ projects in recycling/resource recovery, habitat and land conservation, affordable housing, energy efficiency, industrial ecology, environmental justice, GIS, and more!

For the details, visit [www.eco.org/scfp](http://www.eco.org/scfp)

Applications due Feb. 26, 2001

## KSCU Radio

- produce a radio show
- learn about environmental topics

Begin as early as TODAY!

Call 551-7086 for the details.

## Monterey Bay Aquarium

- learn about what lives in the Monterey Bay
- care for marine invertebrates
- teach visitors about marine conservation
- June - Labor Day, weekdays and weekends

Visit [www.mbayaq.org/](http://www.mbayaq.org/) for more information OR contact Janet Covell @ 831-648-7909; [jcovell@mbayaq.org](mailto:jcovell@mbayaq.org)

Applications due April 1

## Study

### Abroad

- ~ School for Field Studies
- ~ SCU in Trinidad and Tobago
- ~ Australia
- ~ Africa
- ~ Research and Study options available

Applications due at various times. See DS 204 for details.

## Sierra Club

- solve land use problems
- research environmental issues
- work for a non-profit grassroots organization

Call 650-390-8411 for more information.

## EarthNews: The Scarcity of Fresh Water

by Shana Weber

According to the United Nations, the global population will increase by an additional two billion people by the year 2030. Population pressures are already straining water resources in many parts of the world, to the detriment of natural ecosystems. Politicians and resource managers in many parts of the world are already struggling with the question of how to supply water to every human while still protecting the functions of freshwater systems. Addressing this question requires true multidisciplinary cooperation among the fields of science, technology, policy, and politics.

There is no doubt that the pressures of fresh water scarcity will increase during the 21st century. The question is, how do we increase our water-use efficiency to both meet human and ecosystem needs? How do we make the water we do use more productive, so that we require less of it per person? This kind of problem-solving is at the heart of today's environmental science and policy fields.

Agricultural irrigation accounts for two-thirds of all the water removed from lakes, rivers, and aquifers on the planet. Increasing water productivity in agriculture is therefore essential. Drip irrigation, for example, can save 30-60% of irrigation water normally used, and can increase yields from 20-50% for a variety of crops because water goes directly where it is needed. Our farming process can reduce our water usage. So can the way we live and eat.

In the U.S. the typical American diet requires twice as much water to produce as nutritionally comparable diets in some Asian and European countries. The reason we use so much more water is that we eat far more animal products than some countries. By eating lower on the food web, or selecting less water-intensive forms of animal protein, consumers can create a situation where the same volume of water can feed two people instead of one. Consumers can make a significant difference by using water-efficient plumbing, and by planting native landscapes rather than water-hungry lawns.

The end result can be more water for rivers, streams, wetlands, fisheries, and natural ecosystems that provide vital health services for us and the planet.

Sources: Postel, Sandra L. 2000. "Entering an era of water scarcity: the challenges ahead." Ecological Applications, Vol. 10, No. 4. Pp. 941-948.

## Ulistac Planting Update:

Ulistac Natural Area- the last remaining open space in the city of Santa Clara. For months now over a hundred volunteers have been feverishly planting, mulching and watering away to turn the open space into an educational park for the community to benefit from and enjoy.

For those of you who have visited the site and helped with the plantings, we thank you. As you have seen, our progress is easily noticeable. If you have yet to visit UNA, check it out. Come on by on one of the following days to plant some trees, have fun outdoors, and meet some very cool people!

The winter planting days are ...

Sat. Jan. 20	Sat. Feb. 24
Sat. Jan. 28	Sat. Mar. 3
Sun. Feb. 3	Sat. Mar. 10
Sat. Feb. 10	Sat. Mar. 17
Sat. Feb. 17	Sat. Mar. 24

Planting runs from 10ish to 2ish. Stay as long as you'd like and bring a sack lunch! To get there, take Lafayette across El Camino away from SCU. Turn right on Pearl. Turn left on Lick Mill. UNA is on your right hand side. It's a bike ride away!

## Winter ENVS Colloquium

Donald Stedman- Remote Sensing Inventor

Thursday, January 26th

3:30 pm Daly Science 207

This event is sponsored by the Chemistry Department, the Civil Society Institute and ESI

## Learn , teach , and be outdoors!

Volunteer for Hidden Villa and guide school children as they explore organic farms, hike wilderness trails and learn about their connection to the environment! Contact SCCAP or the ESI office for more details.

## Calendar of Upcoming Events:

<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>
13 <sup>th</sup> - Ulistac planting, 10-2 20 <sup>th</sup> - Ulistac planting, 10-2 26 <sup>th</sup> - Colloquium time, place 28 <sup>th</sup> - Ulistac planting, 10-2	1 <sup>st</sup> - SCU/ HHMI applications due 3 <sup>rd</sup> - Ulistac planting, 10-2 10 <sup>th</sup> - Ulistac planting, 10-2 17 <sup>th</sup> - Ulistac planting, 10-2 24 <sup>th</sup> - Ulistac planting, 10-2 26 <sup>th</sup> - Sustainable Communities application due	3 <sup>rd</sup> - Ulistac planting, 10-2 10 <sup>th</sup> - Ulistac planting, 10-2 17 <sup>th</sup> - Ulistac planting, 10-2 24 <sup>th</sup> - Ulistac planting, 10-2	1 <sup>st</sup> - Aquarium applications due 1 <sup>st</sup> - Ulistac planting, 10-2

**GREEN meets every Thursday in Sobrato from 7-8 pm**  
 email Cathy at [charkness@scu.edu](mailto:charkness@scu.edu) for more details

Environmental Studies Institute Daly Science 204 Santa Clara University 500 El Camino Real Santa Clara, CA 95053	Phone: (408) 551-7086 Fax: (408) 554-2312 ESI Email: <a href="mailto:ashachter@scu.edu">ashachter@scu.edu</a>	
--	---	--