



Smith College

Environmental Science and Policy News



Coral Reef Ed-Ventures

By Katie Donovan ('09)



FALL 2008

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Coral Reef Ed-Ventures, an educational camp that teaches children about reef ecology, wrapped up its ninth summer in San Pedro, Belize, C.A. this July. Begun in 2000 by Professors Al Curran (Geology) and Paulette Peckol (Biology), the program was started as a way for Smith to give back to the small community of San Pedro, Belize, where the two professors had conducted research for almost thirty years. The Coral Ed program was created in collaboration with Professor Susan Etheredge (Education and Child Study). Its goal was to bring Smith students to San Pedro each summer to conduct research on the health of the coral reef and teach children about the ecology and conservation of their remarkable local natural resource. The program was designed to increase awareness of the environmental and economic benefits of a healthy reef ecosystem since tourism and fishing sustains many families in San Pedro and both industries rely on a healthy reef to thrive.

The program, which is conducted in collaboration with the Hol Chan Marine Reserve, began in 2000 with only about five children enrolled in a summer camp. The program has grown

substantially - with about 100 students enrolled in 2008!

ing Parrotfish, Surgeonfish, Doctorfish and Blue Tang. Grazing rates and abundance

patterns were related to macroalgal cover at various sites. A survey of the health of the reef looked for signs of bleaching and signs of coral growth over the past year.

The main threats to the reef in San Pedro are tourism and overfishing. Tourism has

become a major business in the San Pedro area, with most local residents earning their living by operating restaurants, retail shops, dive shops, and hotels for tourists. While tourism is a good source of income for the community and reduces dependence on fishing, the concern is that large numbers of tourists stress reef resources. For example, grazing corals with a flipper while snorkeling can cause damage that takes the reef years to repair.



The 2008 Coral Reef Ed-Ventures student team was headed by Andrea Gohl, '07 and Penny Luo, '08, who had both participated in the program the previous year. Also on the team were Katie Donovan, '09J, Hannah Dunning, '09, Trea Schumacher, '09 and Madeline Weigner, '09.

Research Week:

A week before the camp started in San Pedro, faculty advisers Al Curran and Paulette Peckol arrived ready to conduct research on the reef with the Coral Ed student teachers. Everyone on the team participated in field work, gathering data for ongoing research projects associated with the local coral reefs and reef fish populations.

This year, the research group measured grazing rates of important herbivore populations, includ-



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After the Fish Ladder: A Study of Salmon Re-Habitation of the Cedar River, WA

By Lela Schlenker ('09)

This past summer I worked with a team of fisheries ecologists for the National Marine Fisheries Service (NMFS) at the Northwest Fisheries Science Center in Seattle, Washington on a salmon recolonization project. The project, headed by Dr. Peter Kiffney, was based on the Cedar River just outside of Seattle. The project began in 2001 in preparation for the installation of a fish ladder in 2003 that allowed fish passage to the upper Cedar River.

The loss of spawning habitat for listed Chinook (*Oncorhynchus tshawytscha*) and Coho salmon (*Oncorhynchus kisutch*) is due in part to blocked passage by hydroelectric dams. Dams block passage to anadromous fish species and are one of the key threats to preserving Pacific salmon species. In Washington State more than 7,700 km of historical salmon habitat are inaccessible to migratory fishes. Constructed in 1900, the Landsburg Diversion Dam blocked fish passage to the upper Cedar River for over one hundred years until a fish ladder was constructed in 2003. This fish ladder opened about 33 km of habitat to adult Coho and Chinook salmon who previously had not had access to the spawning and rearing habitat above the dam (Kiffney et al. 2007). The installation of the fish ladder on the Cedar River also provided researchers with a unique opportunity to study both the ability of adult and juvenile salmon to re-colonize habitat and the effects of that re-colonization on the resident fish species.



Beginning in 2001, before the fish ladder was installed, background data on fish distribution and populations were collected. The Cedar River study continues to evaluate the effects of the reintroduction of anadromous species on native trout populations and the nutrient budget of the watershed. This is accomplished through a variety

of different assessments. My job as one of three interns on the project was to assist in snorkel surveys, habitat surveys, fish tagging, gastric lavages, and identification of diet contents.

This internship was an amazing opportunity for me to learn how fisheries ecologists go about finding answers to fundamental questions about habitat use, recruitment, nutrient utilization, and how all of those considerations change as new species are introduced. In particular, I was able to more accurately sense the urgency with which scientific research of this type is needed. As salmon populations continue to decline we will only be able to aid their recovery to the extent we understand our role in their complex

and continuously evolving population crisis. Ultimately what I took away from this experience is a call to action.

My passion for fisheries biology grabbed hold of me this past fall while I was studying at the Williams-Mystic Maritime Studies Program. Fisheries issues are ever changing, and we all have an impact. Each one of us can make a difference by paying attention to how much fish we consume and ways in which we conduct our lives that affect ocean health. If we are going to preserve our oceans we need to act now, and that call to action is the thing that excites me more than anything right now.

This academic year I am back on campus, but I have not left the "fisheries world" behind me! I am currently working as a research intern for a local author who is writing a book on the collapse on the global fisheries. In the meantime, I am looking forward to pursuing a career in fisheries biology and am excited to have finally found my way to help save the world.



Photos: Lela Schlenker

The Environmental Science and Policy Program is an interdisciplinary program that ties together the natural sciences, humanities, and social sciences with a faculty steering committee from across these disciplines. Each semester, the ES&P program hosts a variety of environmentally related events. Visit www.science.smith.edu/departments/esp to learn more.



DIRECTOR'S CORNER : Higher Education's Role in Global Sustainability

By Dano Weisbord, Smith College Environmental Sustainability Director

As a result of its history and affluence, people around the world look to the United States as the model for prosperity and a better quality of life. Unfortunately, the U.S. does not provide a very good model of sustainability. That is, the lifestyle and operational needs of people and institutions are currently met in a way that may compromise the ability of future generations to meet their own needs.¹

People all over the world aspire to a typical American standard of living. Currently, this standard of living requires levels of energy use disproportionate to our population. The U.S. is home to 4.5% of the world's population, yet we use approximately 21% of the world's energy. If energy was unlimited AND using this energy was without consequence, the U.S. would be a fine model. Unfortunately this is not the case.

In reality, resources are limited and by now consequences to the climate of burning fossil fuels have been well documented. In the face of resource limitations and climate change, some Americans deride emerging countries like China and India for their increasing use of coal and other fossil fuels to upgrade their economies and living standards. But these emerging industrial super-powers are simply following the template created by the U.S. Rather than condemn or ignore the use of these fuel sources, we should be identifying alternatives. The U.S. should demonstrate ways to achieve a decent standard of living that does not require unsustainable resource use and the environmental impacts that accompany it.

Who will model sustainable resource use to the U.S.? The people? Our government? My hope is that Smith College, with its tradition of social responsibility, can become a model for creative solutions to our common problems. If a college community can do it, so can the communities of our nation.

Smith can demonstrate that use of electricity, fuel, paper and water can

be reduced, can be made sustainable. We can demonstrate that we can meet the American College and University Presidents' Climate Commitment and reduce our carbon emissions to zero. We can show the rest of the country that it is possible to live within our environmental and resource means. We can model behavior changes and technologies that are feasible, possible and attainable. Our leadership is vital and much needed at a critical time.

Smith College has made a choice. Our commitment to sustainability means that we have chosen to start figuring out how to reduce what we use and what we waste. It is something we can do now. This is wise because the alternative is to wait and solve a different set of problems: bigger, scarier problems of climate disruption, global resource limitations and the woes these inevitable changes will bring. The Smith campus can be a leader and a laboratory where we begin to figure out how to use less. If we do it well, then we become a model for the United States.

As the new Environmental Sustainability Director at Smith, my role is to facilitate the integration of sustainability into the Smith community and its operations. This is not to say that Smith has not been making great progress. There are many things that Smith is doing right. For example, the new cogeneration plant started running last week. When running, producing heat and power in this way cuts Smith's contribution of greenhouse gasses by approximately 30%. Dining Services, Building Services and the Grounds Department have collaborated to increase composting of food at Smith's dining rooms -from all of the food waste from two dining rooms last year to four this year. These are just two examples of many, many good projects happening all over campus.

One of the measurements for successful integration of sustainability into the community is the degree to which everyone on campus is aware of the issues and has had an opportunity to do their best thinking about how we can reduce our use of resources—paper, electricity, fuel, water or food. This is one of the areas I will be focusing on initially. If you have ideas for sustainable initiatives, see a way we could reduce the use of something or would just like to chat about the issues, I encourage you to contact me at dweisbord@smith.edu or at extension 2427.

We have a wonderful opportunity to work together: students, faculty, staff, and alumnae committed to common goals that will shape our future.



1. Report of the UN World Commission on Environment and Development: *Our Common Future*. 1987. a.k.a. The Brundtland Report.

2. Statistical Review of World Energy. 2008. BP. [www.bp.com/worldenergy]

Open House!

The Smith College Committee on Sustainability invites you to an open house to meet Dano Weisbord, our recently hired Environmental Sustainability Director.

3pm - 4:30pm

Thursday, November 13, 2008

Second floor atrium of the Campus Center

Refreshments will be served.

The Endangered Species Act and my Summer as a NOAA Intern

By Ling San Cheung ('09)



The Endangered Species Act (ESA) was signed in 1973 with the mission of protecting species added to the List of Endangered and Threatened Wildlife and Plants. More than 1,900 species are currently listed, 67 of which are marine species under the jurisdiction of the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). As an intern at NOAA's headquarters in Silver Spring, MD, I was given many opportunities to see policy in the making. Under the ESA, one of the many duties of NMFS is to develop and implement recovery plans that outline management actions necessary to allow for the recovery of the species' population. Beginning the internship as part of a recovery team, I learned about the process of developing, reviewing, and finalizing a recovery plan and briefly participated in the team's review of the draft Central Valley salmonid recovery plan.

My main assignment for the summer was to complete a five-year review of the sperm whale (*Physeter macrocephalus*), which has been listed as endangered since 1970. Based on best available science, these reviews, required by law, are undertaken to help determine whether an animal is ready for

downlisting or delisting from the list of endangered species. Relying heavily on a draft recovery plan, I compiled all recent and relevant new information since the last status review on the sperm whale's biology and current threats to their survival. This five-year review concluded that, while the worldwide population of sperm whales appears to be recovering since the estab-

lishment of the International Whaling Commission's moratorium against whaling two decades ago, not enough information is available on abundance, population trends and structure, and effects and magnitude of several threats to properly assess the recovery progress of the species. Furthermore, threats that are poorly understood include those that may actually be intensifying, such as levels of organochlorines in specific regions, and climate change. Thus, the five-year review called for more research and advised that the sperm whale remain classified as endangered.

During this internship, I also attended an internal workshop discussing the highly contested increase in the listing of Distinct Population Segments, went to Ocean Week on Capitol Hill where many outstanding scientists and government officials gave talks about the current health of the ocean, and sat in on a meeting regarding the next steps towards the possible listing of five ice seal species with habitats threatened by climate change. I gained much exposure to and understanding of some of the ongoing problems and difficulties in policymaking- e.g. when multiple factors need to be considered, political parties continually attempt to influence decisions, and time and resources are so limited.

NOAA Internships- Opportunities for Smith Students



The National Oceanic and Atmospheric Administration (NOAA) offers a number of internship positions *exclusively to Smith students* each summer through the Environmental Science and Policy Program. Internships are at offices and field stations across the country, and are for 10 weeks in duration. Smith College students can apply for an Agnes Shedd Andrae fellowship through the Environmental Science and Policy Program to fund these internships.

If you are interested, please be in touch with Joanne Benkley, ES&P Program Coordinator, at jbenkley@email.smith.edu.

Sign up for the ES&P e-mail listserv to get regular info about environmental events, internships, post-Smith opportunities and more!

Contact us at enviro@email.smith.edu





What I Did this Summer: Smith Students Share their Experiences Working for the Environment



Recycled Glass Countertops and a New Environmentalism By Andrea Buglione ('09)



On the factory floor at IceStone.

Most of the summer jobs and internships I applied for were related to environmental law or public service of some kind, but the one I ultimately accepted (and funded with PRAXIS) was in business. IceStone, LLC, located in an old factory building in Brooklyn, NY was co-founded by Smith alum Miranda Maganini, '82- a wonderful individual who showed me the ropes in how to run a successful business which also has social and environmental goals in addition to profit. IceStone is part of a growing number of enterprises that have a triple bottom line: people, profit and planet. On the social front, the company acts more like a family: it employs a diverse group of workers all of whom get paid a living wage. Environmentally, the entire enterprise is based on taking glass out of the waste stream and turning it into a new, beautiful and durable product. Principles of sustainability are incorporated into every area of the manufacturing process, from the greywater recycling system to the use of soy-based lubricants in the machines.

One of the most exciting aspects of IceStone products is their prestigious Cradle to Cradle certification. The rigorous requirements of this comprehensive program require a product exhibit the most environmentally sound qualities- from material content to the manufacturing process. The product must be tested for a long list of toxic chemicals that affect humans, animals and ecosystems in terms of air and water quality, and even larger issues such as global warming. It must be comprised of a significant portion of recycled materials. It must be made by a company that demonstrates its commitment to the greater well being of its local community. Perhaps most importantly, the way Cradle to Cradle sets itself apart from other "green" certification programs that is requires products be designed so they can either be easily turned into something else at the end of their lives or be made of materials that can safely biodegrade.

The Cradle to Grave approach to industry which we are all accustomed to is outdated, illogical, and unsustainable; a new industrial revolution is on the horizon. If we wish to continue living and consuming at the current rate and still maintain some environmental integrity, then collaboration between individuals, politicians, scientists, architects, businesspeople and industry leaders is mandatory. This internship has encouraged me to embrace the power of industry in the movement towards sustainability, not to fight against it.

To learn more about the concept of cradle to cradle manufacturing, please read *Cradle to Cradle: Remaking the Way We Make Things*, 2002, by William McDonough and Michael Braungart.

More about IceStone can be found at www.Icestone.biz.



Sheets of countertop material.

Teaching Kids to Garden at Phipps Community Center By Rebecca Benson ('10)



This summer, I worked at the Phipps Community Development as a Gardening Specialist. Two days a week I traveled to the Bronx, New York and taught kids ages 5 - 8 how to plant vegetables, how to treat their earth, and the benefits of eating locally grown food. Each week we focused on a different vegetable and spoke about how to care for it as it grows. I also integrated information about the life cycle of plants, how plants benefit us, and how gardening influences and affects their everyday and family life into my lessons. To my surprise the kids were so eager to be outside and excited to learn. All they wanted to do was dig holes and watch seeds grow! They tried absolutely everything we harvested and then went home with cucumbers and tomatoes instead of chips and cheese doodles.

Upon returning to Smith I have stayed in close contact with Phipps. My summer experience has helped me realize that environmental education is what I want to do when I graduate. While I am here at Smith I have plans to be get more experience by getting involved in Smith's new community garden and volunteering at the Hitchcock Environmental Education Center in Amherst. The best advice I can give anyone who cares about the environment and who is looking for a great summer opportunity is to experiment, figure out what you love and see what jobs meet those descriptions. Don't be afraid to try something new!





Green Smith: Join the Coalition!

Four orgs invite you to help reduce Smith's impact on the environment.



MassPIRG by Liz Brasington ('11)

MassPIRG: **Massachusetts Public Interest Research Group**

Student run, student funded, and student driven, Smith's MassPIRG tackles tough issues such as climate change, hunger and homelessness, and water quality issues. The organization promotes the interaction between professionals and students to make the permanent changes that the public demands. Scientists, lobbyists, and organizers are hired to help students take charge in D.C. and locally. These professionals receive their paycheck from a small fee that is charged to the student body. The campus decides every two years whether or not to vote MASSPIRG back on campus.

This year, MassPIRG is taking on the campaign the New Voters Project- with the goal to register 90% of the campus through their "Exercise Your Right to Vote Campaign." The Smith chapter members dance around in spandex and exercise gear to promote their cause. Needless to say, members have a plethora of creativity!

MassPIRG made great strides towards eliminating climate change last year through their participation in Focus the Nation and Massachusetts Power Shift. These events showed with bravado that students would not stand for inaction against global warming. As a result of their efforts, MassPIRG was integral in passing the Global Warming Solutions (GWS) Act in Massachusetts. This act will cut 20% of global warming emissions by 2020 and 80% by 2050. The group had some fun too through cup cake baking, a haunted house, and "fights" between coal and clean energy. This year, MassPIRG will celebrate the victory of the GWS.

Smith College's MassPIRG chapter looks forward to registering voters, helping increase water quality and preservation, holding a Hunger Banquet, and making even greater strides to solve global warming. Contact Amelia Mitchell (amitchel@smith.edu) if you are interested in joining this progressive group.

The Bike Kitchen by Elisabeth Wolfe ('10)

The Bicycle Kitchen is off to an amazing start this year! Our rental program is on the rise with over 30 rebuilt and reused bicycles rented out to Smith students for the semester. Unfortunately we have no more bikes and a long waiting list. We are working on buying more bikes, but are having some funding difficulties.

Our bike fixing program holds fixing hours from 3-5pm every Friday this semester. We have moved into our new space in Ainsworth gym near the lowest entrance (the Dalton Pool entrance) and bike fixing hours are held there. Look for the Bicycle Kitchen sign outside of the double door. Keep an eye out for updates on our bicycle workshops and bike rides on the edgest.

If you are interested in having your bike fixed, learning how to fix bikes, or joining the regular Bicycle Kitchen crew every Friday, please email Elisabeth Wolfe at bikes@smith.edu.



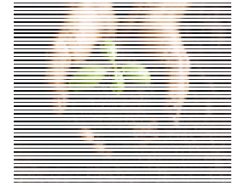
Green Team by Alana Miller ('10)

The Green Team is a coalition of faculty, staff, and students which works to educate and support the campus community and the college's sustainability committee in the efficient use of finite natural resources.

The Team's work touches many areas of Smith's operations, including construction, transportation, purchasing, materials use, energy use, and waste management. They also coordinate with those who determine the college's curriculum and investment practices to increase awareness of the relationship between Smith policies and environmental concerns. Through incremental changes in everyday activities, the Green Team seeks to transform the college's practices so we can achieve the greatest possible efficiencies in preventing pollution and using natural resources. Join the team! Contact Todd Holland at tholland@smith.edu.

The Bad Seeds by Jasmina Chuck ('11)

Who are the Bad Seeds?



We're a group of plant-loving individuals who wish to spread our plant-love wherever we can! If you're a self admitted "plant junkie" or simply like the looks of a stunning shade of natural green or a beautiful bloom then you belong with us! The Bad Seeds is a group that allows fun filled learning and exploration. If you love to stop and smell the roses but can't seem to keep a plant alive in your house our groups of diverse and interesting green thumbs and green minds will season you with knowledge. Some of our past activities have included: Decoupage/ Mosaic pot making, Pumpkin Carving Contest, Plant 911 or Repotting Workshops, Educational Campus Walks, Movie Nights, and Bulb Planting. In a world so rich with different views it's nice to commune with people who share a similar view. The Bad Seeds see the green and wouldn't have it any other way.

Through Leafless Fingers

Through leafless fingers
 I descend
 to this place wet and dank
 this place of procreation.
 What I seek is gone –
 behind
 is left to fate.
 Amidst the yammering amphibians
 hungrily padd'ling between each croak
 I peer into the water
 attentive to anomaly.
 And there
 like dusk reflections
 silvery, amorphous
 clinging,
 wrapped around a branch
 only just submerged -
 Precious
 I'm Golum looking in the stream -
 Precious –
 I dip my hand in Mother's womb -
 Precious –
 And like a gypsy prophet see
 the future in transparent orbs
 a drupe the size of champagne grapes.
 Fondling the eggs of salamanders
 a hundred dots within the jelly cells
 they wait,
 I feel like a god or guardian
 holding orphans
 of parents they will never know.

They wait
 in numbers planned
 that some will miss the mallard's bill
 or bullfrog's appetite.
 I think,
 "There are no words for the weight of you".
 This city fills my hand
 I lift it to the waning light
 a silent benediction –
 good luck, good health –
 then part the water
 thick with skeletal leaves,
 rich with vernal rain
 cradle and baptismal font.
 I issue from my hand
 The Godhead of Life
 The Meaning and The Purpose
 The Wonder and The Fact,
 I am both God and Guardian
 Blessed
 in chance encounter
 Blessing
 Grow Well and Undisturbed.
 What other hand will touch them...
 What other breath will still before them
 when the pond dries
 and they seek
 a goddess of their own.

-Darlene Smith-Ash, '09J

(cont'd from page 1)

Coral Reef Ed-Ventures Camp

Smith student teachers conducted the Coral Ed camp for a total of three weeks: one week of advanced camp for children who had participated in the program previously or who were over twelve years of age, and two weeks of camp for children aged seven to eleven.

A variety of learning experiences were offered to engage students while camp was in session, including a glass-bottom boat trip over the coral reefs. For some students this was the first time they had seen the reef even though they had lived a quarter-mile from it all of their lives. Many hands-on



art and science experiences were conducted, as well as poetry workshops and singing projects. However, with the fun came a lot of work on basic literacy skills such as reading and writing.

Guest speakers were an integral part in this year's camp. Visitors from

the Hol Chan Marine Reserve, Amigos del Mar dive shop, and Green Reef/Kids in Action demonstrated to the children how their day-to-day actions affect the reef and its inhabitants. Speakers also touched on the importance of the reef for the local economy.

The advanced camp of about ten students collaborated together to produce a magazine with an amazing array of poems, word puzzles, drawings, photographs, stories and interviews surrounding their understanding of the reef and life in San Pedro. The magazine is entitled, "Save the Reef! That's a Belief!" a title inspired by one of the poems submitted by a student. This poem also became the impetus for "Oh Good Grief, Protect the Reef," an original song by the student and teacher Hannah Dunning, '09. This eventually became the incredibly catchy theme song of the 2008 program. (To view a video of the Smith teachers performing the song, go to www.smith.edu/multimedia.php and click on the *Smith Students Dive...* link.) With the financial support of many local organizations and businesses 100 color copies of the magazine were printed and distributed throughout the San Pedro community.

The end of the Program was bitter-sweet for the Smith teachers. The children worked hard prior to gradua-

tion and prepared skits, dances, costumes, and songs based on conservation which they performed for parents and friends from the community who attended. All graduates of the Coral Reef Ed-Ventures regular camp received a "reef expert" card and graduates of the advanced camp program received special certificates. It is the hope that these students, now and as they grow older, will be inspired by their experience in the Coral Ed-Ventures Program to find ways to advocate for the protection of the incredible reefs right outside their door.

The Coral Reef Ed-Ventures program runs for six weeks every summer. Smith students receive a stipend through ES&P, which is made possible by the generous support of the Agnes Shedd Andreae, '32 Fund.

To learn more, contact Professor Paulette Peckol, ppeckol@email.smith.edu or Professor Allen Curran, acurran@email.smith.edu, soon.



ES&P Student Editor: Rachel Neurath, '09

We'd love to hear from you! Please send comments and contributions to enviro@email.smith.edu

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