



Stream of Consciousness

Newsletter of the Alliance for Aquatic Resource Monitoring

Fall/Winter 2004-05

educate. engage. empower.

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Baby, Don't Light that Fire! by Becki Walker

Everyone who generates trash faces the problem of solid waste disposal. A person would be hard-pressed to find anyone who enjoys the unsightly and odorous qualities of a landfill. People are just as loathe to send waste to incinerators. While landfills and incinerators are questionable they are less harmful than a trash disposal method found in many rural backyards – the burn barrel.

Although backyard burn barrels may seem like a cost-effective waste reduction method, the health and environmental costs vastly outweigh any trash-collecting fee. Because burn barrels are private means of disposal, they are not regulated by federal air quality laws.



Garbage-burning barrel, from www.burnbarrel.org

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Playing with Turtles: A Semester in Baja, Mexico by Giovanna McClenachan

During the fall semester last year, I studied in Baja California Sur, Mexico through the School for Field Studies (SFS). SFS is a field-based environmental study abroad program. There are five sites throughout the world: Mexico (Coastal Studies), Costa Rica (Tropical Ecology and Sustainable Development), Kenya (Wildlife Management Studies), Australia (Rainforest Studies), and Turks and Caicos (Marine Resource Studies). Although each center has a different focus, all place strong emphasis on solving local environmental problems with community members.

The center where I studied is located in San Carlos, a small fishing village situated on Magdalena Bay on the western side of the Baja peninsula. I took three classes: Coastal Ecology, Economics and Ethics of Sustainable Development, and Principles of Resource Management. Everyone on the program participated in these three classes, along with a self-directed project, which fit into a five-year plan,

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Brits These Days

by Maggie Allio

Last year I, like many Dickinson juniors chose to spend a year abroad. I had the opportunity to live in Norwich, England at the University of East Anglia and travel throughout Europe. You may not be surprised that this was one of the best experiences of my life, but I can say I learned a great deal academically and discovered the British culture as well as better defining my own.

Although daily life in England resembles the United States, cultural differences emerged once I became immersed into the life of a British student. After a two and a half week orientation in London, I met my first British friends during a ten day field course on the Dingle Peninsula in Ireland, living in a small house. We cooked meals together, told stories and constantly compared the differences in our versions of the English language. I realized I would need to adopt British slang or I would be caught saying waterproof pants (instead of trousers) and get odd looks because they thought of diapers or depends.

When I arrived at the University of East Anglia (UEA) I already had good friends who would help me become oriented during my year. UEA classes differ from Dickinson's in that most are large lectures with up to 125 students. UEA offers one of the best Environmental Science degrees in the UK and is respected throughout Europe. The coursework was challenging and I was expected to write essays to the quality of professional scientific journals. I took classes in Ecology, Soil Science, and Environmental Politics with direct connections to leading research taking place at the University. Surrounded by scientists with the current information, I decided Global Warming is the most serious environmental problem facing the world.

Britain is known for its leadership in combating Global Warming. It was interesting to observe how the Brits stood on energy issues. When talking about the environment with friends who lived on my floor, most had similar responses to many of my friends at Dickinson. Discussing energy use with other students in the School of Environmental Sciences, many of them blamed Americans for their extremely high consumption, especially regarding transport. While British do not drive SUVs, they refuse to

give up their cars. Public transportation is widely available, but not as efficient as in many parts of Europe. Therefore, many households own a car, but they own fewer vehicles and use less fuel than their US counterparts.

One main energy difference between Dickinson and UEA was that significantly fewer students had drivers licenses or owned a car. Britain's driving test is much more difficult and driving is costly, as the British government does not subsidize gasoline as the government does in the US. Norwich had efficient public transportation, so a vehicle at university was unnecessary. By the end of the year, I realized although the British public may not be more environmentally conscious, the political and cultural structures do not encourage consumption in the same manner as the US.

The British conservation mentality was illustrated in an energy use survey. My group discovered leaving the lights on in communal bathrooms was common if students did not directly pay electricity bills. Students live off campus after their first year, and seemed to become more aware of their energy consumption.

During my stay in the UK, I learned of governmental subsidies and tax rebates for energy conservation, such as installing additional insulation and other home improvements. In general, British culture and politics encouraged energy efficiency and conservation more than the United States. I realized politics' importance in environmental issues. Technology is available to prevent environmental disasters such as global warming, but the American government needs to allocate promotional funds.

Spending eleven months outside the US helped me see positive and negative aspects of American culture. In spite of its consumerism, the US conserves relatively well. I could not wait to come home and take a walk in the woods. My British friends call a small stand of trees or a wooded trail a forest because forests of our standard do not exist. American environmentalists and naturalists also have a unique spirit to them that sparks action in the community. I am excited to be back at Dickinson and ALLARM, where everyone involved captures that energy to enhance water quality.

Bonny Ireland by Clare Froggatt

As I walked towards the green cliffs, surrounded by ocean and blue sky, in the company of wandering sheep and ecology students, I fell in love with Ireland. I climbed down the grassy part of the cliff to get as close to the water as possible, the wind whipping through my hair. In spite of my many anxieties of taking a field course in Ireland, spending every day outside, I already knew I would not want to leave the "Emerald Isle."

As an environmental studies student, professors throw facts and figures and theories around, which can cause any environmentalist to forget what he or she is fighting for. Prior to my days in Ireland, I got to spend two and a half weeks in London. While living in a major metropolis is exciting, a person can forget that unplanned nature exists. Ireland was a breath of fresh air after the city life, reminding me that my entire purpose of pursuing an environmental degree was to preserve such beautiful landscapes as I saw in Inch, County Kerry, Ireland.

The field course included four "habitat days," during which students traveled to different ecological areas common in Ireland - woodlands, rocky and sandy shores, dunes, and estuaries. We identified plants, looked at sea creatures, observed seabird eating habits, and climbed through pitch-black forest caves in order to fully understand each habitat.

Each habitat day gave students background information so they could design an independent study in one of the habitats. While I love the beach and the ocean, I decided to work in the woodland. After a hard day in the field, I knew I would want to relax on the beach, but only if I hadn't been working there all day.

My project focused on the invasive escaped garden plant, the Rose of Sharon. Previous studies had shown that exotic species tend not to invade an area with high species richness. My group sampled random plots for our data on three beautiful September days in the woodland. We spent eight hours in the woods each day, eating lunch next to Killarney Lake and marveling at our opportunity to research such a landscape.

In the evenings, as is tradition in Ireland and England, the entire group of sixty students and faculty met up at the pub, where we enjoyed music, singing, dancing, and the occasional pint of Guinness. One of the first nights, after pleading with a local Irishman to play his flute for us, we listened to traditional Irish ballads with the agreement that one of us would provide our own musical entertainment. My friend and fellow ALLARM worker, Maggie, piped up when the flutist asked us to entertain him, saying, "Clare sings! Clare, sing us a song!" So, red with embarrassment, I made my public singing debut in an Irish pub. It actually came to be a habit of mine, helping provide lyrics with other musicians several nights of our stay.

All too soon, our stay in Ireland came to an end. We had a bonfire the last night and stayed up almost until sunset, not wanting such an experience to conclude. The Dickinson students in the group, however, had an advantage over our counterparts who remained in London, since we had already become close friends with British university students and would not be starting from scratch upon our arrival at the University of East Anglia. During my year in England, I spent time with the friends I made in Ireland and we reminisced, while making new memories as well.

Returning to the United States, I informed my family that I wanted to have my honeymoon in that exact location in Ireland. They laughed, but I was serious. No place before that had ever touched me as much, or seemed as beautiful.



Rocks on the Dingle Peninsula, Co. Kerry, Ireland

Beyond the Color Purple: A Guide to Identifying Other Aquatic Invasives

by Colleen Haney

In recent years our attention has turned to those beautiful purple flowers growing besides our wetlands and streams. As many now know, purple loosestrife is not as beautiful as it seems; in fact it is a non-native invasive species that threatens the biodiversity of wetlands across the nation. But what about other invasives? Is purple loosestrife the only plant plaguing waterway health?

In September 2001 the Chesapeake Bay Program's Invasive Species Workgroup (ISWG) identified several invasive aquatic and terrestrial species with the potential to cause significant negative impacts in the Chesapeake Bay watershed. To classify as "invasive" the plant must be non-native to the area and its introduction must cause economic or ecological damage, or be a threat to human health. The following is a brief identification guide for three of the invasives on the ISWG list, all of which have been found in Pennsylvania.

Japanese Knotweed (Fallopia japonica)

Introduction

Japanese knotweed is a terrestrial plant primarily found in moist and unshaded habitats, like those of streambanks. The plant is native to Japan and arrived in North America towards the end of the 19th century. Japanese knotweed is considered an invasive because it spreads quickly, forming dense thickets that exclude native species. These thickets are of little to no value to wildlife.

Identification

- Can grow over 10 feet
- Stems are smooth, but stout and swollen where the leaves meet the stem
- Leaves are oval to triangular in shape with a pointed tip and approximately 6 inches long by 3-4 inches wide
- In the summer the plant has minute greenish-white flowers that are following by winged fruit
- The seeds are very small (1/10 inch), triangular shaped and shiny



Methods of Control

Japanese knotweed is very difficult to control because it regenerates from seeds and from plant fragments (i.e. roots). Primarily, mechanical and chemical methods are used to control this plant. However, if you find young individual Japanese knotweed plants, remove them manually by pulling them out of the soil, ensuring root removal to prevent regeneration.

Eurasian Watermilfoil (Myriophyllum spicatum)

Introduction

Eurasian watermilfoil is an aquatic plant often found in ponds, lakes, and slow-moving streams. Native to Eurasia and Africa, the plant was accidentally introduced in North America around the 1940s. Eurasian watermilfoil is fairly tolerant of pollutants and tends to invade disturbed areas. It is considered an invasive because it can form dense floating mats on the surface of lakes and streams and thereby impede light penetration and recreational uses of that waterway.



Method of Control

Eurasian watermilfoil can be removed manually from small areas with the use of a sturdy hand-rake. For larger areas more complex methods of removal are required (physical barriers and chemical controls).

Water Chestnut (*Trapa natans*)

Introduction

Water chestnut is an aquatic plant that can grow in any freshwater environment. It is originally from Europe, Asia, and Africa and was first discovered in North America during the 1850s. Water chestnut is considered an invasive because of various ecological impacts. This plant, like Eurasian watermilfoil, forms dense floating mats that prohibit light penetration and limit the amount of oxygen available to other nearby plants. Additionally, water chestnut competes with native vegetation and is of little value to native wildlife.

Identification

- The plant is submerged under water; fine roots anchor it into the mud
- Leaves at the water's surface are triangle-shaped with saw-tooth edges
- Flowers form in June and are white with four petals
- Fruit is a nut with four ½ inch barbed-spines.



Method of Control

There are specialized methods of control for water chestnut; however, due to the possibility of offsite spread and injury during removal, only trained and certified professionals should undertake the management of water chestnut infestations.

Information gathered from a USFWS BayScapes Conservation Landscaping Program publication available at the National Park Service website at <http://www.nps.gov/plants/alien/pubs/midatlantic/toc.htm> and from the Chesapeake Bay Program at <http://www.chesapeakebay.net/committee.htm>.

Art and Environmental Education by Audrey Fisher

This summer, while participating in a 'Volunteers for Peace' work camp in the small mountain town of Lewisburg, West Virginia, I gained a new appreciation for the work I do with ALLARM.

For two weeks in July, I worked as an assistant to Dottywood Art in the Park, which was founded by a single woman with the purpose of inclusion and community involvement for people of all ages. I lived and ate with the two other participants in our own little house across the street from the director's home and studio. I chose this community art project because I wanted to express my creative side, which often lays dormant during my months of study in Carlisle. I was pleasantly surprised to find that not only did the project incorporate my love for art; it also involved my newly found appreciation for watersheds.

The summer project was a mosaic of the Greenbrier River on the side of a concession stand. Our first meeting began in a large circle of children, parents, and neighbors. After introducing ourselves, we got the group excited by playing a game of aquatic life charades. Children rushed to the center of the circle to act as fish, seaweed and turtles, and broke into fits of giggles when a boy decided to act out a certain non-point source of pollution of interest among elementary aged children.

Once everyone felt comfortable with the new group, we walked down to survey the wall. Earlier in the year the children had used cement and marbles, while others found objects to make reliefs of turtles and fish.

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WAY To Go!

The Watershed Alliance of York

by David Rose

Since its establishment in January of 2001, the Watershed Alliance of York (WAY) has grown and succeeded in establishing a leadership role among York County's many watershed and conservation groups. WAY is one of ALLARM's main partners through the C-SAW program. The alliance has worked with a number of watershed organizations within the county including the Codorus Creek Improvement Partnership, Codorus Creek Watershed Association, and the Yorktown Senior Environmental Corps. With these groups, WAY's Water Quality Monitoring Network has successfully recruited 24 citizen volunteer monitors and has coordinated the water quality monitoring of 36 sampling locations in the Conewago, Codorus, and Muddy Creek Watersheds. WAY has met its primary objective of establishing baseline water quality monitoring data of the Yellow Breeches, Conewago, Codorus, and Muddy Creek Watersheds. The major watersheds in York County also include Kreutz Creek, Muddy Creek, Deer Creek, Gunpowder Creek, Lower Susquehanna River Basin, and the Chesapeake Bay. WAY has been working in many of these areas to address watershed concerns and ensure that watershed restoration proposals improve water quality throughout the county.

Over the past few years, WAY became involved in several watershed conservation projects in York County and helped develop the York County Water Resources Plan. WAY assists municipalities with storm water education and outreach. It operates with minimal funding from grants and private donations, giving them a great appreciation for volunteers. WAY president Andrew Miller says WAY "truly leverages minimal financial resources to attain great returns for our stakeholders and the York County Community."

In September 2003, WAY sponsored the first multi-county public Watershed Weekend in South-Central Pennsylvania and Northern Maryland through a partnership with local radio and television stations, to promote a week long educational Watershed Awareness Program to inform the public of water quality, non-point source pollution and watershed restoration and protection initiatives. WAY gave Watershed Awareness education programs for six community events, three schools, and other

stakeholders.

ALLARM has been a WAY contributor since its establishment, working to plan and facilitate workshops for study design and quality control techniques. According to Gary Peacock, Watershed Specialist for the York County Conservation District and WAY chair, "ALLARM has been most helpful by providing technical assistance in developing Citizen Volunteer Monitoring study designs, water quality monitoring training, data quality assurance and control training, ArcExplore GIS training, data analysis, interpretation and reporting training." Last year, ALLARM provided chemical training to approximately 20 citizen volunteer monitors at York College. After completing its first year of monitoring water quality and macroinvertebrates, WAY Water Quality Monitoring Network and ALLARM have been collaborating on interpreting water analysis results. WAY's Water Quality Monitoring Network is evaluating their study design and making recommendations for improvement in monitor motivation and commitment.

WAY hopes to enhance awareness of watershed planning, restoration, and protection and determine effectiveness of watershed programs both qualitatively and quantitatively. WAY will encourage public and private landowners to support local watershed programs. In 2005, WAY will sponsor workshops and demonstrations focusing on storm water management improvement and non-point source pollution control for public works departments, public and private landowners and municipal supervisors and planning officials.



In a recent sample delivery, Barry Stump, the York Senior Environmental Corps Coordinator, flew his self-made airplane to the Carlisle Airport for the handoff to Julie Vastine, ALLARM Assistant Director.

WAY also hopes to further develop relationships with their partner groups and work collaboratively to achieve restoration effectiveness. New designs and initiatives are being implemented by these organizations. For a list of WAY's upcoming events or current news topics, a bi-weekly electronic newsletter, WAY E-News is available.

When asked about the affiliation of ALLARM with WAY, Peacock said, "The strategic alliance between ALLARM and WAY is one example of how public-private partnerships help both organizations meet their missions and goals above and beyond what each would accomplish separately. I look forward to continuing our relationship and working with ALLARM in the future."

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As a result, burn barrels can emit more pollutants than the dirtiest power plant or incinerator. Burn barrels also have lower temperatures than municipal solid waste incinerators, so the smoke contains less oxygen and more toxic pollutants. The smoke also stays closer to the ground, easily inhaled by the person burning the trash, neighbors and pets.

What is the effect of smoke pouring out of the barrel? Short-term negative health problems include eye, skin, nose, lungs, throat irritation, lung congestion, headache, memory loss, burns, and upset stomach or intestines. Long-term effects are more serious, including cancers, leukemia, asthma, infertility, birth defects, learning disorders, and changes in the immune system.

Barrel smoke has grown more toxic over time. Living in a society of convenience includes using many plastic packaging materials. Burned plastic creates dioxin, one of the most toxic chemicals known. Two to forty burn barrels (the large range is due to the variance in waste stream composition) produce the same amount of dioxin as a solid waste incinerator.

In addition to these harmful health effects, burning in barrels is illegal. Technically, only unprocessed vegetation (like leaves) can be burned, and then only if you follow local permitting guidelines and live outside of an urban area.

So, what to do with the trash? Don't create it – donate old clothes, toys, furniture, books, and other

reusable items to charity instead of torching them – one person's trash is another's treasure, after all. When shopping, be mindful to buy in bulk. Avoid purchasing items with copious amounts of packaging. Re-use items. For example, glass bottles can be crushed to make mosaics, and newspapers are excellent packaging material.

Another exciting waste-reduction method takes a trip into the kitchen. Save food scraps to create a compost pile, providing good fertilizer for a garden. In addition, recycle used bottles, cans, and whatever other material the community will allow. Using these methods, backyard burning will become a habit of the past.

Much information taken from the website:

<http://www.mindfully.org/Air/2003/Backyard-Burn-Barrels14apr03.htm>

Battling Ivan - ALLARM News Brief by Clare Froggatt

On Friday, September 17, ALLARM staff members went to the Mully Grub wetland in an attempt to measure depth, record substrate type, sketch a map of the wetland, and perform a vegetative assessment. Unfortunately, Hurricane Ivan got in the way.

The ALLARM-ers, un-perturbed by the winds and rain, donned waterproof gear and drove to the wetland retention pond. The wetland was as high as any of them had ever seen. Maggie Allio said she believed it to have reached as deep as three feet in some places. Concern was raised that, with so much rain, the pipes into and out of the wetland might become submerged, leaving the pond unable to fulfill its role as a filter for rainwater before the Mully Grub empties into the Letort Spring Run.

As water rushed into the pond from the Mully Grub, Allio and her counterparts attempted to dig up the substrate at different locations surrounding the pond and photograph them with a digital camera. Such a task proved to be challenging, with the photographer wanting a perfect shot without damaging the camera with the excessive rain.

The group started at the edge of the pond nearest the adjoining road. By the time they left, only an hour into the job, their footprints in the vegetation had completely filled with water.

'Mexico' continued from page 1

so each student's individual research was part of a larger project. I wrote the first draft of the management plan for a Marine Protected Area (MPA). The Center hoped to implement the MPA into a large estero (an arm of the bay where the water becomes saltier closer to land because of a lack of freshwater) on Magdalena Bay. Through directed research, I put my Dickinson education to use and work with real-world environmental problems.

It was amazing to use my skills and work cooperatively with others to find solutions to environmental problems; although the purely academic aspects of my time were not the ones that I most cherish. I had many unique experiences I never would have encountered otherwise. Even the most basic aspect, living arrangements, was completely unexpected. When I received the brochure for SFS in Mexico, I saw little cabanas with palm fronds covering the roofs. Not until I arrived did I realize that the palm fronds did not exactly 'cover' the roofs. They were the roofs. Rain storms were interesting, to say the least. But when else am I going to live under palm fronds? Such a situation cannot be found just anywhere.

With so many experiences in Baja, I only have time to write about my favorite. Throughout the semester, we took several 3-4 night camping trips to different parts of the Baja peninsula. My most memorable trip was to south of San Carlos to the town of San Cristobal. San Cristobal is located on the western side of Baja, 20 minutes north of the famous tourist city Cabo San Lucas. In San Cristobal, there is a non-profit Mexican group, ASUPMATOMA, working to increase the populations of the endangered Olive Ridley sea turtles. The turtles' endangered status is primarily due to the egg harvesting. The eggs sell for 10 pesos, about \$1, a piece. During the nesting season, ASUPMATOMA patrols the beaches with ATVs at night looking for nesting females coming ashore and already constructed nests. If a nest is found, the eggs are removed and brought to a fenced in hatchery, which is located right on the beach. Members of the group will sometimes put a plastic bag below the female and catch the eggs as she lays them. Removing the eggs from the unprotected areas of the beach reduces predation. After a designated number of days (between 45-60 days), the nests are dug up and the baby turtles are released into the

ocean.

On our excursion to San Cristobal, another student and I were able to patrol for part of a night. We left camp around 2:00 am for our shift. In order to reach the beach we were patrolling, we needed to ride for about 45 minutes through the beautiful desert. With our path lit only by the full moon, we made our way to the beach and searched for two hours for any signs of nests. We looked for trails left behind from the flippers of the female turtles crawling up the beach. Although we saw several trails, we were unable to locate new nests or spot any females. Despite the amazing ride and experience, we felt disappointed that we could not see this incredible process. We returned to camp around five or six in the morning, just as dawn began to break. Tired and disappointed, we were resigned to the fact that we could get a few hours of sleep before everyone else woke up. While walking to our tent, we passed the fenced hatchery and discovered that there were about 50 baby turtles, roughly the size of a person's palm, that had hatched and crawled through the sand to the surface. Our disappointment quickly faded and the excitement of seeing, hearing, and even smelling the baby turtles took over us. We removed all of the surviving turtles and released them onto the beach. As the sun rose, we sat and watched the turtles scurry into the crashing waves, get thrown back up the beach by the force of the water, and then crawl into the foaming ocean again to be carried away by the strong Pacific currents.



Baby Turtles Scurrying into the Ocean

Lessons Learned in the Nation's Capital by Nicole Vecchione

While some of my peers studied abroad to learn foreign cultures, I turned my inquisitive eye inward and went to Washington D.C. in an attempt to better understand my own. My goal was to experience American policymaking and the legislative process firsthand.

I picked an internship I felt was best suited to my goals and abilities at the National Association of Conservation Districts (NACD). NACD is a non-profit organization for the country's 3,000 conservation districts, protecting soil, water, forest, and wildlife. NACD reviews, comments on and lobbies for conservation policies such as the Farm Bill and Clean Water Act.

As my largest role at NACD, I gathered information. I spent half my time away from the office, attending many Congressional hearings, news briefings, coalition and network building meetings, workshops, and conventions. The topics covered aspects of current environmental policies. My exposures included the Endangered Species Act, Surface Mining Control and Reclamation Act, various forestry policies, water quality issues, and invasive species legislation.

I had extensive contact with the 2002 Farm Bill, in particular the controversial Conservation Security Program (CSP). CSP is a national, incentive-based conservation program open to all farmers and ranchers practicing environmental stewardship. CSP is a volunteer program that provides payments for conservation practices on private agricultural land. Payments are ranked in a three tier system requiring increasing levels of stewardship for more funding.

Managing this program has proven difficult because it requires balancing limited funds against unlimited participation. As a result, the Department of Agriculture began placing applicant criteria, but CSP felt limitations impaired the program's broad nature. Intense debate over appropriate measures provided for some of the most entertaining Congressional hearings I attended, including one where I thought a senator may resort to fisticuffs.

Conservation practices determine the amount of funds allocated. Annual payments cover new and existing base level conservation practices. There are also one-time payments to cover installing new components to a farmer's conservation plan. Farmers who increase resource benefits receive payment enhancements as well.

One of CSP's overlooked innovations is the self-evaluation for all applicants. Local NRCS officials, largely responsible for site implementation, spend most of their time advising farmers. Self-evaluation should take the burden off NRCS, allowing employees to focus their energy on training and educating farmers.

I began my internship knowing little about the hot topics discussed on Capital Hill. My first week on the job entailed assignments to a few events before the rest of the office hightailed it to a conference in Hawaii. I already felt in over my head. Within a few minutes of my first information-gathering excursion, I realized how little I knew. The purpose of the meeting was to bring government agencies and environmental interest groups together to review the 2005 fiscal budget as proposed by the administration. Aside from having an erroneous understanding of what "Fiscal Year" meant, I knew little about the programs under discussion and even less about the budget process. I was thrown into the deep end, but I stayed afloat.

Immersion is the only way to learn how national policies are created and sustained. For this reason, my semester in Washington was my most successful policy learning experience. The difference between taking a class on policy and being dumped into a workshop on the 2005 fiscal year budget is astronomical. It is impossible to understand policy fluidity in a classroom.

Policy is a living entity that constantly changes. Classes teach amendments to laws as if they are steps forward in policy. The truth of the matter is amendments are only markers along the way. The real life application of policy, how the law is implemented, is transient and as animated as the people enforcing and influencing the procedures. By being involved in NACD, I got to be a part of national environmental policy.

The one lesson I have walked away from DC with is the importance of being a cog in the machine. Great ideas are the backbone of policy and leaders are the nervous system, but little guys are the muscle. The little guys provide the strength that gets the grunt work done. If I learned a second lesson, it would be how to properly conduct oneself on a subway... but that's a whole other story.

For more information on CSP visit:
www.nrcs.usda.gov/programs/csp/

'Art and Environmental Education continued from page 5

Using rectangular pieces of mirror, I created a meandering river up the side of the wall. For the next two weeks we helped the children apply their pieces and bits of colorful tile. At each session we were joined by AmeriCorps volunteers. Two of the volunteers worked for the Greenbrier River Watershed Association, which hopes to maintain, preserve and restore the Greenbrier River Watershed using water quality testing and monitoring the effects of acid mine drainage.



The Completed Mural

One volunteer responsibility was to prepare an educational artistic piece to share at Art in the Park Day at the mural's unveiling. Applying skills I acquired at ALLARM, I made a watershed model from a wooden box, Styrofoam, and the plentiful cement and tiles littering the director's backyard studio. On the day of the event we set up a tent for face painting, traditional Korean dance lessons, and my watershed model and instruction. Behind us, the Greenbrier Watershed Association distributed pamphlets and coloring books, while other community members sold ethnic foods and baked goods. As children came by begging for mermaids and dinosaurs on their cheeks, I was able to explain pollution sources and the concept of a watershed.

I also experienced the local watershed through hiking, swimming, and kayaking. From this personal contact with the environment I gained new appreciation for my work at ALLARM. Beyond

the endless stream of acronyms, data entry, and water sampling, there is a deeper mission: ALLARM strives toward a clean, safe environment where communities can come together to appreciate the beauty of the water and form friendships. The skills I gained while volunteering this summer will allow me to better fulfill this mission.

Creativity is not reserved for the visual arts. Indeed, it is the environmentalists' most vital resource for making connections, even in unlikely situations, between people and their world so that they find their own way to enjoy it and care for it. Creativity holds significant importance for children, so they grow to value each other and their common resources.

At the unveiling I felt the sensation that comes from positive action. I'm sure every child felt that way as they gathered together and pointed eagerly to the contributions they made. As a testament to nature, community and creativity, a fish-shaped piece at the top of the mural, reads "Our Greenbrier River." A river is not merely an element of the landscape but a community treasure to be appreciated in recreation and celebrated in art.

Stormwater Management Conference by Rob Berns

On October 18, 2004, engineers, environmental advocates and consultants, community members, volunteer monitors, planners, and interns gathered for the "Better Stormwater Management through Site Design" Conference. The conference, held at the Cumberland County Planning Office in Carlisle, was sponsored by Pennsylvania Environmental Council (a non-profit environmental advocacy group).

Stormwater results from rain accumulation on pavements, rooftops, farms, or other sources during precipitation. It collects various contaminants such as nutrients, grease and chemicals, potentially transporting them to water sources. Stormwater management focuses on placing a system to control runoff and minimize the level of damage to living things and structures associated with large-scale stormwater events.

The conference began with a presentation by Wes Horner of Cahill Associates. Horner provided a basic outline of various concepts associated with stormwater and an introduction to stormwater management design. Horner pointed out the failings of conventional stormwater management, designed to control the peak rate of runoff to predevelopment conditions, but failing to control the runoff volume as well as pollutants. This led to the main concept of Horner's presentation: "Manage Stormwater as a Precious Resource...not a Disposal Problem". Horner then introduced comprehensive integrated stormwater management.

He outlined how development impacts stream morphology, aquatic habitat, bank erosion and undercutting, and streambed scouring, providing plenty of illustrations and examples. In addition, Horner introduced the focus of the workshop to solve stormwater problems: smarter growth, smarter management, and smarter ordinances. He went through the existing legislation on stormwater management and some plans that have been done with it, and provided some examples of developments as case studies for how they could be designed with stormwater in mind.

Horner covered Best Management Practices (BMPs) for development design, including shared driveways, alternative surfacing and maximizing vegetated open channels as aesthetic and efficiency-g geared ways to improve stormwater management. Horner mentioned several techniques for stormwater management that I found to be innovative and interesting. Particularly, I found interesting the "green roofs", roofs with gardens and plants built to retain water that might otherwise be included in the problems of stormwater runoff.

The conference continued with a brief presentation on limestone geology. The presentation centered on soil testing techniques for BMPs and how to test and evaluate soils for infiltration and percolation. It emphasized the do's and don'ts of testing processes. One theme to take away from the presentation was protecting the soil integrity during construction, so soil infiltration is not compromised.

Next, Cahill Associates presented structural stormwater BMP's, with detail on some of the concepts Horner had discussed. He covered site design to allow for infiltration and the notion of porous pavement

for groundwater recharging. Porous pavement allows water to seep into the ground more easily than concrete, decreasing runoff. Swales and infiltration berms were discussed in detail with examples and illustrations of how they are used.

Another focus of the conference was community activism to ensure management practices are carried out. Brian Jaymes of the Cumberland County Conservation District spoke briefly about community involvement. His talk preceded a brief discussion by Tim Schaeffer of the Pennsylvania Environmental Council on Environmental Advisory Councils (EACs) within communities. EACs are three to seven member voluntary boards created by municipalities to advise on environmental/natural resource issues.

Representatives from the Alliance for the Chesapeake Bay and the local chapter of the National Audubon Society discussed the types of activities their organizations are currently involved with, as well as how they are relevant to the conference. Along with the theme of community activism, two current development projects in Cumberland County were presented, the Home Depot Project in Carlisle Borough and the Pennterra Housing Project in Middlesex Township. Both presentations emphasized stormwater management techniques within the development.

The conference then dealt with practical application of the knowledge covered in the morning. Horner introduced the afternoon activity, splitting the remaining attendance of the conference into three groups to work with members of Cahill Associates on case studies in stormwater management with real-life development areas. The activity aimed to identify physical structure and characteristics of the developed area and identify pros and cons of its development plan. I felt this was a useful way to get the attendees of the conference to be thinking practically about how to optimize management techniques when a real-life situation is presented. Each group presented its specific case study to the rest of the conference.

Tim concluded, emphasizing to participants to follow up by contacting the sponsors, as well as applying their knowledge to their communities. All in all, the conference served well to reinforce grassroots environmentalism, as the knowledge and concepts apply to every community.

Not Just Another Drop in the Bucket: The People Behind ALLARM's Acid Deposition Project by Becki Walker

Emerson said “There is properly no history; only biography.” This quote serves well as validation for ALLARM's new oral history project.

For those who do not read “Stream of Consciousness” religiously, the oral history project stemmed from the closure of ALLARM's initial focus – the Acid Deposition Project. During the Acid Deposition project, volunteers purchased monitoring kits and agreed to monitor a stream of their choice for pH and alkalinity once a week for at least one year. However, as ALLARM grew from “The Alliance for Acid Rain Monitoring” to “The Alliance for Aquatic Resource Monitoring,” we realized our focus had shifted as well. Acid deposition monitors were no longer the primary concern. As we had already collected a substantial amount of baseline data, we decided to phase out the Acid Deposition project. Last semester, I had the duty of informing dedicated volunteers that their efforts to protect water quality would better serve ALLARM not through monitoring, but through becoming a member of a watershed organization.



*Charles and Mary Dodson identify
Macroinvertebrates*

The ALLARM office felt a pervading sense of guilt – there had to be something more we could do to reward volunteers for their tireless effort – something more than sending them a nicely-worded letter. When fellow summer staffer Adam Wickline and I returned to Carlisle in June, we found our inventive directors had planned a celebration for our monitors – in their

own words. The seed for “Not Just Another Drop in the Bucket: The People Behind ALLARM's Acid Deposition Project,” had been planted.

Adam and I would compile a list of our most faithful monitors, contact them, and interview them about their involvement in the program. After preserving their records, we would use their recollections to celebrate their hard work in a public event at Dickinson College (scheduled to take place April 12, 2005).

Though Adam went abroad this semester, staff member Keagan Lynch and I have continued with the project. To date, we have interviewed George Walthour, Anne Gale, and Marion Ledgegett, and plan to continue with these interviews throughout the school year. These interviews have been interesting and inspirational for me, and for anyone who will hear them. I have gotten to know a small part of these monitors' life stories, their motivations, and their passions. Though the interviews consist of questions about volunteer monitoring on the surface, the words spoken by our volunteers attest to a much deeper connection with the environment. George Walthour spoke of a conservation club he and some of his friends started in high school in the 1930's,



*George Walthour and David Hess, former Secretary
of the PA DEP at an SCCA macroinvertebrate
workshop, October 2002*

when such a mindset was rare. Anne Gale discussed how she has gained confidence through monitoring, and now takes a more active role in the organizations she is involved with. Marion Ledgegett told us how her faith influenced her to “be a steward” to the planet all humans share. These interviews have become more than answers to the question “Why does a person decide to volunteer monitor?” -- they are living examples of the kind of dedication, creativity, and passion we should all aspire to have.

View from the Top: Summer Training Academy in Denver, Colorado

by Keagan Lynch

The setting was perfect for a five day long conference, in the “mile high city” (Denver, CO). The conference premise brought students from around the country to receive training as student leaders for the environment. The conference provided students with both hands-on trainings in leadership styles to help implement change on campus and allowed us to see what exactly we as leaders are fighting for. Many of the students attending the conference were student leaders in their college and were attending the conference to fine tune their skills in implementing change with the upcoming election and within their hometown. With harsh issues as environmental degradation within a racial context, racism within the environmental field, and lack of governmental regard for young voices, there was endless discussion.



A view of the gorgeous Rocky Mountains in Denver, Colorado

Within such discussions grew the change that organizers anticipated before and after the conference finished. Many students came from similar backgrounds, white, middle class college students within large universities. With this context it was eye opening for many to realize that many Americans do not experience life the same way they do, and to a great respect they had never seen or noticed the disparities in different racial groups within America. These disparities ranged from health problems, education, lack of resources to implement change, and continued minority dehumanization.

The highlight of the week was a “toxic tour” of a marginalized area of Denver, which tourists who come to ski the pristine mountains never get the opportunity to see. This was a thriving community before an overhead beltway was built directly within the neighborhood, breaking up the community into two halves. Through re-zoning, the community was completely surrounded by factories. Once a community filled with life, the area has turned into a desolate, listless place whose residents stay, unable to move due to the low property value of their homes. The tour showed first hand some of the changes that were being made to rectify environmental issues, but it is a long battle with no end in sight.

Many people were shocked while on the tour, but for many this shock will bring change and learning. With an additional two day training session called “Dismantling Racism”, students were forced to look at the harsh realities that many minorities and women face within the environmental field. The institutionalized power of racism within our government affects minorities on a daily basis.

The conference culminated with speakers from different organizations such as Common Cause, lobbying groups, and Denver’s Department of Environmental Protection. These groups discussed lobbyists’ common practices and how to develop successful projects within the government. There were also workshops on public speaking, lobbying, grant writing, and media training.

The conference was inspiring because it brought together students who work for change within the environmental field. At times intense, it showed students who would have never have been exposed to such issues, that there are real issues that have to be dealt with and there can be change, with our generation as the catalyst.

Meet the Staff



I'm **Candie Wilderman**, founder and Science Director of ALLARM. In addition to working with Julie and Lauren to direct ALLARM's activities, I also try to integrate my classroom into the ALLARM program. Recently, the Environmental Studies Department received a grant to operate a watershed-based, integrated field semester for three years, during which time students and staff will comparatively study environmental problems in the Chesapeake Bay and lower Mississippi River drainage basins. While working in the Upper Chesapeake, we will connect to ALLARM's watershed groups and students will conduct independent research based on community needs. We will also travel to Louisiana for three weeks and spend a week in the southern Chesapeake Bay. I look forward to involvement in this innovative initiative to further integrate ALLARM's work into Dickinson courses and connect more students to community-based research.

I'm **Lauren Imgrund**, ALLARM Director. I develop an annual project plan and budget, develop strategies for fundraising, write grant proposals, and serve as the lead contact for successful grants. I also train, supervise and delegate tasks to the staff. I provide technical assistance to partner watershed organizations, represent ALLARM on Keystone Watershed Network, PA Campaign for Clean Water, and other state committees. My watershed interests began when, as a child, I attempted to "clean" the stream by my house by removing the leaves from the water.



I'm **Julie Vastine**. As Assistant Director, I coordinate ALLARM's involvement in the Consortium for Scientific Assistance to Watersheds (C-SAW), to provide technical and programmatic assistance to watershed groups statewide. Through C-SAW I oversee ALLARM's state water chemistry quality control program. In addition to C-SAW work, I collaborate with ALLARM students on the SMART program and the Oral History project and have the opportunity to represent ALLARM at regional and nationwide meetings and conferences. While a senior at Dickinson, I analyzed sewage sludge for organic wastewater contaminants for an honors research project.

My name is **Clare Froggatt**, a senior from Beverly, MA. I worked at ALLARM my sophomore year and am back after being abroad for a year in England. I recently received the Office Manager position, which entails taking minutes at meetings, cataloging the office's print resources into a user-friendly library, dealing with monitor requests, updating the monitor directory and compiling the newsletter.



My name is **Maggie Allio**, a senior from Cochran, PA. My life as an environmentalist began by starting a club to protect salamanders crossing roads near my elementary school. This semester, I will design a restoration and planting plan for the Mully Grub Wetland and organize a volunteer Planting Day to increase public awareness on the Mully Grub Project. In addition, Gio and I will work together to finish a volunteer sampling video. I will research volunteer-friendly flow measurement methods and work with the Ridge and Valley Streamkeepers as well.

My name is **Colleen Haney**, a senior from Swarthmore, PA. I am working on a data summary for the Letort Regional Authority (LRA). LRA and ALLARM have collected about twelve years of monitoring data on ten sites on the Letort Spring Run and three years of data on two sites on the Mully Grub. I am conducting statistical analysis on the data using Excel. When I was little I wrote a petition to the president to make it illegal to release helium balloons into the air because of their potential threat to wildlife.





Greetings! I'm **Becki Walker**, a junior from Linesville, PA. At ALLARM, I'm responsible for analyzing quality control in the lab, taking charge of the oral history project, public relations, and working with the Rock Creek watershed group. I also enjoy looking for macroinvertebrates in my spare time.

My name is **Nicole Vecchione**, a senior Environmental Studies and Policy Studies major, I have worked with ALLARM since my freshmen year. This semester my biggest project is working on a publication of findings from Shermans Creek Conservation Association's three-year monitoring program. I live in East Hanover, NJ and have participated in environmental organization similar to ALLARM. One of my river surveys resulted in the tragic shipwreck of a small, aluminum rowboat in a dam on the Pompton River.



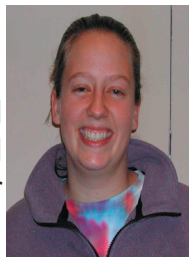
Hi, my name is **David Rose** and this is my first year working for ALLARM. I am a sophomore, originally from outside Philadelphia in Bensalem, PA. This year I plan on working with Audrey Fisher as a SMART coordinator. I also will work on web page design and maintenance. In addition, I will review the Watershed Alliance of York's public report. I am an avid flyfisherman and hope to combine my work with my passion for fishing. I look forward to a fun year working with ALLARM.

Greetings, my name is **Keagan Lynch** and I hail from New York City, the Big Apple. Coming to Carlisle is a far cry from Manhattan's concrete jungles but it afforded me the opportunity to interact with the environment. I am currently majoring in Environmental Studies with a concentration in policy. My duties at ALLARM entail working with Becki on the oral history project, data management and working with the Conococheague Watershed Alliance. I was born in Trinidad and Tobago, one of the most environmentally conscious islands in the West Indies.



My name is **Audrey Fisher**, a sophomore. This year my main responsibility is to coordinate SMART activities with local teachers. I also work on data management and lab duties such as dish washing and quality control. I am compiling a guide for stream clean-ups for use by watershed groups as well as reviewing a guide to changing stream quality designation. My watershed group is Chiques Creek Watershed Association because they are located less than 10 miles from my home in Lancaster. This past August, I lived and worked in the Vermont Wilderness with the Youth Conservation Corps.

Hi, I'm **Giovanna McClenachan** and this is my first year working for ALLARM. I am a senior Environmental Science major from Stamford, VT. My duties at ALLARM entail working on GIS projects, summarizing the Pennsylvania Municipality Planning Code and finishing a water sampling video. A fun fact about me is that I built my house one summer with my father and brother.



I'm **Rob Berns**, a senior Environmental Studies Major and Economics Minor. I primarily work in the lab for ALLARM, running QA/QC and washing dishes. In addition, I am putting together a "train the trainer" protocol for the Conococheague Watershed Alliance. Also, serve as a liaison to CCWA. My work with them includes a comparison of different turbidity testing methods and assisting them with samples in the lab.



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