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Alliance for Aquatic Resource Monitoring (ALLARM)
Dickinson College

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Stream of Consciousness

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http://www.dauphinco.org/main/Personal%20Web%20Page.htm

Keeping Pennsylvania's Streams Clean By David Rose

Over the past decade, the Environmental Protection Agency (EPA) and state agencies have been taking significant steps to streamline and improve water quality monitoring and assessment. By integrating monitoring and reporting requirements under Section 303(d) of the Clean Water Act, information is becoming increasingly accessible to the public and to government decision makers. Section 303(d), established in 1992, made available a list of impaired waters from states, territories, and tribes. Bodies of water are defined as impaired when they do not support or only partially support sustainable aquatic life, fish consumption, shellfish consumption, swimming, and drinking water. These standards are set by states, territories, and tribes, and must include a margin of safety to ensure that the body of water can be utilized for the intention the state has designated.

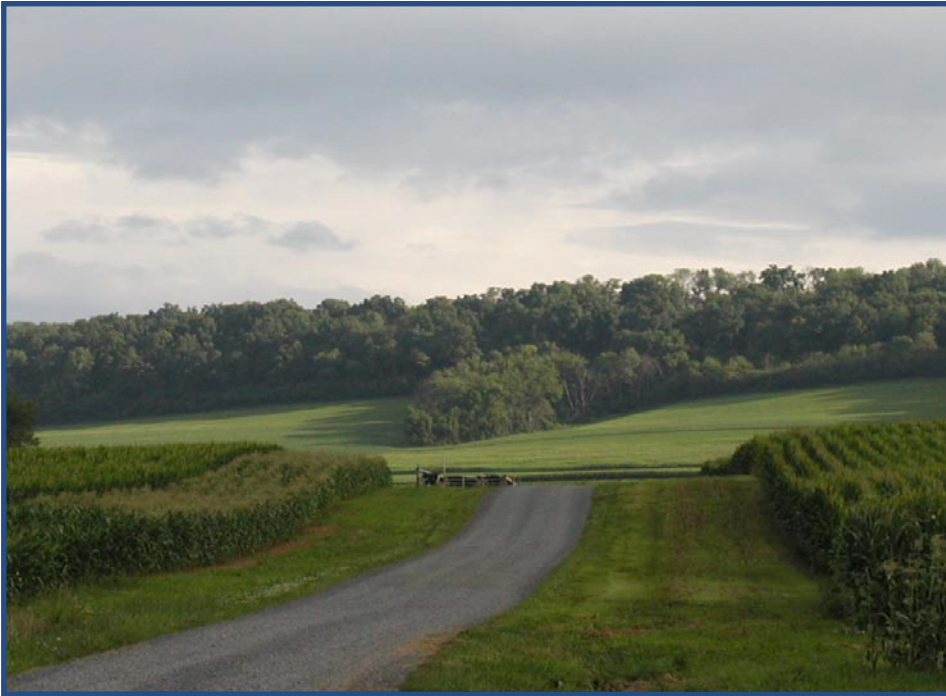
Beginning in 2000, the EPA developed new standards for monitoring and regulating non-point source pollution. Non-point-source pollution is pollution like stormwater runoff, which cannot be traced back to a single origin. Agencies identifying impaired waterways are required to determine the maximum amount of pollution that each body of water could absorb each day and still meet water quality standards, called the Total Maximum Daily Load (TMDL). The primary purpose of the 303(d) Impaired Waters List is to report those bodies of water that still need to meet TMDL requirements, and to identify water quality management needs. The EPA or state government then decides what measures, if any,

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An Investigation of Farming Culture in Perry County

By Audrey Fisher



Perry County Conservation District

Farming, in addition to providing us with our basic food needs, also contributes to a host of environmental problems such as wetland loss, groundwater depletion, and loss of biodiversity. In the Chesapeake Bay watershed, nutrient and sediment pollution is harming our waterways and contributing to eutrophication (the growth and decay of algae due to excessive nutrients) and hypoxia (a “dead zone” where dissolved oxygen is depleted during the process of organic matter decay) in the bay. To tackle this wide range of issues, policy makers, scientists, politicians, and consumers must work together. Communication between these stakeholders and farmers could be greatly facilitated by an understanding of the unique values and practices that define farmer interactions with the environment.

Since September, I have been con-

ducting independent ethnographic (interview-based) research among farmers in Perry County. I began this project with the goal of facilitating interaction between farmers and the Sherman’s Creek Conservation Association, an organization that advocates agricultural best management practices (BMPs) for the protection of local streams. Although the original focus of my research was on farmers’ use of and attitudes towards BMPs, the project has since expanded to consider the structural and cultural factors that influence farming practice. My goal is to document the diversity of attitudes and values among farmers and determine how these attitudes and values relate to agro-environmental management. I have spoken with a wide variety of producers, from large hog farms to small organic lettuce operations to Mennonite dairy farms, in order to get an accurate picture of farming in Perry

County.

Perry County is unique in that it is still a predominantly rural area with development pressure concentrated only in the eastern portion of the county. Nonetheless, the area is increasingly undergoing demographic, economic, and cultural change. For example, as land prices in surrounding counties increase, more Mennonite and Amish families are moving into the area. Meanwhile, the children of the traditional Protestant (referred to locally as “English”) farmers frequently chose other vocations and move out of the county. Unlike some other parts of the country, the smaller family farm is still the norm in the county and many farmers struggle to succeed in the face of high corn and fuel prices and cheap food prices. An increase in farm technology has improved production and convenience in many ways, but has come with a great deal of controversy and uncertainty. Among the farmers in Perry County, there are diverging opinions about the use of bovine growth hormone in milk production, the popularity of organic foods, and the safety of genetically modified organisms. I have found that these opinions are not only a product of individual difference; they are representative of different subcultures of farming.

The most important lesson that I have learned from this process is that any change in farming practice for improved environmental management will require more than

education, it will require a change in perspective. Not all farmers have the same background or set of values, therefore they view the world and interpret information differently. Also, external constraints such as economic necessity or a lack of appropriate government programs may prevent concerned farmers from doing their best to protect their watersheds.

All farmers recognize the watershed as a concern and have taken measures to act as stewards of the land while also fulfilling their roles as food providers. Farmers take pride in their work and way of life and they value their connections to family and community. Some farmers, particularly those who engage in some sort of alternative production (such as organic vegetables or grass-fed beef), are more inclined toward risk taking and innovation, while other farmers (particularly those who use more conventional practices) are more trusting of new scientific developments and technological advancements. I found that although farmers' values and practices vary greatly, they cannot be easily placed into categories such as "conventional" or "sustainable," and that the stereotypes associated with these terms obscure the complexity of the current changes and developments in agriculture. Without a doubt, advocates for water quality and environmental health must take action to mitigate the impacts of farming. The methods used to do this, however, ought to be informed by a sensitive understanding of the structural constraints and cultural factors affecting farming practice in each locality.

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need to be implemented in order to reduce pollution levels below or equal to the TMDL. Better management practices or future development strategies are also required to ensure that pollution levels do not increase. The EPA approves the list, or makes modifications by adding bodies of water to the list if necessary.

In Pennsylvania, the Department of Environmental Protection (DEP) has an ongoing program to assess the quality of waterways and identify streams and other bodies of water that do not meet specific water quality standards. For example, Pennsylvania has received more than \$49 million from the federal Section 319 Grant Program, which has been used to institutionalize a non-point source pollution program. This program implements various technologies to treat non-point source pollution as well as develop educational programs and other watershed initiatives. A body of water in Pennsylvania that is impacted by point source discharge (a pollutant that can be traced back to a single origin like a pipe) that is greater than the TMDL limit is not immediately added to the 303(d) List of Impaired Waters. Instead, the DEP will correct the water impairment by taking a "compliance action" against the discharger of the pollution. If the body of water still does not meet the water quality standards after compliance with the requirements, it is then included on the 303(d) List. The List includes the reason for impairment, which may be one or more point or non-point sources.

As of 2002, Pennsylvania has assessed approximately 64% of the 83,161 miles of streams. The three leading sources of impairment are agriculture, acid mine drainage (pictured on the cover), and urban storm water runoff. Pennsylvania, with the help of the government and volunteer monitors, remains committed to reporting TMDLs for all impaired waterways using traditional and new approaches to resolve water quality problems.

For more information and a list of 303(d) impaired bodies of water for Pennsylvania go to: <http://www.depweb.state.pa.us/dep/site/default.asp> and <http://www.epa.gov/>.

What's in Your Drinking Water?

By Lindsay Hunt

Fluoride is composed of organic and inorganic compounds of the element fluorine. It is often automatically associated with the rinse or foam used during a visit to the dentist's office. This common practice, however, is not the only use of fluoride—the chemical is also added to many community water supplies to prevent tooth decay.

Natural water fluoridation was discovered in 1901 when Dr. Frederick S. McKay noted that patients had stains on the enamel of their teeth. He concluded that this was a result of something present in the water supply. He also determined that individuals with this condition were less susceptible to dental caries, or tooth decay. In 1942, Gerald J Cox suggested adding fluoride in water to prevent tooth decay. This information led to the adjustment of water fluoride levels in Grand Rapids, Michigan in 1945 with the goal of protecting teeth. Today the fluoridation of drinking water to promote dental health is a common practice in the United States. The US Surgeon General, the Food and Drug Administration (FDA), American Dental Association (ADA), and several other organizations support the fluoridation.

Fluoride occurs naturally in some waterways. However, these levels are higher than the recommended health concentrations for humans which are between 0.7 and 1.2 parts per million. In the US, approximately 170 million people, around two-thirds of the population, use public water with

fluoride. It is also frequently used in bottled water and found in the majority of dental care products (mouth wash, toothpaste, fluoride treatments). On average this treatment costs 72 cents per person per year in the US, which is viewed as a worthwhile investment to maintain healthy teeth and limit the costs of future dental expenses.

The fluoridation of drinking water is a decision made by local community leaders. The US Surgeon General, Vice Admiral Richard Carmona, stated in 2004 that: "Community water fluoridation continues to be the most cost effective, equitable and safe mean to provide protection from tooth decay in a community. A person's income level or ability to receive routine dental care is not a barrier to receiving fluoridation's health benefits. Water fluoridation is a powerful strategy in our efforts to eliminate differences in health among people and is consistent with my emphasis on the importance of prevention."

However, there is much debate over the actual benefits of fluoride in public water. Fluoride is a chemical that was used for welding purposes and in its gaseous form is used to create nuclear energy. Increasing concerns have resulted from a number of studies conducted to determine the health affects associated with this additive. They have revealed health effects including enamel fluorosis (which causes pitting and the staining of the enamel surface that protects teeth), severe risk of skeletal fluorosis (which impacts bone density) after a lifetime of exposure, and the po-

tential for bone fractures. Enamel fluorosis affects children eight years and younger, impacting the development of their teeth before they have emerged from the gums. After the tooth has emerged from the gum it is no longer at risk. Fluoride is also known to increase skeletal fluorosis, causing stiffness in the joints; however, there are few known cases in the United States.

When community leaders determine whether they feel it is beneficial to fluoridate public water, they have to consider the controversy associated with this action. It is worthwhile to note that when visiting the dentist they tell you not to swallow fluoride, yet you may be drinking fluoridated water. To learn about fluoridation in your community, refer to the "My Water's Fluoride webpage of the National Center for Chronic Disease Prevention and Health Promotion" at <http://apps.nccd.cdc.gov/MWF/Index.asp>. Through information and action you can educate yourself and your community about this important issue.

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Changes at ALLARM

By Jack Treichler

ALLARM has undergone some changes in the past few months. Lauren Imgrund, our director for ten years, resigned at the end of last year and now works for the Pennsylvania Department of Conservation and Natural Resources (DCNR). In early February of this year, we hired Julie Vastine as our new director. During the transition period ALLARM was carried through by interim director Dave Sheridan, Science Director Candie Wilderman, and the student staff.

Lauren Imgrund came to ALLARM in 1996, the year Dolly the cloned sheep was born. Our founder Candie Wilderman had been directing ALLARM since 1986. Back then we were still the Alliance for Acid Rain Monitoring, gathering data from volunteer monitors and building up one of the most comprehensive pH and alkalinity databases in Pennsylvania. “We were ‘visioning’ about expanding our focus and mission to work on multiple issues with groups...but were constrained by the lack of a full-time director to make it happen,” Candie says. In 1996 we received a substantial grant, enabling us to take on Lauren as our director

Lauren says she came here because she was “interested in working on a local level to try to make a bigger environmental impact,” and that is exactly what she did. During her time here she established many lasting partnerships with community water-

shed organizations, and oversaw ALLARM’s transition to a more community-based, participatory research model. She helped define ALLARM’s role as a technical assistance and service provider. During Lauren’s time here we “emerged on the national scene as an innovative leader in volunteer monitoring,” Candie says. “We came of age during those ten years, due to the strong leadership of our director.”

After a decade, however, Lauren felt it was time to move on. She now works for the Bureau of Recreation and Conservation at DCNR in Harrisburg. As Recreation and Parks Advisor, she provides “assistance and guidance to municipalities and non-profits who are recipients of DCNR grants for park and recreation development projects.”

Some of you may remember Julie Vastine, our new director, who has her own long history with ALLARM. Julie graduated from Dickinson College in 2003 with a degree in Environmental Science. While at Dickinson she worked at ALLARM for two and a half years as a student staff member, including two summers, and after she graduated she became the assistant director.

Julie grew up on Maryland’s eastern shore on the Chesapeake Bay, where she picked up a strong environmental ethic from her mother and her cultural surroundings. She came to Dickinson originally because she was “attracted to the study abroad programs, the

campus, etc.” She spent a semester in Madurai, India, through the SITA program. But after taking Environmental Science 131 with Candie first semester freshman year, her environmental interests were rekindled. During her student staff days at ALLARM one of her favorite things was working with the community watershed organizations. She was also a coordinator for Students Monitoring Aquatic Resources Together (SMART), “which was really great,” she says. One of her favorite projects was working with students from West Perry High School, through a grant with the Shermans Creek Conservation Association (SCCA).

After her time as ALLARM’s assistant director, Julie worked in Washington, D.C. for EarthRights International, a human rights and environmental organization. She worked in program development and grant writing, which “gave me confidence in fundraising,” she says. Through EarthRights she also spent some time conducting capacity building trainings in Thailand. She says this job gave her an international perspective on environmental issues.

When the opportunity arose though, she was anxious to come back to ALLARM. Why? “When I left ALLARM I still had lots of ideas; I wasn’t done yet!” She also wants a chance to give back and enhance students’ experiences, because ALLARM played such a huge role

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The Making of a Successful Watershed Organization: Three Case Studies of Watershed Organizations in South-Central Pennsylvania

By Katie Fox

In my time on the ALLARM staff I have become increasingly impressed by and interested in the success of the watershed organizations with which ALLARM is affiliated. Although these organizations work towards similar goals, they have strikingly different histories and strategies to achieve their objectives. However, through an independent study I conducted this past fall, I discovered that there are clear trends among the characteristics of the organizations that contribute to their success. For my research, I conducted three case studies of watershed groups who are affiliated with ALLARM: Sherman's Creek Conservation Association (SCCA), Antietam Watershed Association (AWA), and Codorus Creek Improvement Partnership (CCIP). I conducted interviews and obtained information on the organizations' structure, history, goals, and accomplishments in order to determine the ingredients for success. In the end, I found five common aspects among the three organizations that seem to contribute to the accomplishment of their goals: partnerships, strong leadership, the support of local community and government, a focus on education, and dedicated volunteers.

Partnerships

Partnerships with service providers and other established organizations have helped the groups gain influence in their communities, increased their knowledge and people power, and have helped them create and implement their projects. With these partnerships, the organizations have received grants, ideas, and political and social power to take on their goals.

Strong Leadership

Strong, dedicated leadership keeps these organizations running smoothly, helps them to stay on top of their projects, and provides a strong representative for the organization to maintain relationships with the local government and community. Good leaders are able to communicate effectively, empower and engage others, and find new strategies and resources.

Support of Local Community and Government

Organizations need community and government support in order to implement their projects and to make major changes in zoning or regulation that will help preserve the water resources. Without letting the community and government know what the organization is up to and educating them about the organization's projects, the group could face opposition and unnecessary obstacles to achieving their goals.

Focus on Education

A strong commitment to education is not only important for the future health of the watershed but also causes the communities to view the organizations more favorably. This creates a friendlier, more cooperative dynamic between the organization and the local government and community.

Dedicated Volunteers

Committed volunteers are essential to the success of these organizations because, except in the case of the CCIP president, there are no paid staff in these organizations. All of the operations and projects of the organization must be carried out through the work of volunteers. Each of these organizations is thriving with the help of just a handful of dedicated volunteers who are passionate about protecting their watersheds.

***If you would like more information on this project, please contact
Katie Fox at foxk@dickinson.edu.***

Where Has All the Color Gone?

By Courtney Haynes



<http://stemaker.umich.edu/section2group5/files/picture1.jpg>

Global warming has recently become a “hot topic” around the world. Although uncertainties about the consequences of global warming still exist, many scientists are confident that some changes will be severe. One such change may be the impact of global warming on coral bleaching, the effects of which continue to be debated.

Corals are marine animals that live predominantly in tropical and subtropical warm waters. They are crucial to marine biodiversity because of the array of plants and animals they support. In addition, corals protect islands against physical weathering of the waves. Most commonly, corals are known for their beautiful colors, which actually come from symbiotic algae called zooxanthellae. Corals provide algae with housing as well as nutrients,

such as phosphorous and nitrogen, components which are essential for growth. In return, through photosynthesis, the algae provide the coral with carbon compounds, needed by the coral for protection and food.

During coral bleaching, the delicate balance between the coral and the algae is destroyed. Due to a number of environmental stresses, the algae leaves the coral and the white, calcium carbonate skeleton of the coral appears, hence the term “bleaching.” Coral bleaching was first recognized during the 1980s, when a significant amount of corals in the Florida Keys and off the coast of Panama whitened and died.

The causes of coral bleaching are hard to evaluate because multiple factors may be responsible. Most commonly, changes in solar radia-

tion and increases in temperature are thought to be the main triggers of coral bleaching. Additionally, other environmental stresses such as decreased salinity, sedimentation, and low tides are identified as causes of bleaching. However, separating one of these factors from the other proves to be difficult because some, if not all, may be working together to cause bleaching.

Although a clear cause of coral bleaching has yet to be determined, studies strongly indicate that increased ocean temperatures have detrimental effects on coral reefs. For example, bleaching has been known to occur as part of El Niño, a global atmospheric and oceanic phenomenon which results in higher water temperatures. The strong correlation between coral

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Let's Paint the Town Green!

By Kate Consroe

According to the Environmental Protection Agency (EPA), buildings in the United States account for 39% of the total energy use, 12% of the total water consumption, 68% of the total electricity consumption, and 38% of the total carbon dioxide emissions in the United States. Given current concerns about climate change and resource scarcity, the green building movement is taking significant steps to reduce the impacts of buildings on the environment. However, the benefits of green building are more than environmental; there are economic and social benefits as well, from reducing operating costs to improving occupant productivity and indoor air quality.

The US Green Building Council (USGBC) is one organization leading the green building movement with their green building rating system, Leadership in Energy and Environmental Design (LEED). There are multiple rating systems to address different kinds of construction, such as New Construction, Existing Buildings, Commercial Interiors, and Core & Shell. LEED for Homes and LEED for Neighborhood Development are currently in pilot. In addition, USGBC is developing application guides to better utilize LEED with specialized buildings, such as Campuses, Retail, Labs, Healthcare, and Schools.

The LEED program defines a standard for green buildings and provides a third-party certification. Buildings are evaluated in six



Dickinson College's Treehouse intends to earn the Silver Leed rating.

categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation and Design. They receive points in each category based on what environmental actions are taken. For instance, in the Water Efficiency category, points are awarded for reducing the potable water consumption through water-efficient landscaping. A higher reduction in water consumption

would result in more points. In the same category, points can also be earned by installing low-flow toilets. The more points a building earns, the more "green" it is and the higher it is rated. Buildings can earn one of four LEED ratings, starting with Certified, followed by Silver, Gold, and Platinum. As of September 2006, the state of Pennsylvania had 50 LEED Certified Projects, the second highest in the country.

Pennsylvania is one of many states to pass legislation regarding green buildings. In July 2005, the Pennsylvania legislature passed a bill that provides a financial incentive to public schools that achieve LEED Silver certification. This and similar legislation encourages the growth of green building.

Dickinson College has also joined the green building movement. The new Center For Sustainable Living (the Treehouse) and the Rector Science Center (currently under construction) are both expected to earn the LEED Silver rating.

The green building movement is not just occurring in the United States. The World Green Building Council is made up of green building councils from ten countries, and there are fifteen additional countries currently forming councils. The green building revolution is growing in both the United States and around the world, presenting a major opportunity to significantly reduce human impact on the environment.

For more information:

www.usgbc.org
www.worldgbc.org
www.epa.gov/greenbuilding/

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http://www.perf.org/Divelogs/Divelog%20Photos/Eretok21sept_carol%2017.JPG

A close view of coral bleaching.

bleaching and El Niño has led scientists to believe that coral bleaching could be a response to global warming, which could also create higher water temperatures.

Coral reefs normally live in a temperature range from 25-29 degrees Celsius, and an increase in temperature by one or two degrees may be deadly. By the year 2050, the Intergovernmental Panel on Climate Change predicted that in the tropical latitudes, the temperature will rise between one and two degrees, a clear cause for concern about coral reefs and the life they support. Not only does an increase in temperature affect corals and the algae, but the length of exposure to high temperatures also seems to be a concern. Therefore, a seasonal change in temperature, or a phenomenon such as El Niño, may temporarily affect coral reefs. However, an increase in oceanic temperature and the duration of the elevated temperatures can have more deadly consequences.

For most scientists, there is no doubt that global warming is happening, nor is there doubt that global warming is a concern. However, the exact results of global warming are still unfolding and the future may be unclear. It is widely stated, though, that one effect of global warming will likely be coral bleaching, and that corals are some of the first organisms to show adverse effects. As humans begin to think about the changes that will occur due to global warming, we should keep in mind the changes that will happen in our waterways, and the detrimental effects this will have on entire ecosystems.

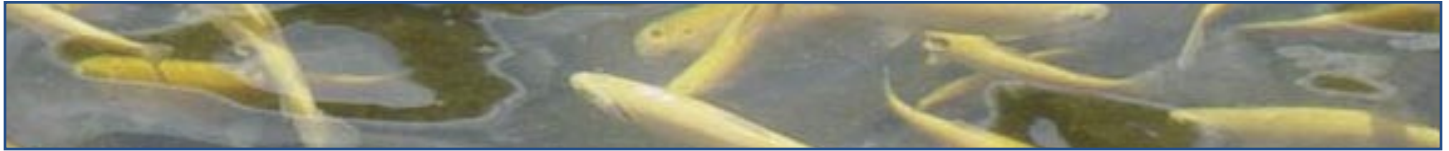
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Know Your Fish Hatchery

By Sunil Baidar

Fish hatcheries are one of the most lucrative agricultural business ventures in Pennsylvania. Pennsylvania's waterways have traditionally been well known as fish habitats (especially for trout) and hence are ideal for fish cultivation. However opening a fish hatchery requires many permits and one is advised not to start work without confirming that all the required permits are in order. The following list provides information on some of the permits and the permitting agencies in Pennsylvania.



Actions	Comments	Agency to Contact
Using land for fish production, sales, or processing	Zoning authorities could question certain uses.	•Municipal Zoning Officer/Board (for your local government, check with you local County Courthouse for information)
Land and pond development	Any earth disturbance requires an erosion and sediment pollution control plan.	•County Conservation District (for your county) •PA Department of Environmental Protection (DEP)
Using ground or surface water	Check if planned water use requires clearance in these watersheds	•Delaware River Basin Commission •Susquehanna River Basin Commission
Affecting wetlands or the flow of a stream or spring with a dam or diversion	All encroachments must receive an environmental assessment by the DEP first. A permit may be required and could involve other agencies in a joint permit.	•PA DEP •Possibly County Conservtion District, PA Fish and Boat Comission, US Fish and Wildlife Service, US Army Corps of Engineers
Discharging wastes or waste water into streams	May involve a National Pollution Discharge Elimination System (NPDES) permit, depending on volumes, wastes, and streams.	PA DEP regional office, Soils and Waterways Section
Raising or keeping fish or any other aquatic organisms commercially	Requires an annual artificial propagation license for allowable species only.	PA Fish and Boat Commission

Source Pennsylvania Department of Agriculture

The list is not exclusive and there are many more permits that may be necessary in some cases. Certain counties and boroughs also have their own permit requirements. One should also check with the individual county and borough before starting any work.

Another thing to keep in mind about fish hatcheries is the pollution they cause. The Big Spring Creek hatchery in Cumberland County, for example, was shut down a few years ago because of pollution related problems. The discharge from the hatchery was found to be impairing the water of the creek and hence affecting its aquatic life. The EPA recognizes fish hatcheries as point source polluters. Point source pollution comes from pipes and ditches that release polluted water to water bodies. Effluent discharge permits are required depending upon the

type of waste, volume and the stream to which it is being discharged. National Pollutant Discharge Elimination System (NPDES) permits are one such example, designed to control water pollution by regulating the point source that discharges pollutants in the water. NPDES permits can be obtained from local authorizing agency. In Pennsylvania, they are distributed by the DEP. An NPDES permit is required for facilities that produce at least 100,000 pounds a year in flow-through and re-circulating systems that discharge wastewater at least 30 days a year (used primarily to raise trout, salmon, hybrid striped bass and tilapia), and for facilities that produce at least 100,000 pounds in net pens or submerged cage systems (used primarily to raise salmon).

In addition to pollution of waterways, there has recently been evidence of chemical pollution within fish hatcheries, particularly of polychlorinated biphenyls (PCBs). Some hatchery fish were found to have high level of PCBs from PCB-laden paint used in the tanks where the fish were raised. These paints were used to prevent tank corrosion and although PCB-laden paints have been banned from production, some existing tanks still contain them.

Better pollution regulation and management of fish hatcheries can be achieved in several ways. Fish hatcheries should develop and maintain a Best Management Practice Plan. Best Management Practices are any innovative and new practices that would help maintain and conserve the environment. In the case of a fish hatchery, it would be any practice that would help to conserve the water and land on which it is situated. They should prevent discharge of drugs and pesticides and train staff to prevent and respond to spills. Hatcheries should properly operate and maintain production and waste water treatment systems and minimize discharges of excess feed. Finally, they should regularly maintain production and wastewater treatment systems, and always report failure or damage of a containment system. If fish hatcheries could follow a few of these practices, they would not just be economically profitable, but environmentally sustainable as well.

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in her academic career.

Julie does indeed have lots of ideas for ALLARM. She wants to develop a strategic plan, and increase involvement with the immediate Carlisle community and ALLARM’s local watershed. She wants to continue ALLARM’s efforts in guiding groups through the data-to-action phase. She sees lots of watershed groups “sitting on their data,” which she hopes to change. “I want to help groups use their data, to work with local entities to protect and restore Pennsylvania’s waterways.” Julie says that ALLARM must look at the needs of individual groups, but also needs to take the pulse of the larger movement and to see how ALLARM fits into greater water quality and environmental issues.

Julie has a long term perspective on ALLARM as an organization, and a lot of respect for its past. “The fact that ALLARM is going into our third decade says a lot for our past leadership... Lauren set the stage for our options today.” After nearly a semester with Julie, I can fully agree with Candie in saying she is “committed to the philosophy of ALLARM and passionate about our mission.” This, combined with her technical experience and expertise, puts Julie in the perfect position to propel ALLARM forward over the next ten years.

Cameroon: Africa in Miniature

By Shana Roth-Gormley

Last spring I studied abroad in Cameroon, a central and west African country often called “Africa in miniature” for its unique geographic, environmental, and cultural diversity. There are rich equatorial forests in the south, hot semi-deserts in the north, savannas, volcanic mountains, beaches, and mighty rivers. Cameroon is home to a variety of wildlife, including elephants, lions, monkeys, giraffes, and many, many mosquitoes.

Cameroon is slightly larger than California, and its more than 200 ethnic and linguistic groups contribute to the incredible richness of Cameroonian life and culture. This richness marks all my memories of the country—I think of Cameroon, and a hundred different images come to me all at once. Music everywhere—makossa and hiphop play from no place in particular. My host family speaking Maka, their native language. Sprawling huge markets, and vendors trying to sell me fabric, books, live chickens, electronics, Nikes, and papayas across never-ending city blocks and through twisting dark market passageways. A jumble of colors—bright clothes, taxis, dirt, purple morning glories growing wild on abandoned lots. The constant smoky smell of burning trash. Men whistling. Rain.

But Africa is many things, and “Africa in miniature” means more than environmental and human diversity. The incredible wealth disparities, abysmal poverty, and political corruption present across much of the continent can be found in abundance in Cameroon. Life

expectancy at birth in Cameroon is 45.7 years.¹ Forty percent of Cameroonians live below the national poverty line.² Infant mortality is 87 infant deaths out of 1000 live births (in the U.S., on average, it is 6 out of 1000 live births).² Eighteen percent of children under 5 are malnourished.³ And thirty-four percent of the population does not have access to an improved water source.⁴

As in other developing countries, politics are very much at the root of poverty. Nobel prize-winning economist Amartya Sen, for example, has asserted that “No substantial famine has ever occurred in any independent and democratic country with a relatively free press.”⁵ Even though famines and natural disasters like droughts and floods are brought about by environmental conditions, Sen says, it is political circumstances

that determine how people will be affected. And the political circumstances in Cameroon are illustrated by the rule of Paul Biya, president of the country since 1982, who was recently ranked by historian David Wallechinsky as the 19th worst dictator in the world.⁶ Though dictatorial governance is a major problem, the political situation in Cameroon is also shaped by a pervasive culture of political corruption. In both 1998 and 1999, Cameroon was ranked by Transparency International’s Corruption Perceptions Index as the most corrupt country in the world.⁷

Why does this matter to your semiannual ALLARM newsletter? Because politics and poverty are deeply related to environmental problems. Exploitation of the environment is a matter of survival for people who live in poverty, and many in Cameroon live at or below



Photo Courtesy Shana Roth-Gormley

“I’ve never seen the phrase ‘there is no away’ made quite as stunningly visible as in Cameroon.”

the poverty line. Few people have access to clean, safe drinking water, unless they can afford water purifiers or bottled water. Instead, most rely on water from the tap, which many are not hooked up to and which may not be working on a given day; on neighborhood water pumps, many of which are broken or just no longer operate; or on local streams, contaminated with trash, human and animal waste, and chemical runoff from industries, households, and roads. People burn their trash (including things like tires and electronics) in open pits by the side of the road, exposing everyone to noxious fumes and concentrating contaminants in the ground. Sometimes things are just thrown away, like the plastic bottles that are thrown into riverbeds and left to accumulate into massive piles. I've never seen the phrase "there is no 'away'" made quite as stunningly visible as in Cameroon. The connection between poverty and environmental exploitation is visible at the national level. Poor countries like Cameroon are receptive to the economic development proposals of other countries, international organizations, and especially multinational companies. Companies from the United States, Europe, and Asia come to Cameroon to build and invest. This investment can certainly be positive and beneficial, but these companies also exploit resources like oil and timber. Though investment programs may be highly profitable, the benefits to ordinary Cameroonians are far from guaranteed.

The Chad-Cameroon pipeline project, a development project supported by the World Bank,

is a compelling example of this. The project is allegedly intended to benefit Cameroon and Chad, and Cameroon is slated to receive \$900 million in profits. But the Cameroonian government has been criticized in the past for financial mismanagement, and profits from Cameroon's oil resources "are largely unaccounted for."⁸ The pipeline project presents the risk of oil leaks or spills which could contaminate groundwater. It will cut through farmland and natural forests, and the Cameroonians who currently own and depend on this land have not been adequately compensated. Perhaps most disturbingly, the multinational oil companies involved in the project (several of which have been accused of human rights violations in the past) have negotiated agreements which "place the project beyond the reach of national laws in both countries, and which insulate the oil companies from liability in the event of disaster."⁹

But despite this social corrosion, environmental exploitation, and political corruption, there have been some positive changes. One of my favorite trips during my time in Cameroon was to the Bimbia Bonadikombo Community Forest, one of the increasingly rare coastal lowland rainforests. The community forest was recently established there, under a law that allows local communities to sustainably manage forests that people depend on for their survival in an effort to conserve the forests, alleviate poverty, and preserve traditional knowledge. There are also Cameroon's national parks such as Korup National Park is part of Cameroon's Bioresources Development and Conservation Plan, which links conservation with

commercial development and human coexistence with the forest.¹⁰

These changes are heartening and indicative of good things to come. But ultimately, positive, lasting environmental changes can only come with greater cultural shifts—to a society no longer ruled by corruption, and with a free, fair, and open political process. And for this to happen, the voices of Cameroonians must not only be heard and acknowledged, but begin to count for something in decision-making processes about issues that deeply affect them.

The time I spent in Cameroon was so many things—exhilarating, frustrating, heartrending, illuminating, breathtaking. I never stopped being amazed at the incredible and at times barely believable things I saw there, and I hardly skimmed the surface of what there is to know. I started to think that anything is possible, and maybe it is. Nelson Mandela, who spent 27 years in a South African prison before being elected president, dreamed of "an Africa at peace with itself." And as the ever-optimistic Gandhi reminds us, "all through history the way of truth and love has always won. There have been tyrants and murderers and for a time they seem invincible, but in the end, they always fall." Think of it, he said—always.

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Wishing our seniors the best of luck!
Class of 2007 Reflections

Katie Fox

I have always loved learning about the environment but it wasn't until I started working at ALLARM my junior year that my passion changed from simply learning about the environment to wanting also to protect it and to be a part of the whole environmental movement. ALLARM has allowed me to take what I have learned in the classroom and use it to work to solve real environmental problems. During my time at ALLARM I have been particularly inspired by the watershed organizations that ALLARM works with. Although the members of these organizations often have busy lives with families and fulltime jobs, they are dedicated to monitoring and protecting their watersheds. Their commitment and passion has inspired me to be more dedicated to the environment outside of work and the classroom.

David Rose

During my two years with ALLARM I have been exposed to a variety of experiences and utilized a broad variety of skills. Working with ALLARM has improved not only my analytical skills but my ability to work in a team setting and collaborate with others- all of which are vital in the professional world. Some of my past responsibilities include serving as the webmaster and SMART coordinator, researching grants, and conducting data analysis. Each has been a unique and enriching experience. ALLARM has given me the opportunity to combine my passion for the outdoors with the chance to interact with community members and alleviate environmental problems.

Audrey Fisher

I remember visiting the ALLARM website my junior year of high school during one of the many hours I spent searching for the "right" college. Once I decided to attend Dickinson, I set my sights on working for the organization. Looking back, I don't know if this college was "right" for me in every way I dreamed it would be, but I have most certainly made the most of it in large part through my work at ALLARM. I think it has taken me a full three years to fully grasp the mission of this organization. ALLARM is not just about technical assistance, wetland restoration, or environmental education. It's about community empowerment. When fully understood, it is an incredibly powerful idea. As a result of my time at ALLARM, I will leave Dickinson College with the knowledge, skills, and passion not only to protect the environment, but to empower others to ask questions, find solutions, and take action.

Shana Roth-Gormley

This has been my first and last year working for ALLARM. Though I wish I'd had more time here, working with ALLARM has enormously enriched my Dickinson experience. My major project this year was working on the stormwater campaign to educate Carlisle about the effects of stormwater runoff on local waterways. This project has given me confidence and new skills, and has been personally challenging and empowering. But it has also taught me about the importance of collaboration—problems and projects like this are too big to take on alone. In working with ALLARM, I've learned that protecting watersheds and the environment requires many people with diverse skills. It's a community effort, and what I've gained in knowledge and personal growth is only one small part of that effort. I'm just one little stream in a watershed, and it's in contact with other streams and rivers that we begin to make a difference.

Spring Staff 2007



Back Row: David Rose, Sunil Baidar, Katie Fox, Courtney Haynes, Science Director Candi Wilderman, Director Julie Vastine, Jack Treckler

Front Row: Lindsay Hunt, Kate Consroe, Stevie Lewis, Andrea Korman, Shana Roth-Gormley, Audrey Fisher

*Welcome to the ALLARM family
Julie Vastine, Andrea Korman, and Stevie Lewis*



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ALLARM, founded in 1986, is a project of the Dickinson College Environmental Studies Department. Our team of students, professional staff and faculty provides community groups with comprehensive technical support for locally-driven watershed assessments, protection and restoration. For more information visit our website: www.dickinson.edu/allarm.