"Never doubt that a small group of thoughtful, committed citizens can change the world.
Indeed, it is the only thing that ever has."

-Margaret Mead

YOUR DATA AT WORK
by Stefanie Comastro

Have you ever wondered what the ALLARM staff does with the data you collect and send in? As many of you know, every summer we graph all of the data that has been submitted during the previous calendar year, classify streams into resistance categories based on the alkalinity data and do an analysis of seasonal patterns and acidic episodes. Your graph with our analysis is then sent to you. In addition, ALLARM faculty and students are doing an ongoing in depth analysis of patterns of variation in pH and alkalinity and responses to rainfall events for all of the streams monitored for at least one full year. One of our goals is to determine what watershed characteristics are most important in determining stream response to acid deposition. The results of these analyses have been published in scientific papers and have been presented at scientific conferences. In addition, ALLARM has used the data to testify before the state legislature in support of acid rain controls, has used the data in publications on volunteer monitoring and acid rain issues, and sends an annual summary of all data to all the state agencies and groups interested in water quality in the Commonwealth.

Jonathan Gourley, ALLARM’s student data analyst is now in the process of a new project. He is involved in the task of graphing data from streams that have been monitored for more than one year -- some of our volunteers have actually collected weekly data for up to six years! This data will be used in an analysis of trends over time and will open up a new opportunity for research.

What do the data tell us? Patterns in the acidity of Pennsylvania’s streams are quite apparent from the collected data. No two streams are alike in their test results. Streams in the same immediate area may show similar patterns because of similar geology and weather conditions, but for the most part, the pH and alkalinity are unique to an individual body of water. This demonstrates how important it is to monitor every week.

ALLARM volunteers have also demonstrated that the effects of acid deposition in Pennsylvania have been underestimated. Many streams, even those deemed resistant, can experience acidic episodes in which the alkalinity of the stream will take a sharp dip. Only frequent monitoring will catch these short-lived, but high impact acidic episodes. ALLARM’s sampling sites are classified according to their ability to buffer acidic episodes. An endangered stream is one that experiences an average alkalinity of 0-5 ppm, a vulnerable stream has an average alkalinity from 5-10 ppm, a slightly resistant stream has an average alkalinity from 10-20 ppm, and a resistant stream has an average alkalinity greater than 20 ppm.

What does ALLARM hope to find using the long-term data? In addition to documenting long-term trends in pH and alkalinity, ALLARM’s data can serve as baseline data for comparison to information collected after the implementation of acid rain controls due to the new requirements of the Clean Air Act. That is, in the future, it may be possible to see if federal and state regulation on air pollution is having an impact on the acidity of Pennsylvania streams. So, your data are very important and are contributing significantly to our understanding of the effects of acid deposition on freshwater systems. Keep it coming!
Toxics Use Reduction Bill
in Pennsylvania House of Representatives
by Cristin Tighe

Thousands upon thousands of pounds of toxic chemicals are dumped into Pennsylvania’s air, land, and water every year. These toxics are a threat to the environment and to the health of Pennsylvania’s citizens. The danger they cause is increased at times because spills and accidents occur when these chemicals are transported for use or for disposal. One way citizens can ascertain the types, amounts, and users of toxic chemicals in their own communities, is to use the Community Right-to-Know Network (RTK). RTK is part of the Superfund Amendments and Reauthorization Act (SARA) which passed in 1986. It is a reporting bill which requires most manufacturing companies to report the fate of toxic chemicals that they use at their facility. RTK is a computer database of the toxic chemicals companies release. According to SARA, companies which qualify under a number of standards are required to fill out what is called a “Form R” for each toxic chemical they use each year. On the Form R, they must report the amount and type of toxic pollution they generate and how it is discharged into the environment. Citizens can obtain Form Rs or other information on RTK by contacting: 1) EPA Office of Pollution Prevention and Toxics, Information Management Division, 401 M Street, SW, Washington, D.C., 20460 (202)260-6238, 2) EPA’s Emergency Planning and Community Right-to-Know Act (EPCRA) at 1-800-535-0202, and 3) Toxic Release Inventory Representative, Specialized Information Services, National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894, 1-800-231-3766. The RTK Network can also be accessed right here at Dickinson College. Professor Michael Heiman created a project in which his Environmental Studies students audit a company, or companies of their choice using information obtained through the RTK-NET database and other sources.

To give you some idea of just how much hazardous waste is released into Pennsylvania’s environment, I have compiled data on 1991 toxic releases for 20 of Pennsylvania’s 67 counties, using the RTK Network database. The “Number of Submissions” column is simply the number of Form R’s per county which were sent to be put into the RTK database. The “Releases and Transfers” column tells you the number of pounds of toxic waste that companies in each county released on site or sent off site to be dealt with. The “Waste Generated” column shows how many pounds of toxic chemicals were generated in production processes per county during 1991. As you can see, the amounts of toxic chemicals that are present in our environment is exorbitant. In 1991 alone, 617,077,233 pounds of waste was generated in only 20 counties, and of that 222,276,835 pounds were released into our environment.

Presently, there is a bill (No. 1688) in the House Conservation Committee in Pennsylvania. The goals of this bill are to:

- provide for reduction of toxic materials
- establish the Toxic Use Reduction Advisory Board in the Department of Environmental Resources (DER) and define its powers and duties
- provide additional duties of DER, including preparation, submission and approval of toxic use reduction plans and related documents
- establish the Office of Toxic Use Reduction and the Toxic Use Reduction Assistance Bureau and define their powers and duties
- establish the Toxic Waste Reduction Fund
- provide for enforcement and civil and criminal penalties
The main point of this bill is to provide a legislative base that addresses prevention of pollution and reduction of toxics in industrial and manufacturing processes. It would encourage more efficient use of toxic substances, substitution of less hazardous substances, and production processes which cause less pollution than the present ones. It emphasizes government’s role in helping reduce pollution by providing assistance to companies on how to reduce toxic waste. It emphasizes that promotion of the economy and protection of jobs are possible along with a 50% reduction of chemicals over five years. This bill is an excellent solution to our toxic chemical problem. If this bill passes as it is presently written, it would provide jobs in the Office of Toxic Use Reduction, help companies that manufacture needed products to do it in a more sustainable way, and improve the quality of our environment. This bill will probably sit in the House for a long time because of lack of money and pressure from industry. If enough of the citizens of Pennsylvania will show support for this bill, there is an improved chance that it will be further discussed and eventually passed.

The ALLARM staff would like to urge all our members to use the power they have as citizens, and write their representative asking them to support this bill (1688). The Representatives on the Conservation Committee who are discussing this bill are: George, Wozniak, Stish, Buxton, Laughlin, Steelman, Vitali, Freeman, Ledvanski, Surra, Williams, Jarolin, Mihalich, Thomas, Reber, S. Smith, Argall, Jadlowiec, Scheetz, Birrnelin, Masland, Stern, Clark, and Rubley. (Note: These are the representatives of the counties listed on the compilation sheet. If your county is on the compilation sheet, your district representative will vote on this bill.) The address to which you should write is:

Representative ___________________  
House of Representatives  
House Post Office  
Main Capital  
Harrisburg, PA 17120

If your county is not on the sheet, or if your district representative is not on this committee, you can still write your representative and ask him or her to contact Representative Freeman to help sponsor the bill. Please write and support this bill, it is essential to the quality of our health and the health of the environment. If your county is on the data sheet and you are interested in knowing which companies release toxic chemicals, please give us a call and we will send you a copy of your county information. If you are interested in finding out more about toxic chemicals or want to audit a company in your community, please refer to two excellent books called *A Citizen’s Toxic Waste Manual* (Greenpeace U.S.A., 1990) and *Preventing Industrial Toxic Hazards - A Guide for Communities* (INFORM, Inc., 1987). These two books have been used in Professor Heiman’s classes as essential resources for the toxic waste audit projects. They may be helpful to you. You could also contact Dr. Michael Heiman at 717-245-1338 here at Dickinson College for assistance in doing a toxic waste audit on a company in your community. Remember ALLARM’s motto “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it’s the only thing that ever has (Margaret Mead).” Please write your representative!
## TOXIC CHEMICAL RELEASES, 1991

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<tr>
<th>County</th>
<th>Number of Submissions</th>
<th>Releases and Transfers (lbs/yr)</th>
<th>Waste Generated (lbs/yr)</th>
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<td>Westmoreland</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>222,276,835</strong></td>
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THE TOXICS FINGERPRINT PILOT PROJECT UPDATE
by Carmen Irizarry

Do you remember recently receiving a blue brochure explaining our new Toxics Fingerprint Project and soliciting your participation? This new project involves volunteers collecting water from their streams on a quarterly basis and sending samples to ALLARM for screening in our laboratory for priority pollutants. This program is now possible because Dickinson College has recently purchased sophisticated laboratory equipment through a National Science Foundation grant. The goals of the Toxics Fingerprint Project are:

* Screen all streams for toxics
* Locate critical areas of pollution
* Locate specific polluters
* Create baseline data for comparison with conditions after various hazardous facilities are sited and operational
* Develop a "community lab" which will test the samples of community groups
* Deepen our investigation of human-induced environmental impact

To start this new project, we are conducting a pilot project, where we will have 100 volunteers collect water for analysis for toxic metals concentrations. Once that project has been completed, we will expand our collection to more than 100 volunteers and our analysis will include such substances as petroleum hydrocarbons, solvents, pesticides and other synthetic organic compounds.

As of April 6, 1994, we have 79 volunteers and one watershed association, Pine Creek Headwaters Protection Group, willing to participate in the Toxics Fingerprint Pilot Project. In a matter of days, we expect to have recruited the hundred participants needed to conduct the first pilot project. These hundred pioneers will receive, by early May, the sampling kit which will allow them to monitor their selected sites for toxic metals. By the end of May, all of the Toxics Fingerprint's volunteers would have sampled for toxic metals at each of their sites. ALLARM's volunteers who have committed their time and energy to assess Pennsylvania's streams beyond the standard pH and alkalinity parameters by participating in this pilot project are the following:

Janet Adams
David L. Anderson
Robert C. Armstrong
R.P.S. Black
Edith F. Brown
Francis A. Brown
Lisa Bullington
Alison Clark
Ron Comstock
Jon Cooper
Ray Currie
James F. Deebel
Richard S. Dougall
Durbin Family
George Farley
Pam Fitzpatrick
Barbara Fogal
Anne Gale
Geo Gill
Barbara Jo Hall
William Hall
David. J. Hand
Rance Harmon
Thomas Hatfield
Ralph Hepler
Matt Hershey
Pat Hershey
Ronald Heuston
Tom Hlavinka
Steve Hodgson
Laura Jackson
Michael Jackson
Lorna Joiner
Kate Kauffman
John C. Kearney
Beth Keller
Edwin Kindred
Holly Kirk
John Klunk
Margaret Klunk
Robert Kochenour
Brian Kratz
Lois Law
Jean Leaman
Jim Leaman
Charles Markley
Greg McDonnell
Merry McKeon
Tim Murray
Hal Nugent
Penn's Woods West
Trout Unlimited
Rick Orr
Joe Ostroki
Jodi Pender
Cheryl Petrakovich
Phil Ragon
Jim Rodda
G. Van Rossum
David Sarge
Paula Sassaman
Frank Scaltrito
Johannes Scheltema
John Schirk
We would like to take this opportunity to thank each of the Toxics Fingerprint Pilot Project’s participants. Your participation has made this project a success! Thanks to you, we will now be able to assess metals in numerous streams across the entire state. The final analysis of each of your samples will expand our knowledge on the water quality of Pennsylvania’s streams. If we did not persuade you at first to become part of the Toxic Fingerprint project and now you wish to participate, do not worry! If funding allows, we expect to continue monitoring for toxics on a quarterly basis. We look forward to hearing your feedback! Please watch the mail for more information and help us collect toxic fingerprints from as many streams and lakes across the Commonwealth that we can!

New Data Collection Forms

ALLARM now has new data collection forms that are postcards, thanks to the ingenuity of one of our volunteers. Terry Durbin and his family suggested that ALLARM create these cards to send through the mail and they submitted a sample which we used as a model. These postcards save paper and postage, are easy for us to file, and are easy for you to carry to your site. We will not send old volunteers postcards until they request new data forms because we want everyone to use up the forms they have first. Please remember to check the “Send new data forms” box at least a month before you are beginning to run out. New volunteers will be sent postcards from the start, so eventually all will be using them. Remember that each postcard will hold four weeks of data. Once you begin to use these, please give us feedback on how they work. We think this is a great plan! Thank you to the Durbin Family!

Employer Trip Reduction Regulations

On February 3rd of this year, the Pennsylvania Department of Environmental Resources announced regulations aimed at reducing motor vehicle emissions by instituting a program to lessen commuter travel in the southeastern section of the state. This will make it mandatory for employers to set and meet goals for car pooling programs by 1995. The regulations are expected to affect about 2,500 employers throughout the state. These regulations are required under the federal Clean Air Act amendments of 1990 and are focused on reducing severe ozone pollution. Both the employer and employee have an important role to play in improving our air quality.
ALLARM Has No More Money!
by Ayanna Hill

As you know, ALLARM has been trying to raise funds to support a full-time Executive Director who would start working in September of 1994. Our goal has been to raise about $20,000 and to date, we have raised $9,000 with the profits of our Rollerblades raffle, a benefit concert, and our matching funds campaign. It is no longer feasible, in the few months remaining, to continue our initial idea of raising the full $20,000 for a one-year term. Instead, ALLARM has decided to use the available funds to hire an independent consultant who specializes in grant writing. The hope would be that a professional grant-writer could research potential donors and develop grant proposals for several years worth of funding (similar to the three-year CAPHE grant which runs out this June). This would allow the hired Executive Director to administer the program with flexibility, in terms of future funding during that critical first year.

We are extremely lucky to have a contact person who is an independent development consultant here in Carlisle. Linda Luvaas worked for Dickinson College for six years, specializing in grant writing for non-profit organizations. Linda was the development officer at Dickinson who worked with Candie Wilderman to write the CAPHE grant. She has also developed long-range strategies for the solicitation of foundation/corporate donors and worked closely with the academic deans and faculty on the development of major institutional proposals and reports. With the aid of Linda Luvaas, ALLARM is looking forward to many more years of monitoring.

How can you help? We need information from you on possible donors (both individuals and foundations) and any leads you might have on where we could try to raise money. We also need ideas on strategies for fund raising, and we need individual donations! So, please contact us if you have any suggestions or ideas!

A Correction for the Crossword
by Stefanie Comastro

Thanks to the observant eye of Thomas Hatfield, an ALLARM volunteer, and a crossword puzzle buff, a mistake was found in the crossword puzzle in the November issue of the Stream of Consciousness. The clue for number 33 across was omitted accidentally. I'm sorry if this error caused any confusion. The clue for #33 across is: Sulfur dioxide and nitrogen oxides are ________. Good luck in completing the puzzle!

ALLARM SUMMER HOURS

Unfortunately, due to lack of funds, the ALLARM office will not be staffed by students this summer. However, we will have some volunteer help (if you are interested and available for a few hours a week, please let us know!). Therefore, leave messages on the phone, be patient and we will return your calls! Also, please allow a bit more time for correspondence, but keep up the good work!!
Stream of Consciousness

ALLARM EVENTS

February 3rd: A benefit concert was held for ALLARM in order to raise much needed funds. Barb Barton, an environmental folk singer, whose music is sensitive to cultural and women's issues, performed at Dickinson College. The concert was co-sponsored by Dickinson's Anthropology Club, Outing Club, The Environmental Club, the Women's Center, and Habitat for Humanity. It was a wonderful concert in which Ms. Barton sang and skillfully played the guitar. All who attended had a great time!

February 18th - 20th: Cristin Tighe and Suzanne Kahn attended a Campus Earth Summit at Yale University. It was a meeting of college and university environmental groups from all over the United States who are attempting to build a "blueprint" that campuses can follow to improve the state of environmental issues at their schools.

February 25th: The winning ticket for the ALLARM Rollerblades Raffle was drawn! Jenny Corso, a Dickinson College student, is the proud owner of a brand new pair of "Lightning" Rollerblades, courtesy of Funtastik and ALLARM!

March 30th: Ayanna Hill and Jonathan Gourley attended the Watersheds Conference at Shippensburg University. They set up the ALLARM display and were also able to sit in on a few workshops about non-point discharge, watershed based curriculum, and water quality monitoring. Both believed it was a worthwhile day!

April 22nd: The ALLARM staff helped to celebrate Earth Day here on the campus of Dickinson College. Several college organizations sponsored a big outdoor celebration and ALLARM was able to set up a display and participate in the day's festivities. Staff applications for 1994-1995 were distributed at this campus event.

April 23rd: Suzanne Kahn and Stefanie Comastro attended the Children's Earth Day Celebration in Harrisburg. They set up the ALLARM display and taught kids some things about acid rain and monitoring. It was a wonderful day! So many children and their parents learned to test stream water samples for the effects of acid rain. It was a great learning experience for both the children and for Suzanne and Stefanie. The day was such a success because ALLARM was able to reach so many different people.

April 28th: Candie Wilderman and Kate Kauffman spoke at the Conodoguinet Creek Watershed Association meeting on citizen monitoring. Kate has been monitoring the Conodoguinet Creek for ALLARM on a weekly basis for five years, and monitors dissolved oxygen, nitrates, turbidity and water temperature in addition to pH and alkalinity. The Association is interested in setting up a rather extensive monitoring network and working with ALLARM to monitor this important tributary to the Susquehanna River.

April 29th: The LeTort Regional Authority presented the Miriam Crawfoot Memorial Conservation Award to the Dickinson College Environmental Studies Department for our conservation efforts, and in particular, for the work that ALLARM has been doing in the watersheds across the state of Pennsylvania.
ALLARM EVENTS

September 11th: Ayanna Hill and Stefanie Comastro attended the PennCAir meeting at Dickinson College.

September 28th: Ayanna Hill attended the Pennsylvania Conservation Network Meeting in Harrisburg, PA. She learned about their Key '93 project which proposes the preservation of educational and recreational areas such as parks, museums, and zoos.

October 2nd and 3rd: Several ALLARM staff members attended the Sandy Hollow Festival in Perry County where they set up an exhibit and attempted to gain more volunteers.

October 7th and 8th: Every year, Dickinson College awards an outstanding scientist the Priestly Award and this year's recipient was G.M. Woodwell, President of the Woods Hole Research Center in Woods Hole, MA. G.M. Woodwell founded several environmental organizations, including, Environmental Defense Fund. He was hosted by Dickinson on both of these days, gave a speech, attended various functions, and even went out to breakfast with the ALLARM staff.

October 16th: ALLARM held its fall board meeting and workshop. Five board members attended the meeting and organizational business was discussed. Two current ALLARM volunteers attended the workshop and enjoyed an afternoon in the field.

October 30th: Dr. Candie Wilderman and Ayanna Hill attended The Little Lehigh Fly Fishermen Association's Annual Festival and Pig Roast. Despite the rainy conditions, fly fishermen from all over the state of Pennsylvania came out for the get-together. Dr. Wilderman and Ayanna Hill gave a workshop on the methods and importance of monitoring streams for the effects of acid deposition. They also set up the ALLARM exhibit, hoping to gain some new monitors.

November 11th - 14th: Suzanne Kahn attended the Pennsylvania Alliance for Environmental Education (PAEE) Conference in Shawnee-On-Delaware, PA on Saturday the 13th. She set up an exhibit in the hopes of attracting new volunteers and attended a few of the information sessions.

November 17th: Every Wednesday, Dickinson College holds a Common Hour in which different organizations and speakers come to educate the students. No classes are held from noon to 1:15pm which enables any interested students to attend. In an attempt to educate Dickinson College students, the ALLARM staff members gave a presentation with the help of Candie Wilderman, Christine Reuss, a former ALLARM staff member, and Kate Kauffman, a former board member and current monitor. The presentation consisted of an acid rain facts session, a slide show, and a discussion of the problems associated with acid deposition and policy options to control it.
Dickinson College was host to a 3-day regional volunteer monitoring conference this past June which drew representatives from volunteer monitoring groups in Delaware, Maryland, Pennsylvania, Virginia, Washington, D.C. and West Virginia. The Conference, sponsored by the Terrene Institute, the U.S. Environmental Protection Agency, Region III, the PA Department of Environmental Resources, Bell of PA Telephone Pioneers of America, and the Delaware River Basin Commission focused on building a volunteer network to protect and improve water quality. Conference objectives included: (1) promoting partnerships between the public and private sectors, (2) sharing information on volunteer monitoring efforts throughout the region, (3) offering suggestions on how to begin a volunteer monitoring program, (4) uniting committed citizens, (5) exploring opportunities for data usage and discussing standardization techniques, and (6) establishing plans for future organization within the region.

Candie Wilderman, ALLARM's Executive Director, was an invited speaker at two sessions: the plenary session on Friday morning entitled “Exemplary Grassroots Volunteer Monitoring Programs”, and the plenary session on Saturday morning entitled “Developing and Maintaining a Volunteer Monitoring Program”. In addition, she was part of a team that led two field sessions during the conference, where local streams were visited and where volunteers were trained to do water chemistry, macroinvertebrate sampling and identification and habitat assessment.

Other topics included the Clean Water Act, watershed management, funding opportunities, data management, environmental education, quality assurance, data usage, and networking. The conference concluded with state breakout sessions where issues of state interest, such as how we can help each other, how DER can help volunteer groups, how we can develop standards and protocols, and how all groups can pool resources for the common good were discussed. Probably the most important outcome of the meeting was a new sense of unity amongst the volunteer monitoring groups and a renewed commitment to continued monitoring as a means of empowerment for our citizenry. Many thanks to the several ALLARM volunteers who participated and we will let you all know when the next meeting is scheduled!
May 15th: The Pine Creek Headwaters Protection Group Annual Banquet will be held and Candie Wilderman will speak on volunteer monitoring.

June 3rd - 5th: The Appalachian Rivers and Watersheds Symposium will be held at the Mountainclair Student Union at West Virginia in Morgantown, WV. The Symposium will be hosted by the WVU Division of Forestry through the Wildlands Heritage Project and will be hosted by the West Virginia Rivers Coalition and the West Virginia Department of Commerce, Labor and Environmental Resources.

June 19th-22nd: The Rivers 2000 Conference: Building Partnerships for River Conservation will be held at the Hilton Hotel in Harrisburg, Pennsylvania. Candie Wilderman will be giving a presentation on citizen monitoring on the 21st. Please attend if you can!

ALLARM NEEDS VOLUNTEERS TO SET UP THE DISPLAY AND REPRESENT THE ORGANIZATION AT THE TWO FUNCTIONS THAT FOLLOW. IF YOU WOULD LIKE THE JOB, PLEASE CONTACT THE ALLARM OFFICE AS SOON AS POSSIBLE!

June 4th: The Cumberland County Chapter of Trout Unlimited, the Boiling Springs Civic Association, and the Yellow Breeches Chapter of the Pennsylvania Guild of Craftsmen have invited ALLARM to set up our display at the Foundry Day Arts and Crafts Festival.

June 11th: The Pennsylvania Bay Education Office has invited ALLARM to set up our display at the 1994 Susquehanna River Celebration.

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June 19 - 22, 1994
Hilton Hotel
Harrisburg, PA

△ To inspire a vision for the future of Pennsylvania's rivers.

△ To highlight the contribution of rivers to the quality of life.

△ To conserve and restore Pennsylvania's rivers through education, awareness and stewardship.

△ To develop partnerships among diverse interests to enhance Pennsylvania's river resources.

Call: (814) 234-4272 To receive the conference brochure
MEET THE STAFF
by Stefanie Comastro

As you know, ALLARM's staff is comprised of students at Dickinson College, under the direction of Dr. Candie Wilderman. Dr. Wilderman is an Associate Professor of Environmental Science, and chairs the Environmental Studies Department at Dickinson. The staff would love to get to know all of the monitors personally--we know so many of you from workshops, letters, phone calls, and pictures--keep them coming! To assist you in getting to know us better, here is a brief description of who we are and what we do for ALLARM.

Stefanie Comastro, freshman: Stefanie is the editor of the newsletter. She has really enjoyed working for ALLARM this year and looks forward to returning in the fall. Stefanie is a Geology major and plans to become an Environmental Studies Certificate student.

Jonathan Gourley, sophomore: Jonathan has been quite busy analyzing ALLARM's data and putting them onto comprehensive graphs. He is a Geology major and has a passion for rock climbing.

Ayanna Hill, senior: Ayanna is from Philadelphia and is a Biology major and an Environmental Studies Certificate student. She is the Networking and Special Events Coordinator and is implementing the new volunteer motivation campaign. Ayanna hopes to eventually be placed in New York for a teaching position. As of right now, she plans to return to Philadelphia for summer employment.

Carmen Irizarry, senior: Carmen can't believe that this is her last year working with ALLARM. Carmen will be graduating in May and is enrolled in law school. She plans to focus on environmental and family law. This year, Carmen began the Toxics Fingerprint Project (108 volunteers will participate in the program by sampling their streams for metals). Her final statement to all involved in ALLARM is "thank you from the bottom of my heart. This organization has enriched my life in many ways and the experience could never be substituted. Keep up the good work!"

Suzanne Kahn, sophomore: This is Suzanne's first year on the ALLARM staff. She is the director of the SMART program, ALLARM's environmental education program for children. Suzanne is a Biology major and an Environmental Studies Certificate student. She will be abroad next year studying in Costa Rica and Baja, Mexico, but is looking forward to returning to ALLARM her senior year!

Jennifer Sloan, senior: Jenny is ALLARM's Data Entry Coordinator. She is a Policy and Management Studies major, an American Studies minor, and an Environmental Studies Certificate student. She is graduating in May and will be working on a sustainable transportation project in Washington, D.C.
Volunteer Spotlight: Michael Jackson and the Students of Everett Area Elementary School
by Suzanne Kahn

Every Monday after school, Mr. Michael Jackson, a teacher at the Everett Area Elementary School in Bedford County goes down to Clear Creek with a couple of his fifth grade students to monitor for ALLARM. They have been doing this together for over a year now. The students get permission from their parents and attend when they want. It has become a habit that teacher and students “look forward to every week.” Mr. Jackson provides all of the needed equipment, and for approximately half an hour each week, teacher and students monitor, take walks up and down the stream in their boots, and often observe wildlife of the area. Sometimes, the students see a turtle that they want to take home, but Mr. Jackson reminds them that they ought to leave it at the stream so they will have something to look forward to for the next visit. The students are quick to agree and continue to look forward to Monday afternoons each week.

When asked what is the best thing that he has gotten out of his monitoring experience, Mr. Jackson responded that it is the involvement with his local stream. He has tied the monitoring in with science units on pollution and has sparked an interest in students regarding environmental issues. Twice a year, two fifth grade classes do extensive studies on the stream through various tests. Naturally, this project fits in nicely with the monitoring that they are doing for ALLARM.

Mr. Jackson offers some encouraging words to those monitors who are becoming tired of monitoring....he was in Honduras last summer and thought that ALLARM would “just have to wait” while he was away. Fortunately, one of his students eagerly offered to monitor for him. When Mr. Jackson returned, his student was excited to tell him all about the wildlife he had seen at the stream and the results that he had collected. The student’s parents went down to the stream with their son and became interested in monitoring as a result. Mr. Jackson suggests that when you are feeling discouraged about monitoring, try to get someone to help you and join in on the activity because it seems to have a chain effect in getting people involved! He has found that reliable students, teachers, and parents are good companions. It is a wonderful social activity and for a good cause too!

I asked Mr. Jackson if there were any unique monitoring activities that he has done that he could recommend for other teachers. I discovered that he had been doing air and water temperature studies on streams before becoming involved in ALLARM. Often, he takes his students on hikes along the stream and looks at the influences that houses and farms have on the stream, the dependence of living creatures on the stream, and the stream’s depth, width, and velocity. He asks questions such as “How many families does the volume of water in the stream support?” With these projects, every student has a job to do and is involved in some way. Mr. Jackson reported that this “fascinates students...the results blow their minds!”

Another activity that is popular among the students, deals with the inhabitants of the stream. Mr. Jackson told me about one time when the class observed a muskrat swimming down stream with a large plant in its mouth. The students thought that this was “incredible.” They also see turtles and are aware of their period of hibernation when they disappear. The class becomes involved with the invertebrates of the streams in even more depth. The
Cristin Tighe, senior: Cristin is ALLARM’s Office Manager. She majored in American Studies, minored in Physics, and earned an Environmental Studies Certificate. Next year she plans to go to Yale University School of Forestry and Environmental Studies as a graduate student. She is sad to leave ALLARM, hopes its future is very successful, and wishes that we get many more volunteers who are as psyched and as motivated as our current ones! She wants to wish everyone-Happy Monitoring!

Jared Volpe, junior: Jared has now been with ALLARM for two semesters. His major is Geology and his minors are English and Fine Art (studio). Jared is the Quality Control Coordinator here at ALLARM.

students capture invertebrates, record the numbers they find as a class, and determine the biotic index. In so doing, they determine various aspects of the health of the stream. It becomes a competition between the students to see who can find the largest number of “critters.” The class also keeps a record of the pH and alkalinity of the stream on a chart in the classroom and Mr. Jackson graphs the results.

When asked what effect the snow has had on his monitoring efforts, Mr. Jackson responded, “The snow doesn’t stop me! No weather stops me!” In his opinion, ALLARM/SMART is a “super program.” He has become very interested in looking at the seasonal patterns of the effects from acid rain. By doing the tests year round on a weekly basis, the differences in acidity and rainfall are more apparent than if the monitoring was just an occasional activity.

Mr. Jackson is a very enthusiastic and energetic teacher and I’m sure that this quality rubs off on his students as well. He is an asset to ALLARM and he assures me that he will be monitoring for a long time because he enjoys it so thoroughly. It is so encouraging to hear such excitement over monitoring...hopefully, his attitude will inspire more concerned citizens throughout Pennsylvania to join the ALLARM band of volunteers and reverse our declining trend in volunteers! Thanks for your enthusiasm, Mr. Jackson!
Springtime and Acid Shock
by Stefanie Comastro

The arrival of springtime doesn’t only signify the coming of warm weather, the melting of the snow, and the blooming of flowers. A much more serious change can be experienced by many of the streams throughout the state of Pennsylvania.

With the melting of the snow, a dip in the pH of many bodies of water can occur. Being that the winter of 1994 brought quite a bit of snow to most of Pennsylvania, severe acidic spikes have occurred in some of the streams monitored by ALLARM volunteers. As the snow piled up, so did the amount of acid present in that snow. The acid was trapped in the snow, but as the snow melted, a rush of acidic water was carried off into the streams. Many streams experienced low pH and low alkalinity readings, meaning that there is a lot of acid in the water, and the capacity of the stream to combat the effects of that acid has decreased. This phenomenon is known as “acid shock.” Many streams are impacted by this sudden flow of acidic water and this can be observed in the data collected by many ALLARM volunteers. How do you know if your stream suffered from acid shock? If you noticed that the stream’s alkalinity rose during the winter and then dramatically fell during the spring thaw, your stream probably has been affected by acid shock.

The worst problem associated with acid shock is the impact that the high acidity has on aquatic organisms living in the streams. As the pH and alkalinity change, the organisms have a very difficult time dealing with such high levels of acidity. Unfortunately, acid shock usually occurs during the most vulnerable period in the organisms’ life cycles. The early springtime is when most aquatic organisms lay and fertilize their eggs. Many of these living things don’t make it in such acidic water. These creatures rely on the water quality of the streams!

Please, continue to monitor your streams so that we can follow these trends and work toward a solution!

Note: Even in a highly resistant stream, the pH and alkalinity were lowered by heavy rainfall and snowmelt in Nov-Dec, 1993 and Mar, 1994 (arrows).
NOTE: This stream shows periods of decreased alkalinity during the late winter and early spring of every year recorded (arrows). Note, however that the pH decreased dramatically during this year's snowmelt period.
Stream of Consciousness

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