DEP's New Water Quality Regulations

DEP ISSUES DRAFT FINAL ANTI-DEGRADATION WATER QUALITY REGULATIONS

by: Lauren Imgrund

In the last issue of Stream of Consciousness, we reviewed proposed water quality standard changes under Pennsylvania’s regulatory basics initiative. The public comment period on these regulations closed in October 1998. The PA Department of Environmental Protection (DEP) is now in the process of reviewing the comments received and a final rulemaking is expected this fall.

In a separate (but related) water quality rulemaking, DEP recently issued draft final regulations on the anti-degradation provisions of the water quality standards. Anti-degradation standards are designed to protect the existing quality of high quality waters and the existing uses of all surface waters. The Environmental Protection Agency requires a three tiered approach for water quality protection:

Tier 1 - maintains and protects existing uses, such as fishing and swimming, and the water quality necessary to protect these uses. This Tier is applicable to all surface waters.

Tier 2 - protects existing water quality where the quality is better than necessary to protect the fishable and swimmable uses of the water. In PA this tier is referred to as High Quality.

ALLARM Data Soon to be on the Web

by: Evan Johnson

Suppose you were talking to a friend about your work at ALLARM, and they asked you whether any work had been done in their area. How would you find out? Probably call us, the folks at ALLARM, and ask. We’d let you know what sites were there, and send out the data, if you wanted, which would get there in several days. Well, that is no more. Now, you could get on the web and, within minutes, tell your friend that there are

Data continued on page 4
The Kiski-Conemaugh River Basin is a very scenic and beautiful area in Pennsylvania with high mountains and deep river gorges. Unfortunately, it is also one of the most polluted river basins in America, due to abandoned mine drainage. Abandoned mine drainage is harmful because it is very acidic and is therefore detrimental to the living things in the rivers and streams it drains into. The Kiski-Conemaugh River Basin Alliance was developed to help save and clean up the streams and rivers in the area.

ALLARM is partnering with three groups from the Kiski-Conemaugh River Basin Alliance: the Stony Creek- Conemaugh River Improvement Project (SCRIP) in Somerset County, the Conemaugh Valley Conservancy (CVC) also in Somerset County and the Roaring Run Watershed Association in Cambria County. All of these groups are interested in restoring water quality as well as developing access to the rivers and greenways in the basin for recreational activities. The groups monitor pH and alkalinity in these streams. ALLARM provides training, lab support, and data compilation, analysis, and interpretation.

The Kiski-Conemaugh River Basin Alliance recently entered the final stages of development of a Rivers Conservation Plan through the Department of Conservation & Natural Resources program. They have also developed a GIS model in conjunction with West Virginia University. The model uses water quality, land use and other data to help prioritize sites for restoration based on their contribution to overall water quality degradation.

Wilderman feels this has been one of her greatest accomplishments, but credits the college and other faculty members who also worked to get the department started. She feels her teaching has helped to contribute to the mission of "saving the bay" in two ways. In teaching introductory courses the awareness, understanding and interest of the bay is achieved. Through teaching upper level courses she is able to help students find professional pathways which play a part in protecting and preserving the bay.

Another of Wilderman’s great accomplishments has been the founding of ALLARM. Wilderman...
2nd Annual Schuylkill River Watershed Monitoring Congress

by: Jackie Johnston

The second annual Schuylkill River Watershed Water Monitoring Congress was held on Saturday, March 6 at Reading Area Community College. The Congress featured keynote speaker Geoff Dates from Riverwatch Network, hands-on training of in chemical and biological parameters, and various sessions, all of which were both interesting and informative. Four ALLARM staffers attended the congress: Lauren Imgrund, Melanie Dean, Evan Johnson and myself.

The day consisted of several groups of concurrent sessions. ALLARM director Lauren Imgrund and Fred Stine of Delaware River Keeper Network led a session on chemical monitoring. This gave those who attended a hands-on overview of some of the methods used to monitor chemical parameters in streams. About 15 people attended this session, and all seemed to have an enjoyable experience.

Melanie, Evan, and I attended the session entitled “Fundamentals of Organizing & Designing a Monitoring Program.” Geoff Dates, science director of the River Watch Network, lead this discussion. He spoke about the value of volunteer monitoring. “I thought he had some really good things to say about the importance of volunteer monitoring and about keeping the monitors motivated,” Melanie said as we left that afternoon.

While we were attending the first two sessions, other congress participants were at “Introduction to Aquatic Macroinvertebrates,” and “Volunteer Monitor Data and the 303(d) Process.” The macroinvertebrate session served to introduce participants to finding and identifying the little critters that live in streams and what they say about the stream’s health. The final session focused on the new state water quality standards to enforce section 303(d) of the Clean Water Act. Speakers Maya van Rossum from the Delaware Riverkeeper Network and Diane Wilson, Citizen Volunteer Monitoring Coordinator of the PA DEP discussed how the standards are being set and how citizens can actively participate in the process.

After lunch, another group of concurrent sessions started. Two groups headed out to the field, one to look for macroinvertebrates, and the other to assess the physical habitat of a stream. Melanie and I were planning to attend the habitat assessment session, but the pouring rain and our lack of suitable attire changed our minds. Instead, we opted for the indoor sessions.

The two sessions that I attended were a group discussion about monitoring from volunteers’ perspectives and a presentation by Radnor Middle School teachers and students on a program that the students participated in during their seventh grade year. Thirty-six students spent the entire year studying the Delaware River watershed from many different points of view. The watershed provided a foundation for all their studies, with the exception of math and foreign language. The students not only enjoyed learning more through this program, but also learned more. Their average reading and writing skills surpassed the average of the rest of their classmates, and the average cost per student was actually less than the average for the rest of the school.

All in all, the Second Annual Schuylkill River Watershed Water Monitoring Congress was a great success. At the end of the day, we were all glad that we had been there, and we spent the ride home discussing topics that had been brought up there. We’re all anxiously awaiting next year’s Congress.
12 sites monitored in Bedford county, including one on Yellow creek, which runs right by his house.

ALLARM has recently teamed up with the Pennsylvania Spatial Data Access (PASDA) system to make our water quality information readily available on the web to anyone who may need it. PASDA is a part of the National Geospatial Data Clearinghouse, the US Geological Society (USGS) portion of the National Spatial Data Infrastructure (NSDI), which provides free public access to spatial data via the World Wide Web. Run through Penn State University and partially funded by DEP, PASDA has collected data from governmental and larger nongovernmental organizations across the state. The data, which will be stored on the PASDA website, is in GIS (Geographic Information Systems) format.

The entire National Geospatial Data Clearinghouse is searchable in several different ways. You can search the data and metadata by keyword, or, if you know the exact location you are looking for information on, by using latitude/longitude coordinates. The PASDA website also has a keyword search function, as well as an easy-to-use clickable map of the state of Pennsylvania, with each individual county delineated. Data downloaded from the PASDA website will be viewable with a simple program which you can download with a simple click on the website. The program is called ArcExplorer (put out by ESRI, the makers of ArcView GIS), and is a basic browser for GIS data. It will let you see the individual data points, as well as maps of the counties where the points are, etc.

The primary goal to having ALLARM’s database available on the web is empowerment. Anyone who desires will now be able to get water quality information for any of the streams which ALLARM volunteers monitor within a matter of seconds. Citizens who want to understand the effects of local industry on a particular stream will now have the aid of one ALLARM pH and alkalinity data, if our volunteers cover that stream or one downstream. Government officials wanting to understand trends in water quality in a certain area will have the benefit of our volunteers’ data. Fishermen wanting to understand why brown trout populations in a certain area are declining will now be able to look for anomalies in pH and alkalinity for that area. Providing easy access to our data empowers many people trying to make assessments of water quality. It empowers them with information, and another key to understanding what is occurring in the water around them.

Editors note: PASDA is developing metadata, which describes how the data was collected, methods, etc. Until this is online, the ALLARM data will be available via ftp in zip format. To find it go to the /pub/pasda/allarm directory at ftp://penne.deasy.psu.edu. Once the metadata is created the searchable database will be available at www.pasda.psu.edu. Please also note that this is not a "live link" to the ALLARM database so recent data won’t be available.

Volunteer Data Use Around the Nation

by: Kara Sergeant

Hey you! Do you know what’s happening to the data that you send off in the mail? That’s the idea behind the report that ALLARM staff member Chris Verni and I are working on. Under Candie Wilderman’s recommendation, we are compiling a report to discover how volunteer monitoring data is being used all over the country. There really is very little data on this subject, to our surprise. To begin, we met with Kim Rogers, a Dickinson professor who specializes in Oral History. She provided us with ideas about how to refine our questions in ways that would be volunteer friendly. Chris and I have obtained the most comprehensive list of monitoring groups there is in a book titled the National Directory of Volunteer Environmental Monitoring Programs, and we have spent much time and effort formulating questions (when we aren’t occupied with SMART).

One of the roadblocks we hit so far was when we arrived at a list of probable questions to ask monitors and government organizations. We couldn’t figure how were we going to be able to compare the data that we got from one state to other data in a different state? After all, Chris and I are planning to interview about thirty different groups. To help us tackle this, we met with Dickinson professor Stephanie Larson who teaches a course on quantitative methods. She helped us out with standardizing our data by turning our opinion questions into closed ended questions and gave us plenty of feedback.

Both Larson and Rogers were more than willing to help us with questions and gave us plenty of feedback. Having the resources of a liberal arts college such as Dickinson has definitely been beneficial.

Some of the groups we will be looking at send their data to the government. What does the government actually do with the data? A lot of monitors do not know or don’t really question what happens to their data once the envelope goes in the mail or the email gets sent. It seems that if one is doing work for an agency, they should know how their data is being used, if it is being used at all. How do citizens want to see their data being used? Do all of the monitors follow the same collection technique? Where do non-government groups get their funding? These are only some of the questions that Chris and I will be asking. We are predicting that it will take a while before we produce the finished project, so look in our newsletter for updates!
Mitigating an Urban Stream: The Mully Grub

by Christiana Briddell

The Mully Grub is a tributary to the LeTort Spring Run which runs past the town of Carlisle. The small stream enters the LeTort in a urban park at which a restoration project is planned. The community is going to build a handicapped fishing access and create trout habitat in the LeTort, which is already classified as a high quality, coldwater fishery upstream from the park. For this project to be successful, the pollution laden Mully Grub must also be taken into consideration, because it flows into the Letort just upstream of where the restoration is occurring. ALLARM and the LeTort Regional Authority have received tentative approval of a grant from DEP to help fund the project.

The Mully Grub's history is as murky as its waters. Research has shown that it used to originate in a small lake, fed by limestone springs, that was a town ice skating 'rink' in the winter. There also was a mill on located on the stream which is now converted into an apartment complex. The stream then flowed through a series of marshes and lowlands before it fed into LeTort.

The headwaters of the Mully Grub have since been buried under the town and the water has been channeled into storm water sewers, suddenly to emerge from underneath Hanover St. in Carlisle. The stream was then channelized and the lowland area filled. The Mully Grub presently runs between local businesses, and school and community play fields before it reaches the LeTort.

The watershed includes agricultural land in the far reaches, and much of Carlisle's drainage system runs directly into the Mully Grub before it emerges from the storm sewers. The dry weather pollutants include nitrates, chloride, and total dissolved solids, while storm weather pollutants include metals, total suspended solids, fecal coliform, and ammonia. This data shows the relationship between the presence of precipitation to which pollutants are found at high levels. The pollutants that come from the road such as metals and solids, and from street litter, contribute to the storm water conditions as they are washed into the stream at these times. The pollutants present in dry periods are those that are representative of the groundwater of this region.

The Dickinson College aquatics class, taught by Dr. Candie Wilderman, is working on a plan to remediate the pollution load of the Mully Grub. Previous aquatics classes have collected and analyzed water quality data on the Mully Grub, LeTort, and surrounding areas. The current aquatics class is taking this information and incorporating it into a viable mitigation design.

The goals the class has for this project are: to involve the community in the project; to negate the ill effects the Mully Grub has on the LeTort; to improve the ecosystem functionality of the Mully Grub; and to provide an educational opportunity for students and residents.

Some of the projects the class is considering include planting of suitable vegetation to create a riparian buffer zone. This would help stabilize the bank, provide a habitat for fish and other water creatures, and contribute detritus which is important in the aquatic food chain. In addition to the riparian zone plants, specific plants that are known to suck up metals and toxins could be planted in and along the stream. These plants would have to be cut once a year so that the metals in their tissues were taken out of the stream ecosystem. They would help reduce metal content in the present sediment, and also metals from future sedimentation. The class considered the possibility of creating a small wetlands area to slow and filter the water either near the beginning of the open air section, or at the mouth of the stream. This section could also function as an excellent outdoor lab for the nearby elementary school and for other local students as well as the community at large. Another idea is to add a sediment trap near the Hanover St. outfall to capture pollution-laden material which would need to be periodically dredged, removing a large portion of material before it spreads over the rest of the river. Although it is a difficult project due to the limitations that the developed watershed and restrictive underground funneling of the Molly Grub's beginning sections, there is still much that can be done.

When the proposal is completed, incorporating some of these ideas from the class as well as Prof. Wildermans insight, it will be presented to the public. The project is a good example of a community taking control over their stream, and working towards mitigating the pollution in it to create a healthy environment and an educational opportunity. The implementation will most likely begin next spring.
Recognizing Continued Excellence in Volunteer Monitoring

by: Melanie Dean

"It isn't just about going out to get water samples. It's an opportunity to be part of something special."

The thing that I enjoy most about my job at ALLARM is being able to meet, talk with, and get to know our volunteer monitors. The stories that volunteers have to tell about their monitoring experiences are always reenergizing and inspiring. Learning from monitors helps me to keep ALLARM's goals in mind and realize the importance of the work that we are doing for the streams and waterways of Pennsylvania.

Recently I got the opportunity to interview long-time volunteer monitor Paula Sassaman. Paula has been with ALLARM since 1987 when she learned about us through an ad in a National Audubon Society publication. She has been monitoring Morris Road Creek in Perry county consistently for the past 12 years and has gone out to monitor on at least 418 different days! Paula said that as time went by her monitoring became a part of her life and even a part of her family routine. It became like a family project as her three sons became interested and learned to monitor. Paula said of her monitoring: "It becomes a part of your life. It's interesting to watch the character of your stream change over time. You kind of bond with the stream."

I asked Paula what changes that she has noticed in the health of her stream over the past few years. She said that she has noticed that Morris Road Creek is definitely more acidic than it used to be, and her data seem to agree. Prior to 1993, the pH of Paula's stream was around 6. Since 1993, the pH of Morris Road Creek had consistently hovered around 5 and has even plummeted to 4 on some dates. Paula feels that it is critical to monitor streams because "the acidity threatens the life in the stream and can even affect our food chain." I asked Paula what her other concerns are for the health of Morris Road Creek. She noted that litter and pollution are ever-present threats to her stream.

Paula stressed the importance of volunteer monitoring. "There are so many streams in the state of Pennsylvania that it's tough to monitor them all without the help of volunteers," she said. She had some great advice for our newer monitors and for those who might be considering volunteer monitoring. According to Paula, monitoring doesn't take that much time and it comes with great benefits: "You get to meet others. You can get out into the outdoors more than usual. You can see the changes of nature and of the seasons."

"It's good to have groups like ALLARM who can compile all this data and who take precision seriously," Paula said. "ALLARM is a nice opportunity to network with other people who are interested in the same things I am." ALLARM gives Paula the chance to further enrich her life. She said, "Monitoring adds variety to my life because it's not what I do for a living. It allows me to take part in something scientific."

The following list includes the names of dedicated volunteers who have been monitoring for ALLARM for more than 5 years as well as those who have been monitoring for 10 years or more.

Five Years or More

Robert Checket
Apryl Chidiac
Charles and Mary Dodson
G.E. Farley
Tom Finkbiner
Thomas Hatfield
Steve Hodgson
Brian Kratz
Marion Ledgett
David Lenker
Ron Lutz
Robert Lykens
Crystal McGee
Charles E. Markley
Jill Markley
Phil Ragon
Bic Redman
Andrew Saul
John Schirk
Tom and Ellen Seigfried
Herb Stratton
William Tarpley
Ronald Waclawik
George Walthour
G.D. Van Rossum
Carolyn Walizer

Ten Years or More

Richard Dougall
Anne Gale
David Hand
Howard Landis
Cheryl Petrakovich
Paula Sassaman
Beth Sheckler
Jere White
Eugene Wroblewski
King's Gap Environmental Education Center
Monitoring Outside the U.S.

A Look at Volunteer Monitoring in North Eastern Queensland, Australia

By: Christopher Verni

Volunteer citizen monitoring is growing stronger and stronger with each passing year. As more people get involved, the data gains additional respect from outside sources. This is having an extremely positive impact on the grassroots environmental movement, a movement that is crucial to an intercontinental environmental revolution! Throughout the world, volunteer monitoring groups of all kinds are making their presence known and their voices heard.

I believe that this rising interest in volunteer monitoring stems from the escalating concern for the health of our Mother Earth. People everywhere are realizing that action must be taken into their own hands. We can no longer rely on others to remedy the ailments that we all contribute. Within the past ten years it seems more people have become more aware of the necessity for action.

Last semester I studied abroad in North Eastern Queensland, Australia, and while there I learned multiple things about their grassroots citizen organizations. The Australian environmental movement is felt throughout the country. I had the opportunity to become a part of this movement and gain first hand experience of what the relevant issues are, and how they are handled by various environmental groups.

One of the main issues that pertained to my field of study had to do with declining of stream quality as a result of the deforestation of the coastal rainforest. Deforestation leads to such things as a tremendous loss of rainforest species diversity and a decline in ambient air quality, as well as causing increased sediment pollution within the waterways. This concurrently decreases water quality and causes a lack of dissolved oxygen within the water, which is a leading contributor to the death of many aquatic species. In addition, because of the loss of stream health, drinking water quality is decreasing within many areas at an alarming rate. These acts of environmental degradation have had such a detrimental effect on both the natural environment and the people that live “within” this world, that a new wave of environmental armies have formed. These developing groups are beginning to give back to something that has given us all so much...The Earth. The various groups that I had the opportunity to become involved with all shared similar principles and fostered the same goals. It was a common tactic of these groups to assimilate together multiple schools and community groups, Landcare Groups, and landowners. Councils and local water authorities were enlisted to test the quality of their local streams and water sources. Then, practical actions could be taken to maintain and improve the quality of the watershed.

The majority of the water quality programs within North Eastern Queensland conduct initial surveys of stream habitat, as well as macroinvertebrate and algae studies. They also monitor the physical and chemical conditions of the water. These groups can be seen as parallels to ALLARM in this sense, for ALLARM implements similar tactics to those mentioned above. Multiple groups’ results are then compiled and recorded in central databases through the Catchment Coordinators. This can be considered similar to the Department of Environmental Protection in the United States. Data is sent into the Catchment Coordinators so that it can be incorporated into their studies of stream quality. After the data is analyzed, workshops are usually arranged in order to discuss the causes and effects of water degradation, and subsequently to derive a stream restoration plan.

One cannot stress enough the growing importance of grassroots citizen environmental monitoring throughout the world. Many do not realize the various environmental problems that are occurring outside of their own spectrum of thought. It seems to me that the issues pertaining to the United States are relevant issues everywhere you go. We all live in a biosphere affected by anthropogenic influences; influences that we all contribute to. We live in a day where we all live in each others backyards...whether it be in Australia or the United States. Steps must be taken and actions implemented in order to initiate a global environmental restoration project!
What is a riparian buffer zone?
A streamside forest buffer, or a riparian buffer zone, is the vegetation zone which lies along the stream or river’s edge. This zone serves as protection and a catalyst for the stream ecosystem. Through filtration, this vegetation can reduce pollutants entering a stream or river, or at least slow them down. The stream’s aquatic life gain food, habitat, and shelter from the riparian zone. Well-developed streamside buffers are composed of diverse vegetation and often provide habitat to birds and other wildlife.

In 1996, under the auspices of the Chesapeake Bay Program, Pennsylvania along with Maryland, Virginia, and Washington D.C signed the 2010 in 2010 initiative. This agreement calls for the restoration of 2,010 miles of riparian buffer zone in the Bay Watershed by the year 2010. To facilitate the restoration of Pennsylvania’s six hundred miles, the Department of Environmental Protection developed the Stream RELEAF Program and the Watershed Restoration and Assistance Program (WRAP). The Department of Conservation and Natural Resources (DCNR) through the Forest Stewardship Incentive Program also can provide assistance to landowners’ in conservation and restoration of riparian buffers zones. Farmers can gain financial assistance through a variety of stream bank fencing programs funded by both government and non-profit organizations. For information on riparian forest buffers restoration, contact DCNR, DEP, or your local conservation district office.

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Tier 3 - protects “Outstanding Natural Resource Waters” (called Exceptional Value in PA) which are provided the highest level of protection. These waters have excellent water quality or “exceptional ecological significance.”

In Pennsylvania surface waters can be designated as high quality or exceptional value by two methods.

1) The Environmental Quality Board can make this designation through the regulatory process, which may include a petition from a watershed or volunteer monitoring group following a water quality assessment.

or

2) DEP in the context of a permit review or approval must determine if water quality is such that there is a more stringent existing use that needs to be protected.

In 1993 the Raymond Proffitt Foundation sued EPA for failing to require Pennsylvania to have anti-degradation standards that were at least as stringent as the minimum federal requirements. In 1994 EPA settled this lawsuit and disapproved portions of Pennsylvania’s anti-degradation standards. DEP then convened a group of stakeholders from the conservation community, the regulated community and natural resource agencies to conduct a regulatory negotiation process. The group was unable to reach consensus and submitted separate reports in August, 1996. In the meanwhile, the Raymond Proffitt Foundation sued EPA for a second time to force them to exercise their obligation to propose standards instead of waiting for state action. In April 1996, the U.S. District Court ordered EPA to impose federal regulations for PA’s anti-degradation program. The final federal regulations went into effect in January 1997, and have been in place since.

In March 1997 the DEP’s proposed regulations were presented for public comment. According to DEP most commentators, including EPA, recommended that the draft proposal be re-written to more closely follow the regulations promulgated by EPA. In January 1999 DEP issued redrafted anti-degradation regulations. The public comment period closed at the end of February.

According to the EPA and many environmental groups, the new regulations are a major improvement over the March 1997 proposal. Significant provisions include:

- withdrawal of a proposal to allow the use of general permits in High Quality (HQ) Waters. However, the proposal notes that this issue will be addressed as part of the regulatory basics initiative

- withdrawal of a proposal to eliminate Exceptional Value (EV) and HQ Waters as protected uses

- withdrawal of the proposal to allow small discharges to HQ streams without satisfying Social or Economic Justification provisions

- change to allow a stream to meet either a chemistry or biology test to qualify as an HQ stream. The chemistry test is a long-term test rather than a one-shot sample

- establish a process including public participation to protect existing uses when available data indicates that surface water obtains such uses

- additional opportunities for public input

Although the new proposal is generally supported by environmental groups and other natural resource groups.
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agencies, some points of concern remain:

* the biological requirements for high quality or exceptional value should be more flexible to allow for inclusion of all scientifically acceptable determinations.

* the chemical requirements should not require monitoring of all possible pollutants, which would make it overly onerous for a group (such as a watershed group) to monitor in order to determine long term stream chemistry. DEP’s Water Quality Network does not monitor for all pollutants

* insufficient and unclear protection measures for endangered and threatened species

* no description of how non-point source best management practices will be implemented

* dischargers are to solicit public comments regarding applications for new or expanded discharges. The comments, however, should be received by DEP not the discharger.

* there is a proposal to require petition for consideration as HQ or EV status to include the names and addresses of all the landowners in the watershed is unreasonable and burdensome. This is not required in other cases, such as when an increased or new discharge is proposed.

In summary, this proposal is an overall improvement to the one submitted in March 1997. Of particular interest to volunteer monitors these regulations will provide opportunities for watershed groups to participate in the petitioning process including submitting water quality data for review. In the next issue of “Stream of Consciousness” we’ll give you an update on the status of this proposal.

Thanks to Barbara Kooser at the Chesapeake Bay Foundation for extensive assistance. Other sources include Raymond Profitit Foundation, PA Department of Environmental Protection, Environmental Protection Agency and the Pittsburgh Post Gazette.

Future of Volunteer Water Monitoring in Pennsylvania

by: Ann Yoachim

Students began monitoring Pennsylvania’s waters in 1975 in conjunction with The Department of Conservation and Natural Resources. The founding of ALLARM in 1986 encouraged adults across the state to begin monitoring. Recently, there has been a new commitment to volunteer monitoring at the state level. In 1997, the Department of Environmental Protection developed the Citizen’s Volunteer Monitoring Program, CVMP and as we approach the new millennium over eleven thousand people are involved in monitoring Pennsylvania’s waters.

On March 20th, the first Statewide Summit on Volunteer Monitoring addressed the state of volunteer monitoring in Pennsylvania. This included discussions on the status of the statewide volunteer monitoring network, the forthcoming handbook and training sessions for volunteer monitors, quality control issues, data interpretation and utilization, and ethical considerations of volunteer monitoring. A spotlight was placed on Governor Ridge’s Growing Greener Initiative by the Secretary of the Department of Environmental Protection, Mr. James Seif.

Educational programs highlighted include DCNR’s Bureau of State Park’s Watershed Program and the integrative “Watershed” curriculum at Radnor Middle School.

The summit provided opportunities for government, volunteers and service providers like ALLARM to develop partnerships and share resources through informative workshops, a skill sharing fair, and caucus groups. ALLARM was well represented by both individual monitors, watershed partners, and staff. In all, over one hundred and seventy people were in attendance.
Conodoguinet Creek Volunteer Monitoring Program 1997-98
What is Happening in the Conodoguinet

by: Stephanie Pye

In 1997 ALLARM formed a partnership with the Conodoguinet Creek Watershed Association (CCWA). CCWA has recruited about twenty volunteers who monitor twenty-nine sites along the Conodoguinet Creek in Cumberland County. The Conodoguinet, which is under significant urbanization pressure, was monitored monthly for one year to collect long-term water quality data on the watershed. CCWA hopes to utilize the data for education and awareness of the watershed to public and municipal government officials.

The aspiring volunteers first had to go through an initial six-hour introduction to water quality and the importance of the citizen monitors. They met for the first time on June 21, 1997 for a session on delineating the watershed, where they became familiar with the size of the river, what tributaries were included, and what significant threats to the Conodoguinet were known already. On July 19, the volunteers performed a streamwalk and identified monitoring sites. They also identified the chemical parameters to be measured: phosphate, nitrate, dissolved oxygen, and temperature, and they were instructed on how to use their chemical test kits.

From November 1997 until November 1998, the Conodoguinet was monitored by its dedicated volunteers. Here are some results and interpretations of the monitoring:

Dissolved Oxygen: All of the readings were above the required minimum to support life, which is 5.0 mg/L. The sites will be continued to be monitored for dissolved oxygen to accumulate more year-round data.

Nitrate: The nitrate readings ranged from 0.92 mg/L to 3.63 mg/L. Average nitrate concentrations above 4 mg/L are signs for concern, and were mostly found in the Carlisle area and west, including the tributaries. This high concentration in the more rural areas suggests that nitrates are coming from "non-point sources," most likely runoff from over-fertilized fields. The Middle Spring Creek watershed, in the more urban Shippensburg, had the lowest average nitrate concentration at 1.32 mg/L.

Orthophosphate: The EPA recommends that phosphate levels should not exceed 0.1 mg/L to prevent excessive plant growth. The phosphate levels ranged from 0.13 mg/L to 0.40 mg/L. The mainstream concentrations were higher in the eastern sites where there are more water and sewage treatment plants. The tributaries were similar to the eastern states.

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Presently, the Conodoguinet is still being monitored and will continue to be monitored for a long time. From the data already collected, we know that although the creek is not unhealthy, it is not in the shape that it should be. Drawing concrete conclusions from the data cannot be done until more data are collected, therefore the creek will continue to be monitored. Volunteers will check heavy metal concentrations once a year and start the monitoring of creek biology this spring. They will continue to recruit more volunteers to cover additional sites along the watershed.