United States
Environmental Protection
Agency

Region 3
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Philadelphia, PA

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Our Mid-Atlantic Environment

U.S. Environmental Protection Agency
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25 Years of Progress

INTRODUCTION

To the Mid-Atlantic Region

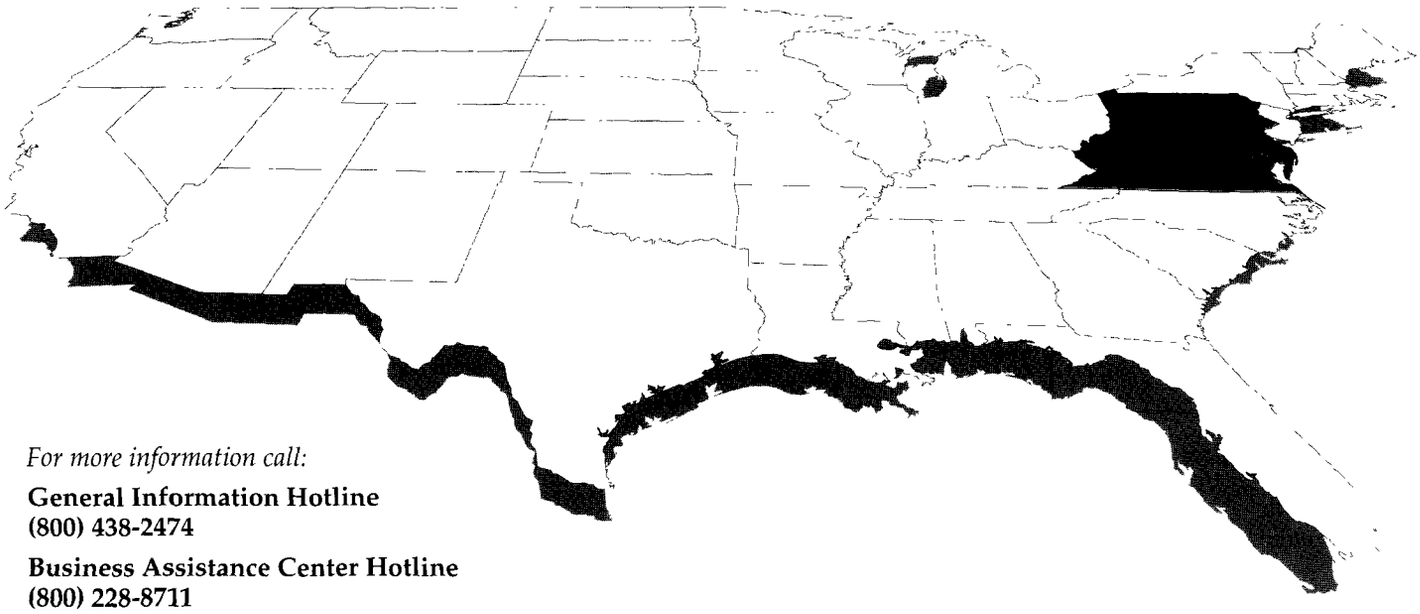
Valleys and ridges, coastal plains and Appalachian Mountains, fields and forests - the Mid-Atlantic Region of EPA is a land of contrasts and balance. The great variety of environments within the Region makes it an attractive place for a rich diversity of plants and animals, including the most dominant animals on the planet: people.

Each of the landscapes of Region 3 provides unique opportunities for living. The multi-state Coastal Plain is characterized by extensive shorelines, wetlands, and slowly meandering streams. These areas have served as important habitat for many species of fish, shellfish, crabs and oysters, which have, in turn, provided people with food and livelihood. The Coastal Plain gives way to the gently rolling foothills of the Appalachian Mountains, known as the Piedmont, which is characterized by fertile soils and proximity to abundant freshwater sources. Throughout time, the greatest growth of populations and industries has occurred within these ecosystems, reflecting our dependence on waterways for clean water and transportation of goods.

The Valley and Ridge ecoregion, forming the central spine of the Appalachian Mountain Range through our Region, has supported centuries of farming in the valleys and wildlife habitat in the ridges. The western Allegheny Plateau supports most of our coal, petroleum, and timber industries. Because these areas comprise the most rural portions of the Region, they offer some of our most valuable natural areas, as well as our most valuable mineral and forest resources within the Region.

Twenty five years ago, EPA was formed to ensure a balance between efforts to improve the quality of our lives and the degradation of these ecosystems upon which our lives depend. Today, we know protecting ecosystems involves controlling pollution that can travel great distances. In the Mid-Atlantic Region, runoff from eastern Pennsylvania farm fields flows into the Susquehanna River, and eventually into the Chesapeake Bay. Emissions from coal-burning power plants in the Ohio River Valley obscure the view in Shenandoah National Park and contribute to acidic rainfall. Car emissions in the District of Columbia and Baltimore are carried by air currents, adding to air quality problems in Wilmington and throughout the northeastern states. Plastics thrown into Philadelphia area storm sewers can travel through streams and rivers and into the Atlantic Ocean, choking sea turtles and dolphins.

The combination and interaction of people and other living things with the unique physical features of our varied ecosystems has determined the lifestyles found here; in turn, these lifestyles have had a direct bearing on our environment. This report was written to help people understand trends and interconnections in the health of the Mid-Atlantic environment that sustains us. The present and future health of our biological diversity, our lands, our economy, and our very livelihoods depend on the careful stewardship of these invaluable, irreplaceable resources.



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Charting a Course for a Brighter Future

"We have not inherited the world from our ancestors - we have borrowed it from our children." (Ancient proverb)

As public servants, the Environmental Protection Agency has a mission to protect the environment entrusted to us by the American people. Since 1970, the Agency has provided footsoldiers in the battle against health-threatening pollution and the wanton destruction of our natural heritage.

This report, presented for EPA's 25th anniversary, allows the employees of EPA Region 3 to share with the people of the Mid-Atlantic Region the environmental accomplishments we have achieved on their behalf. We believe it provides a fair and honest appraisal of our successes, working with many other stakeholders, in improving and preserving our common natural resources. The report also provides a frank assessment of what remains to be done. As the report shows, we cannot grow complacent with what has been accomplished. Because many serious environmental problems remain, EPA is seeking new ways to meet the challenges of the future by building on our achievements and applying the lessons this massive undertaking has taught us.

It is an awesome responsibility, and one we take very seriously. But it is extremely rewarding to be able to work at a job where you know that your efforts will not only contribute to a better quality of life today, but will endow future generations with the natural resources critical to sustaining life itself.

As we look back on the quarter century since EPA was established, we can count many victories - victories that would not have been won had it not been for the support shown for our efforts by the public. We depend on that support for our continued success and present this report as an account of what the public is receiving for its investment of hard-earned dollars.

Under the leadership of President Clinton and EPA Administrator Carol Browner, EPA is reinvigorating our nation's approach to protecting the public health and the environment. They have set the course for a new generation of environmental protection. Here in the Mid-Atlantic Region, we have taken the lead in a number of important areas:

- restoring to economic and environmental productivity our nation's largest and most productive estuary - the Chesapeake Bay - through an innovative mix of public and private initiatives;
- building new partnerships with the states and their environmental agencies to produce a more effective and efficient method of protecting public health and the environment;
- educating and empowering communities and businesses to be better environmental stewards through data sharing and technical assistance;
- reinventing and streamlining internal management systems to increase efficiency and provide the most comprehensive and economical environmental protection available; and
- obtaining enforcement settlements from polluters that involve community projects, environmental education programs, and other beneficial activities that go beyond penalties and mere correction of violations.

Through these and other efforts detailed in this report, we are dedicated to making continued improvements in our ability to protect the environment and public health. I hope this report will not only be seen as a means by which the public can hold us accountable for how well we do, but also as an invitation to join in the effort.

W. Michael McCabe

AIR QUALITY

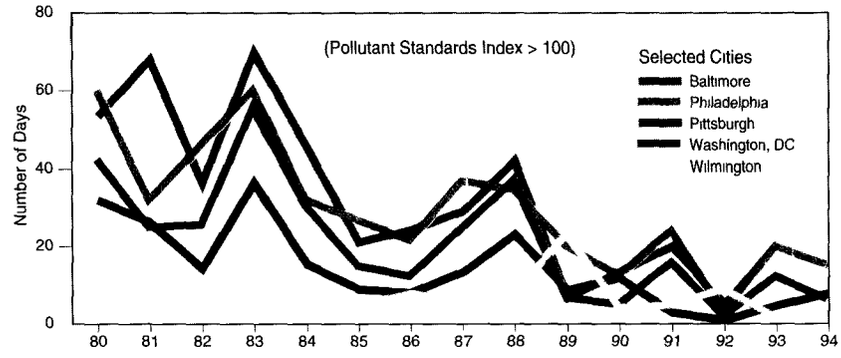
Significant Improvements Have Been Made...

"Restoring the quality of our air environment is one of the most difficult and challenging tasks facing the nation today."

William D. Ruckelshaus, EPA Administrator, 1972

The Mid-Atlantic Region is one of the nation's most heavily industrialized areas. Twenty-five years ago, stack emissions from industries were discharging uncontrolled quantities of harmful contaminants into the air, affecting human health and degrading air quality. Exhaust emissions from cars and trucks further aggravated these problems. Health advisory alerts were often issued in major cities, advising residents to stay indoors to avoid exposure to unhealthful levels of air pollution (Fig. 1). Industrial operations were periodically curtailed until concentrations of air pollutants returned to healthful levels.

FIGURE 1
Number of Unhealthful Days



Clean Air Act

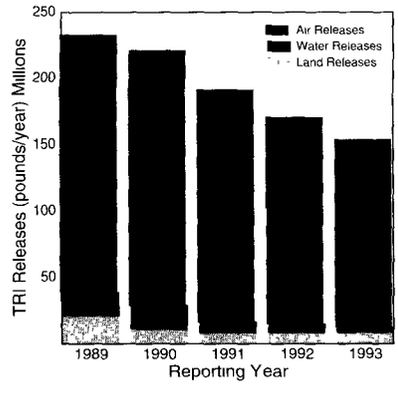
The 1970 Clean Air Act established National Ambient Air Quality Standards (NAAQSs) for common air pollutants, i.e., particulate matter (soot), sulfur dioxide, ground level ozone (smog), nitrogen oxides, carbon monoxide, and later, lead. These regulatory steps began a return to healthy air quality. Philadelphia, affected by unhealthy levels of sulfur dioxide, developed strategies and regulations controlling sulfur-in-fuel that, by the late 1970s, brought this area into compliance with the NAAQS for sulfur dioxide. Pittsburgh, impacted by harmful levels of particulate matter, devised programs to control emissions from iron- and steel-makers that brought that city its cleanest air quality in decades.

Because vehicle exhaust emissions contributed significantly to declining air quality, the 1970 Clean Air Act and its Amendments required the manufacture of cars with more efficient engines. Also, many states adopted vehicle inspection and maintenance programs. These emission controls and vehicle inspections led to attainment of the carbon monoxide NAAQS across the Mid-Atlantic Region. The phase-out of leaded gasoline has virtually eliminated violations of the lead NAAQS region-wide. Correspondingly, significant decreases in blood lead levels of the Region's residents have been realized, especially in children, the age group most affected by high lead levels .

Toxic Release Inventory

Since 1988, EPA has received annual Toxic Release Inventory (TRI) reports from businesses that made or used any of 300 listed toxic chemicals. These TRI data, available in public and federal depository libraries nationwide, are used by EPA to identify problem areas, and as a basis for developing regulations. Since 1988, manufacturers in Region 3 have reduced releases of toxic chemicals from 344 million pounds in 1988 to 161 million pounds in 1993, a reduction of 53%. A preponderance of those emissions and corresponding reductions are related to air pollution sources and facilities. Figure 2 illustrates reductions achieved during the 1989-1993 timeframe.

FIGURE 2
Annual Trend for TRI Releases



Region 3 facilities reduced their air releases of ozone-depleting chemicals from nearly 15 million pounds in 1991 to about 5.3 million pounds in 1993. Air, water, and land releases of carcinogens also declined from about 23 million pounds in 1991 to about 16 million pounds in 1993. Manufacturers have reduced toxic chemical wastes shipped off-site for treatment and disposal by 41% - from 195.8 million pounds in 1988 to 138.9 million pounds in 1993. The 1993 TRI data indicate that manufacturers in Region 3 have recycled 45.2% of their toxic chemical waste.

The majority of these reductions in air toxic chemical releases and wastes were not required by law. Rather, they were the result of an increased focus by

industry on environmental improvements, and an effort to adopt measures to reduce air toxic chemical releases. These measures include raw material substitutions with nontoxic chemicals, process modifications to implement recycling, improved maintenance to reduce air chemical leaks, and increased usage of nontoxic cleaning solvents and degreasers.

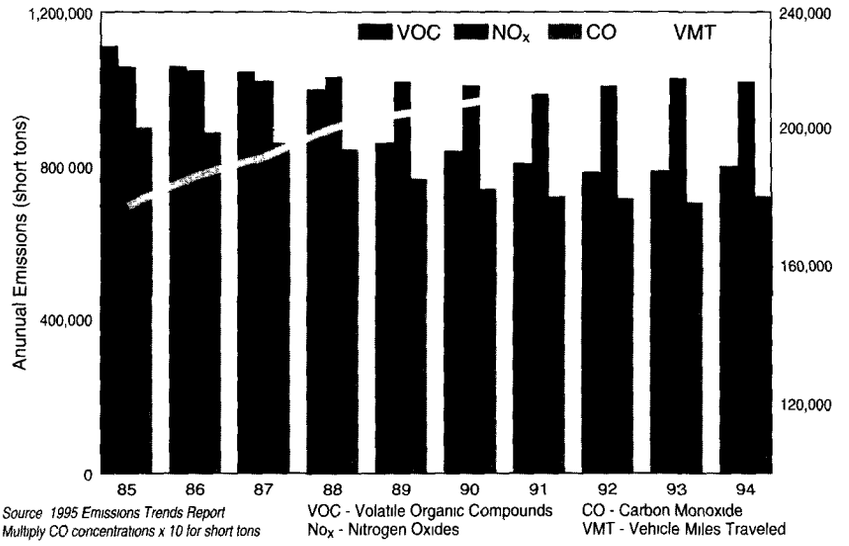
Looking Ahead...

While significant progress has been made in reducing air pollution, some problems persist. Ground level ozone (smog) levels still exceed the national standard in many city areas. About 16 million of the Region's 26 million residents are still exposed to unhealthy levels at times. Gains from pollution controls placed on major sources of ozone-forming emissions, and control devices installed on new vehicles have been offset in part by the increased use of vehicles (Fig. 3).

With the 1990 Clean Air Act Amendments, new state program developments, and new voluntary pollutant initiatives, we continue to address this problem. While much still needs to be accomplished in combating unhealthy ground level ozone air quality levels, recent air quality data indicate that some areas in the Region that once experienced unhealthy ozone levels are now in attainment with the health-related ozone air quality standard.

FIGURE 3

Annual Vehicle Emissions Drop as Driving Increases



Acid rain is another critical issue in the Mid-Atlantic Region (see page 17). Transport of acid rain pollutants has significant effects on habitats such as the Chesapeake Bay, the Allegheny Plateau forests, and stream ecology. The Mid-Atlantic Region Acid Pollution Strategic Plan is promoting new and innovative approaches to reducing greenhouse gases through the Green Lights program (see page 10) and less reliance on energy consumption and fossil fuels.

Finally, to further address stratospheric ozone depletion, regulations and strategies are in place to phase out ozone-depleting chemicals, principally chlorofluorocarbons, or CFCs. The Mid-Atlantic Region places a high priority on assuring compliance with CFC phase-out requirements.

In conclusion, air pollution affects us all and requires that each of us contribute toward reducing air pollution through complying with regulations and voluntary actions (recycling, use of "environmentally friendly" products, energy conservation, and more).

Ozone Strategic Plan

Ground level ozone, the chief component of smog, is the most pervasive air pollution problem in the Mid-Atlantic Region. Ground level ozone forms when nitrogen oxides and volatile organic compounds react in warm temperatures and sunlight. The sources of these air pollutants range from cars to drycleaners to oil refineries. Exceedances of the federal ozone standard vary from area to area, but are most common in urban areas where traffic and industry are most concentrated. Ground level ozone knows no geographic boundaries, and is transported hundreds of miles from its origin. Ozone levels above the federal standard cause respiratory problems and can result in sick days, hospitalizations, and other health problems. Ozone levels across the nation rose well above the federal standard in 1995; extreme heat and sun, with mild winds, made that summer one of the smoggiest on record.

To ensure that ground level ozone concentrations in the Region are sufficiently reduced to protect both human health and farm crops, Region 3 began a five-year Ozone Strategic Plan. This Plan goes beyond regulatory requirements to reduce ground level ozone levels more quickly. Key features of the Strategic Plan include: reducing hydrocarbon and nitrogen oxides emissions regionally through various industry, auto, and consumer strategies; enhancing public outreach programs that inform the public of the ecological and health risks of ground level ozone, and how the public can act to reduce these effects; and promoting the use of energy conservation and energy-efficient technologies by working with the Department of Energy, state energy and environmental offices, and regional utilities.

WATER QUALITY

Twenty Five Years of Progress

"We don't know the true worth of water until the well runs dry."

Benjamin Franklin

We all remember the 1960s and early 1970s, when fish kills were common in polluted rivers, and when swimming in those rivers was unthinkable. In 1972, Congress responded to public concerns by passing the federal Water Pollution Control Act ("Clean Water Act"). At that time, discharges from city pipes accounted for about half of the pollution in our waterways. The major dischargers were industries and poorly maintained public sewer systems. Government programs began building municipal treatment plants to collect and treat sewage from homes and businesses. There are now over 750 large treatment plants, and many more smaller plants, in the Mid-Atlantic Region. Now, the point source discharges these plants treat account for less than 38% of the pollutants entering the Region's waters, and less than 20% of the pollutants entering the nation's waters.

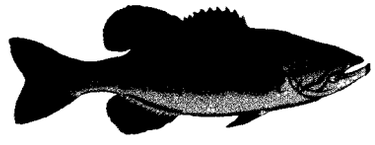
One direct and significant improvement in water quality is the biochemical oxygen demand (BOD) measured in the Mid-Atlantic Region's waterways. The BOD of a water body indicates how much sewage and other organic waste is present. A high BOD indicates low amounts of oxygen available for fish and other aquatic life, and also indicates possible bacterial contamination. BOD declined by nearly 30% between 1989 and 1993, as more modern wastewater treatment plants went on line.

New Challenges: The Invisible Pollution

The success of this point source control effort proves that as a nation, and as a Region, we can control the major end-of-pipe pollution sources. However, there are still major pollution problems in our rivers. The smaller, but more widespread effects of daily human activities are now some of the most significant threats to water quality. Waters of the Region continue to be polluted by "nonpoint" sources ("polluted runoff"), meaning that there is no single point from which the pollution comes. Nonpoint source water pollution occurs when rain or irrigation carries pollutants over or through the ground and into waterways. Nonpoint sources can be failing septic systems, runoff from farmlands, or motor oil leaking onto roadways. The Congress, along with local, state, and federal agencies, has initiated programs to control the adverse impacts of nonpoint pollution. We hope soon to measure water quality improvements through these programs in a similar fashion to the point source success story described above.

Are the Fish Safe to Eat?

Water pollution often affects fish and other aquatic life before it affects humans. Because we eat fish, the accumulation of toxic chemicals in aquatic life is a major public health concern. The positive aspect of this concern is that only four substances are responsible for 94% of the fish consumption advisories in the Region: mercury, polychlorinated biphenyls (PCBs), chlordane, and dioxin. When



these chemicals enter our waters, they can cause long-term problems to aquatic life. Stormwater runoff, city pipes, and even polluted rain can transport these and other chemicals to lakes, rivers, and estuaries, where they can persist in both water and sediments. Insect larvae and bottom-feeding fish ingest these chemicals, and are in turn eaten by predators. At the top of the food chain, mammals, birds, and, of course, humans eat fish or shellfish that may contain high concentrations of chemicals. This poses a potentially serious health risk.

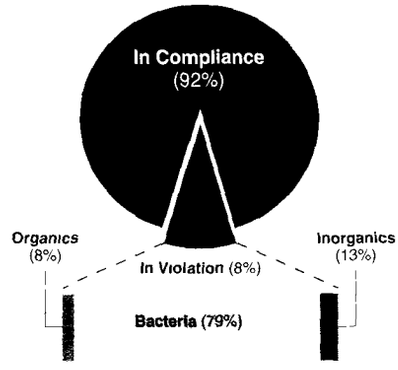
Is the Water Safe to Drink?

Historically, the Mid-Atlantic Region has had plentiful surface and ground water supplies, with treatment systems that ensure high quality drinking water. We must, however, not take the quantity or quality of our water resources for granted. Poor land use and intensive development in the Region has contaminated and/or reduced supplies in some areas. In 1994, 429 public water systems (8%) reported drinking water quality violations, primarily for bacteria (Fig. 1). These numbers were up slightly from 1993, when 384 systems (7%) reported violations. While the water is safe to drink, there still are some ongoing problems.

FIGURE 1

Our Drinking Water is Safe, But We Still Have Problems

Percent of Water Systems in Compliance with the Safe Drinking Water Act in 1994

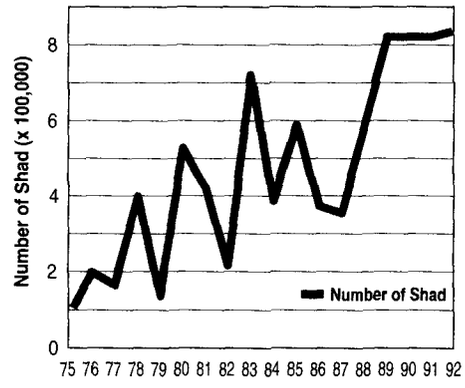


Of growing concern are water-borne diseases caused by bacteria, viruses, and the protozoans, *Giardia lamblia* and *Cryptosporidium*. In the last ten years, the

People and Fish Return to the Delaware

Decades ago, much of the 350-mile Delaware River was an abomination. Foul water from a major tributary closed water intakes at Trenton, NJ. In the 40s and 50s, the water was acidic and black, bacterial levels were very high in the river's lower 100 miles, and oxygen levels dropped to zero over long reaches. Dock workers were felled by the river's stench, and people in planes at 5,000 feet could smell the river. Ship's hulls corroded. And, from what once was the best fishery on the east coast, the fish had virtually disappeared. Conditions like this persisted through the 60s. Today, along what was once the worst stretch of the Delaware lie marinas, condominiums, parks, amphitheaters, restaurants, and a state aquarium. A restored annual migration of American shad is of such size that fishing tournaments and festivals are held while the fish are running (Fig. 2). A striped bass fishery is developing. The reversal in the river's quality began around 1970. With the help of EPA funding, Philadelphia constructed three major wastewater treatment plants. Major plants were also built in Wilmington, DE; in Camden, Bordentown, and Trenton, NJ; and in Bucks County, PA. In response to new regulations, industries with direct discharges upgraded or installed equipment to reduce pollutants from their facilities. As a result, oxygen levels in the water improved dramatically, as did the river's smell and appearance. Still, work remains to continue the Delaware's improvement. The same treatment plants that helped promote the river's recovery need to be maintained and upgraded. The problem of runoff from streets, homes, and businesses, which carries pollutants like pesticides, gasoline, antifreeze, and salt, is of great concern; this stormwater runoff bypasses treatment plants during heavy rains, and is discharged directly into waterways. As part of the National Estuary Program, scientists continue to evaluate the Delaware's specific problems and propose new solutions.

FIGURE 2
Shad Have Returned to the Delaware River



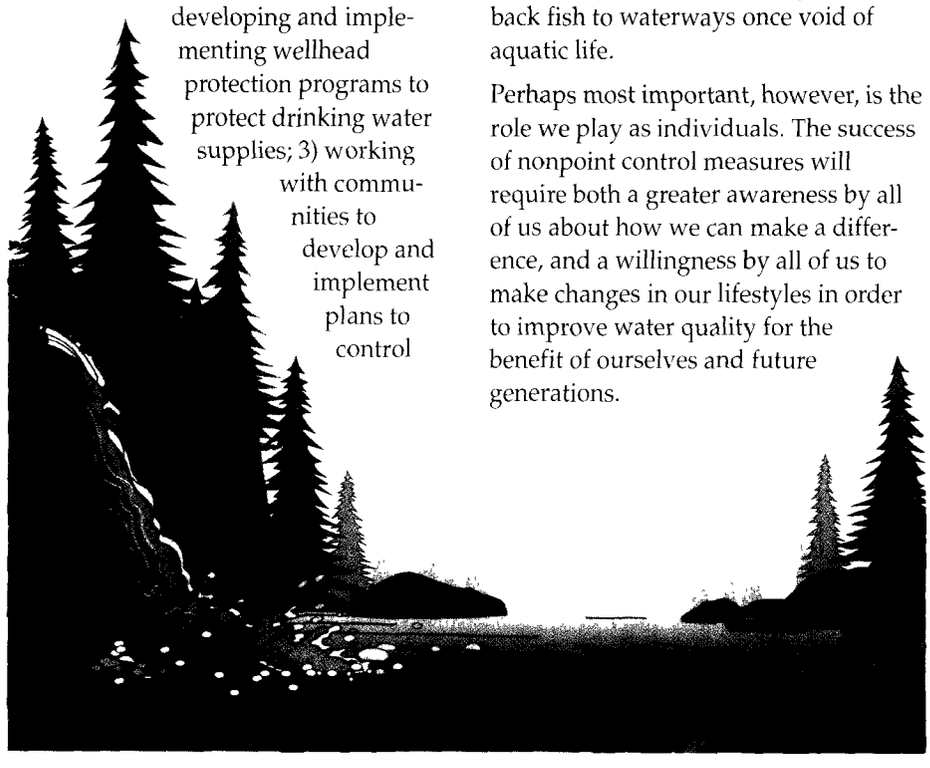
Mid-Atlantic Region experienced only one outbreak of *Giardia* and no outbreaks of *Cryptosporidium*. While such outbreaks are not a significant threat to the general public, they do pose a major threat to the elderly and other persons with weakened immune systems.

Approximately 35% of the Region's population is served by groundwater, which can be contaminated by many different activities: leaking underground tanks, landfills, failing septic systems, hazardous waste sites, and nitrogen fertilizer from farm fields. It is difficult, if not impossible, to restore groundwater to its former quality once it is contaminated. Wellhead protection (WHP) programs now manage various land use practices that threaten groundwater quality; WHPs are in place for about 356 public water supplies, protecting over 1.2 million people in the Mid-Atlantic Region.

Looking Ahead

Local, state, and federal agencies in the Mid-Atlantic Region are cooperating on programs to continue the successful control of point sources, enhance control of nonpoint sources, and address community problems of greatest concern. Some cooperative efforts include: 1) focusing on watersheds to cleanup water quality problems; 2) developing and implementing wellhead protection programs to protect drinking water supplies; 3) working with communities to develop and implement plans to control combined sewer overflows and improve water quality in neighborhoods; and 4) working with the Office of Surface Mining and the states in the Region to develop and implement plans for controlling acid mine drainage to bring back fish to waterways once void of aquatic life.

Perhaps most important, however, is the role we play as individuals. The success of nonpoint control measures will require both a greater awareness by all of us about how we can make a difference, and a willingness by all of us to make changes in our lifestyles in order to improve water quality for the benefit of ourselves and future generations.



WASTE MANAGEMENT

In the Mid-Atlantic Region

"One person's trash basket is another's living space."
National Academy of Science Publication, 1965

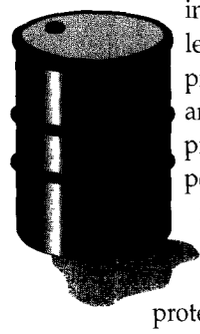
We live in a world where sophisticated technologies produce consumer goods ranging from cars to computers, and, in the process, generate a variety of hazardous wastes. In 1993, industries in the Mid-Atlantic Region generated more than 18 million tons of hazardous waste. While industry is a major source of this problem, consumers certainly bear part of the responsibility. Indirectly, consumers continue to demand products that create hazardous wastes, often without an understanding of the harmful by-products that are created. More directly, consumers may carelessly discard many hazardous consumer products such as cleaners, paints, and batteries.

Managing Hazardous Waste

Under the 1976 Resource Conservation and Recovery Act (RCRA), EPA and the states regulate companies that generate, treat, store, dispose, or transport hazardous wastes. EPA requires hazardous waste handlers to track all wastes from source to disposal. Since 1980, the number of facilities in the Mid-Atlantic Region that treat, store, or dispose of hazardous waste has declined by more than 70%, from 1,500 to 400. This decline is a good indicator that EPA, the states, and industry are improving the management of hazardous waste. Industry has made great strides in developing alternative processes that reduce or eliminate the amount of hazardous wastes generated. At the same time, landfills and other disposal companies that did not meet strict environmental standards have closed.

Cleaning Up Hazardous Sites

Significant progress has been made controlling the generation and management of hazardous wastes from operating facilities, but the legacy of past disposal practices, both legal and illegal, continues to present real risks to the people and environment of the Mid-Atlantic region. To clean up these sites, protect public health, and restore environmental quality, Congress passed two laws: the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") to deal with abandoned sites; and the Hazardous and Solid Waste Amendments to RCRA (HSWA) to deal with other types of cleanups. In the Mid- Atlantic Region, more than 4,800 potential Superfund sites were identified. Of these, 80% have been assessed and found to require no further action. However, 177 sites have been designated "Superfund" National Priorities List (NPL) sites.

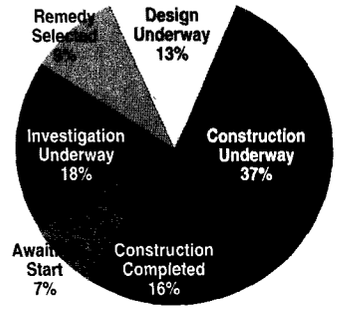


Significant advances have been made in protecting human health and the environment at these Superfund sites (Fig. 1 & 2). EPA or responsible parties have begun work at 93% of the Region's NPL sites, and site work is completed at 16% of such sites. Construction is underway at 37% of the sites, and remedial design work is ongoing for another 13%. EPA has secured commitments from responsible parties for $1.3 billion in response actions at Superfund sites in Region 3. With EPA oversight, responsible parties have taken charge of designing 80% of the NPL site cleanups. These responsible parties are also in the active phase of construction at more than 65% of the NPL sites in the Region.

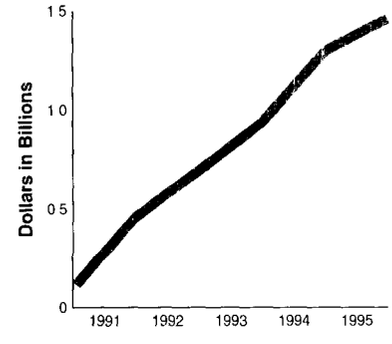
Region 3's Removal Program addresses imminent threats to public health and the environment. This year alone, the program has responded to 74 hazardous materials or oil incidents and has started 34 removal actions. Additionally, the Region continues to provide First Responders Recognition and Operations Training for hundreds of local and state

FIGURES 1 & 2
Region 3 Superfund Progress

Work Has Begun at Most of 177 Sites



Enforcement Actions Saved or Recovered $1.5 Billion



emergency responders. Program personnel have conducted six full Chemical Safety Audits of major facilities and over 50 mini-audits on others. Our oil enforcement program has filed 18 complaints pursuant to Section 311 of the Clean Water Act.

HSWA requires all operating hazardous waste treatment, storage, or disposal facilities (TSDFs) to clean up past releases that pose a threat to human health and the environment. Region 3 is directing its cleanup efforts toward the most environmentally significant of these facilities. The 400 TSDFs in Region 3 were ranked by the risks each posed; 229 of these are considered high priority.

Region 3 uses a two-pronged system for cleanups: stabilization and permanent corrective action. Stabilization means that all immediate health threats have been corrected or contained. Permanent corrective action involves a thorough investigation of the entire site, with opportunity for public input on the design of the corrective remedy. Region 3 has begun investigation and cleanup at 137 of the high priority sites.

Superfund Turns Fly Ash Into Fly Balls

A former eyesore is now an asset to the residents around the Chisman Creek Superfund Site in York County, VA. At this 27-acre site, flyash from a nearby power plant was dumped into four disposal pits near Chisman Creek, a tributary to the Chesapeake Bay, between 1957 and 1980. The effects of this dumping on public health and the local ecosystem were documented as early as 1980, when heavy metal contamination (including vanadium, nickel, and selenium) was found in nearby residential drinking wells. EPA's remedial studies also found extensive contamination of surface water and sediments in wetlands adjacent to three disposal areas. EPA concluded in 1986 that several actions were necessary to stop the spread of flyash contamination into the local ecosystem and protect the public health.

EPA entered into enforcement agreements with the Virginia Power Company in 1987 to implement remedial activities which included: provision of public water to affected homes, installation of an impermeable soil cover, construction of diversion ditches to control runoff from the site, installation of a groundwater collection and treatment system, and the relocation of about 500 feet of stream channel that was eroding into a flyash disposal area. The idea to create a public recreation area in the disposal areas occurred during the remedial design phase. As part of the design, deed restrictions, which prohibit any uses of the disposal areas that would damage the soil caps, were placed on the four disposal areas. EPA and Virginia Power, recognizing the potential for beneficial use of the remediated areas, agreed to incorporate a nature walk and soccer and softball fields into the site design. In 1990, Virginia Power donated the property to York County. Chisman Creek Park, formerly a Superfund site, now serves as a source of pride to the residents of York County.

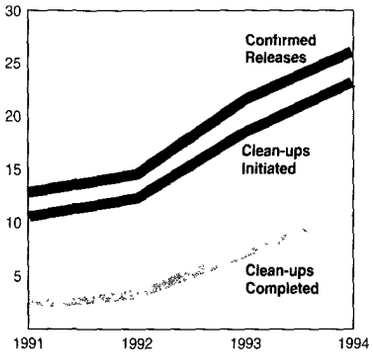
Underground Storage Tanks

Leaking underground storage tanks (USTs) that contain petroleum or other hazardous chemicals are a significant source of environmental problems, and are of particular concern in Region 3. A leak of one gallon of gasoline can render a million gallons of water undrinkable and may continue to contaminate important groundwater resources for decades. In Region 3, approximately 35% of the population relies on groundwater as their principal or partial source of water, and this percentage is expected to increase as surface water supplies become more scarce.

FIGURE 3

Underground Storage Tanks

Number of UST Facilities in Region 3 (in thousands)



In 1984, a national pollution prevention program managed in concert with the states was implemented to combat the UST problem. Old, leak-prone, bare-steel tanks now must be registered, tested annually for leaks, and upgraded by 1998. Trust funds to cover the costs of UST cleanups were established in each state. This cleanup program is expanding. The number of leaking tanks reported in Region 3 continues to grow at a rate of approximately 3,000 per year (Fig. 3). Significant progress is being made in cleaning up leaking tanks and replacing them with safer doubled-walled tanks. However, much work remains to be done and, with the help of the latest technologies, the states will continue to locate leaking systems and complete ongoing cleanups more quickly.

Solid Waste

When it comes to trash, the United States is a global leader. We generate roughly 4.4 pounds of garbage per person per day. The amount of trash that Americans generate has increased by 26% over the past 25 years. Furthermore, we not only throw away too much, but also discard resources that should be reused or recycled into other usable products.

To ensure that the municipal solid waste that we do generate has a safe place to go, EPA's regulations require that state landfill regulations protect human health and the environment. However, to reduce the amount of waste that has to be landfilled, and to increase the amount of materials recycled, Region 3

administers a number of grants and programs aimed at source reduction and the development of markets for recycled materials. A current focus of this program is unit pricing, which treats garbage collection like any other utility. That is, individual residents pay only for the amount of service that they require. It's simple; generate less trash, pay less money for disposal, and what better way to generate less trash than to recycle!

Under the WasteWi$e program, Region 3 encourages businesses to voluntarily reduce their waste generation by demonstrating the economic savings of waste reduction and recycling practices. Some companies have realized annual savings into the millions of dollars by incorporating such simple practices as double-sided copying.

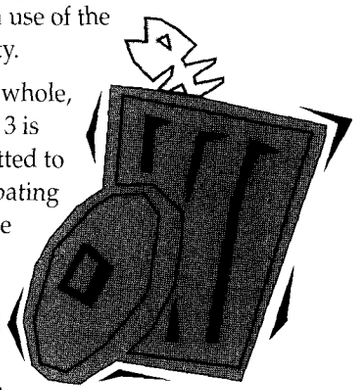
To increase markets for hard-to-recycle materials, Region 3 created and supports the Mid-Atlantic Consortium of Recycling and Economic Development Officials (MACREDO). This organization assesses the supply and demand of recyclable commodities, and encourages the start-up or expansion of businesses utilizing recycled commodities.

Statistics demonstrate that our efforts are paying off. As a result of the cooperative efforts among Region 3, the states, and industry, recycling rates in the Region have increased 20% between 1993 and 1994 to six million tons per year, with paper being the most recycled material. Over 13 million people are now served by recycling programs in the Region, and the number is growing!

Looking Ahead

When it comes to wastes, each of us is both part of the problem and part of the solution. We all make choices in what we purchase, how we use the product, and how we dispose of our waste. Some solutions are relatively simple and, include purchasing goods with less packaging, maintaining and repairing household appliances, composting yard and kitchen wastes, and recycling whenever possible.

Other solutions to our waste management problems require more support. Region 3 is working, in concert with the states, to reduce the generation of wastes and address threats from waste contamination through various programs and initiatives. Region 3's goals in this regard include: 1) having, by the year 2000, the states fully approved and capable of implementing nearly all of the waste management/cleanup programs under RCRA; 2) promoting multimedia (air, water, soil) pollution prevention at all facilities, with a 25% waste reduction goal for the most harmful waste streams met by the turn of the century; 3) spending more effort educating industry on how to comply with complex environmental regulations through compliance assistance programs; 4) improving waste recycling and creating job markets in the remanufacturing sector through technical assistance and grants to industry and local communities; 5) addressing imminent or direct threats to health or the environment by providing immediate responses to emergencies, e.g., chemical or oil spills; and 6) having, by the end of the decade, cleanups or stabilization underway or complete at all high priority sites, achieving cleanup levels consistent with the end use of the property.



On the whole, Region 3 is committed to participating with the states, industry and local communities in finding more cost-effective, safer, and smarter environmental solutions for our waste management problems.

Marjol Battery - A Community Lead Cleanup

Between 1963 and 1981, Marjol Battery operated a 43-acre lead battery crushing facility five miles north of Scranton. Over 300,000 cubic yards of lead-contaminated debris, battery casings, and soil were left at the site. On-site contamination was 725 times higher than EPA's action level for lead in soil. Also, wind had carried contaminated dust across the community, sending lead levels in people's yards soaring to more than 10 times above the action level. Blood lead surveys revealed that scores of the community's children had lead poisoning.

Superfund required the owner to remove lead-contaminated soil from residential properties, and to secure the contaminated material on site to remove an immediate threat to the community. RCRA enforcement also required the owner to assess the still-contaminated facility and submit a study of possible cleanup alternatives.

Region 3 is committed to ensuring the safety and health of the affected community. EPA reviews air monitoring data to ensure that no more contaminated soil blows into the community, and blood screening after the initial cleanup showed a substantial decrease in lead levels. EPA also attends meetings conducted by the owner to brief the community on activities related to the Marjol site. The community is relying on Region 3 to make sure that the owner implements a permanent remedy that will protect the community from future lead exposure.

POLLUTION PREVENTION

Improving Today's Environment Preventing Tomorrow's Problem

"An ounce of prevention is worth a pound of cure."
Benjamin Franklin

Pollution Prevention is source reduction - the reduction or elimination of pollutants prior to off-site recycling, treatment, or disposal. Measures focus on greater efficiency in the use of resources, including protection of natural resources by conservation. Pollution Prevention can include raw material substitution, reduced toxic chemical use, and increased recycling. Preventing pollution is a win-win situation; companies reduce costs for raw materials, energy, pollution control, and waste disposal, while fewer pollutants are discharged to the air, water, or land.

State Activities

EPA's Pollution Prevention grants support the regulated community. In Maryland, new equipment installed in 12 drycleaners eliminated the discharge of 11 tons per year of perchloroethylene, a chemical contributing to smog and health problems. Pollution Prevention Services polled West Virginia firms receiving technical assistance; 36% of the respondents said that they would probably be out of business without the state's assistance, and over 90% stated that they achieved compliance with environmental laws because of the program.

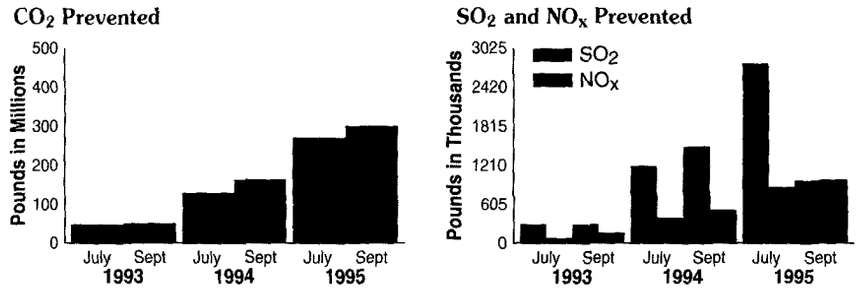
33/50 Program

In the Mid-Atlantic Region, 648 facilities participate in a program to voluntarily reduce their generation and release of 17 priority toxic chemicals by 33% in 1992 and 50% by 1995. By 1991, these facilities had reduced toxic chemical releases and transfers by 38%. By 1993, they had achieved a 44% reduction in the target chemicals, rapidly nearing the 50% reduction goal for 1995.

Green Lights Program

The Green Lights program, now two years old, has realized substantial reductions in atmospheric pollution emissions, and is stimulating economic growth and savings in the Mid-Atlantic Region. This innovative pollution prevention program encourages the widespread use of energy-saving light bulbs and fluorescent tubes in commercial buildings. The Region's 370 participants are cutting their lighting bills in half, and have already avoided using 178 million kilowatts of electricity per year. Air discharges have been reduced by 2.7 million pounds of carbon dioxide, 2.9 million pounds of sulfur dioxide, and 955,600 pounds of nitrogen oxide. This prevention is equivalent to planting 52,000 trees and taking 25,000 cars off the roads. Green Lights has also been instrumental in educating students about energy efficiency. Arlington Public Schools (VA) were recognized for outstanding environmental leadership for creating a Green Lights incentive program that awards $2,000 to the school that reduces its electrical utility costs by 10% during the 1994-1995 school year.

FIGURES 1 & 2
Region 3 Green Lights Snapshot



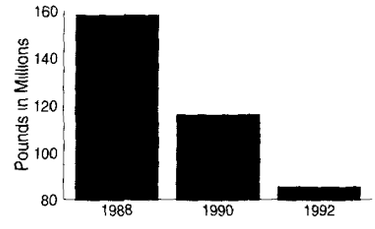
Technical Assistance

Region 3 helps fund the Waste Reduction Resource Center (WRRC) in Raleigh, NC, which provides an information clearinghouse, expert referrals, and on-site technical assistance. The WRRC supports the state in improving their technical assistance capabilities.

Looking Ahead

The Pollution Prevention program is continually expanding public education about the environmental and often economic advantages of pollution prevention. EPA is striving to incorporate pollution prevention into everday Agency activities.

FIGURE 3
Region 3 Releases and Transfers of 33/50 Chemicals



HABITATS AND ECOSYSTEMS

Diverse Challenges to Preservation

"When we try to pick out anything by itself, we find it hitched to everything else in the universe."

John Muir

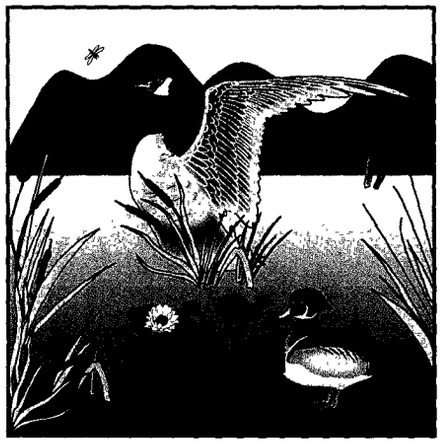
An ecosystem is the interrelationship of all living and non-living things in a specific environment such as a lake, a forest, or the whole planet. For years, our focus has been air and water quality, and their impacts on human health. But, when we consider the health of ecosystems, we must also consider the quantity and quality of habitat available for the plants and animals in that system. Habitat protection and restoration is critical to the survival of the living things that make up healthy ecosystems.

Ecosystems and Biodiversity

Ecosystems of the Mid-Atlantic Region include oceans, estuaries, coastal plains, freshwater wetlands, and forests. This patchwork of ecosystems supports a rich biological variety of plants and animals, many unique to our area. It is this "biodiversity" that contributes to the quality of our lives by providing food, income,and recreation.

Extinction of plant and animal species diminishes our Region's biodiversity. The Mid-Atlantic Region is home to many federally-listed threatened or endangered species, such as the bald eagle. Most notably, the Region's rivers are the last refuges of several species of endangered mussels. These mussels exist in some limited stretches of our largest rivers, and habitat loss and pollution have contributed to their endangerment.

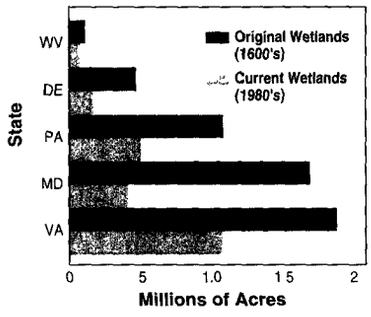
The world's largest population of horseshoe crabs is found in the Delaware estuary. This unique marine organism is indispensable in medical research, and in preventing bacterial contamination of medicines. The crabs are also an important part of the food chain for migratory birds. Each spring,



females lay their eggs on the Delaware Bay's flat beaches. These eggs are a principal food for millions of migrating songbirds and shorebirds. An estimated 80% of the hemispheric populations of some shorebirds rest here, feasting on crab eggs before flying on to their Arctic summer breeding grounds. But, the number of spawning horseshoe crabs has been seriously declining; there were over 1.2 million in 1990, but only 104,000 in 1994. Beach alterations from bulkheads and dikes, oil spills, and overharvesting are some causes for the decline. The plight of the horseshoe crab dramatically illustrates our need to preserve balance in the way we interact with our environment.

FIGURE 1

Wetland Losses



Human Activities Threaten Our Ecosystems

Modern lifestyles and growing populations are having profound affects on our ecosystems and their living resources. Between 1970 to 1990, population in the Mid-Atlantic states increased more than 10%, from 23.4 million to 25.9 million people (Fig.2). Construction of roads, houses, schools, businesses, and malls have reduced our green areas, caused serious erosion, and destroyed wetland and wildlife habitats. Runoff from farms, lawns, and paved streets pollutes our streams and rivers, and degrades the quality of these aquatic habitats.

Acid rain, due largely to emissions from coal-burning power plants, industries, and autos, has affected the Mid-Atlantic Region more than any other area in the country, impacting aquatic life in thousands of miles of streams and rendering some streams essentially sterile. Our forests, and the habitats and species they support, are also at risk. Air pollution is damaging our forests, while acid rain has made trees susceptible to insect infestations and disease. Road construction, agriculture, logging, and development has fragmented large forested areas, resulting in smaller, isolated patches of land that provide less suitable habitat for forest-dwelling birds, bobcat, and black bear.

During the past 300 years, more than half of the original 6.5 million acres of wetlands in the Mid-Atlantic states has been destroyed (Fig. 1). Today, this troubling trend continues as thousands of acres of wetlands are filled each year for new highways and other developments. As wetlands disappear, we lose their many benefits, including nursery and habitat areas for many threatened

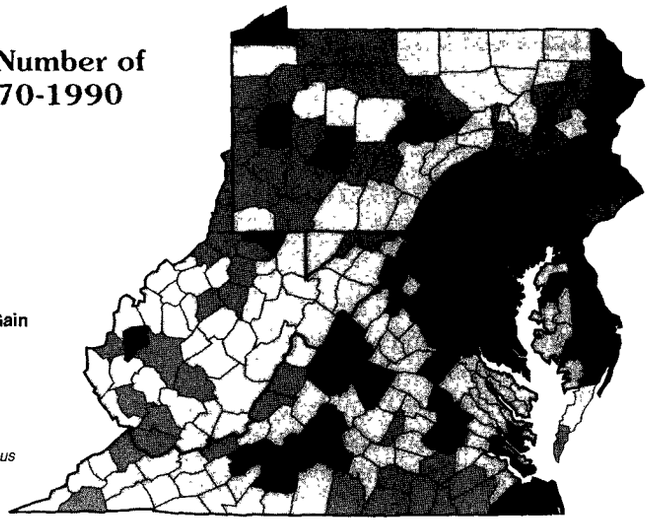
and endangered species, flood control, water purification, and recreational opportunities.

The introduction of non-native or exotic species threatens our ecosystems because these species are often invasive and can outcompete native species. For example, zebra mussels, Asiatic clams, and purple loosestrife (a wetland plant) are displacing native species, altering food chains, and reducing biodiversity.

What does this loss of habitats, and the unique plants and animals they sustain, mean for us? It could mean the loss of future sources of food and medicine, or losses of critical ecosystem functions such as pollination or water purification, or just the loss of the aesthetic pleasure of watching a bald eagle soar across the mountaintops.

The problems we face are serious and compelling, but they are not overwhelming. They serve as indicators of what could happen if we had no concern for our environment. Today, they are being used to mobilize all the forces in the Region to action on behalf of the quality of the lives we enjoy today and the birthright of future generations.

FIGURE 2
Change in Number of People: 1970-1990



Source
U S Bureau of the Census

Looking Ahead

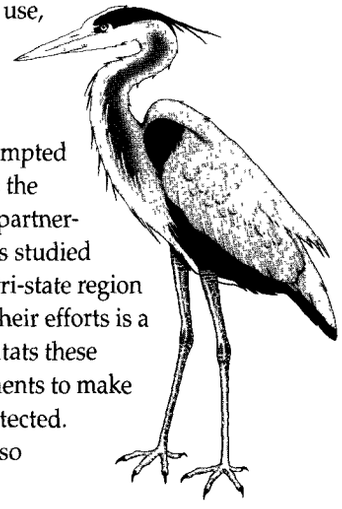
Region 3 has promoted the conservation of biodiversity in many ways. The Pocono Habitat Project in Monroe County, PA, uses biodiversity conservation as a framework for land use planning. Also, we are working in Prince William County, VA, to identify wetlands and streamside areas needing long-term protection.

We are currently working to better identify ecosystems sensitive to acid rain, with the goal of reducing its ecological impacts. Region 3 also supports a multi-state assessment of the Mid-Atlantic Highlands that will yield enhanced data on the health of rivers, streams, and fisheries.

Region 3 contributes to coastal watershed protection through National Estuary Program projects, including the Delaware Bay Estuary Program (see box below), the Delaware Inland Bays Program, and the Maryland Coastal Bays project. We also work with Mid-Atlantic states and watershed groups to assess stream habitat quality, and to restore and protect stream habitat.

People Working for Habitat Protection in the Delaware Estuary

The Delaware Estuary is an area rich in biological diversity. Oysters, blue crabs, horseshoe crabs, shorebirds, songbirds, egrets, owls, eagles, sea turtles, shad, striped bass, and many other plant and animal species depend on the unique living and breeding conditions found in habitats in this estuarine ecosystem. Bayshore beaches and mudflats, open waters, underwater reefs and smooth river bottoms, wetlands, forests, and meadows are among the types of habitats that provide the food, water, shelter, and space suitable to each species' needs. In close proximity are areas of intense human growth and use, where the residents require clean drinking water and space in which to live, work, relax, and enjoy the bounties of the natural environment.



Over time, growing human pressures have had negative impacts on the estuary's ecosystems. Continuing threats from toxic substances, habitat loss and fragmentation, and development prompted the governors of Pennsylvania, Delaware, and New Jersey to nominate the Delaware Estuary to the National Estuary Program in 1988. Since then, interested individuals and officials have formed partnerships to chart and manage a new course for the estuary's ecosystems. For six years, these groups studied conditions across the estuary, and developed a management plan that will direct actions in the tri-state region with regard to water use, land management, toxics, habitat, and living resources. A product of their efforts is a report on the priority species living throughout the estuary, and maps that show where the habitats these species depend upon are located. The report and maps will be used to encourage local governments to make environmentally-sound decisions on land use issues, and to identify habitats that should be protected. Through this process, local citizens now have the opportunity to participate in the stewardship so essential to the long-term protection and vitality of this special ecosystem.

CHESAPEAKE BAY

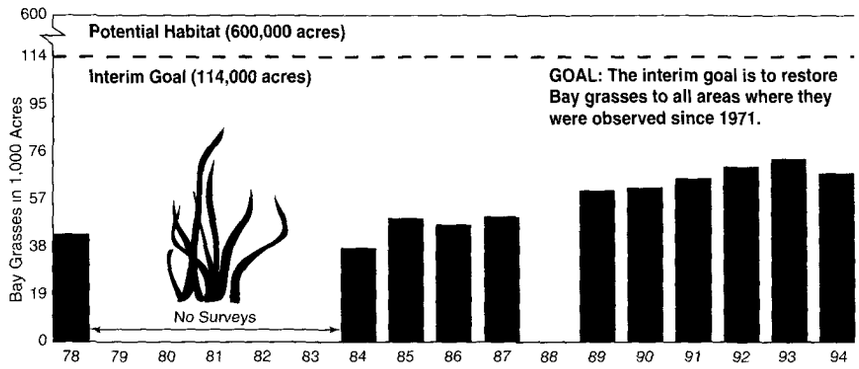
A Regional Partnership

"Most people think that cleaning up the Chesapeake Bay is the job of bureaucracies. While it is true that those agencies are working to restore the Bay's water quality, fish and waterfowl, they won't succeed unless they are helped by citizens throughout the Chesapeake's 64,000-square-mile watershed."

Fran Flanigan,
Executive Director of the Alliance for the Chesapeake Bay

Chesapeake Bay is the nation's largest, most productive estuary, and was the first targeted for restoration and protection. In 1983, PA, MD, VA, the District of Columbia, the Chesapeake Bay Commission, and EPA signed the first Chesapeake Bay Agreement, creating the Chesapeake Bay Program (CBP), a regional partnership that has been directing restoration of the Bay with tangible results. Striped bass and bay grasses have improved dramatically, nutrient concentrations are being reduced, and dissolved oxygen levels remain steady. The Bay is in much better shape today than when we started.

FIGURE 2
Acres of Bay Grasses



Source Chesapeake Bay Data Base - Baywide

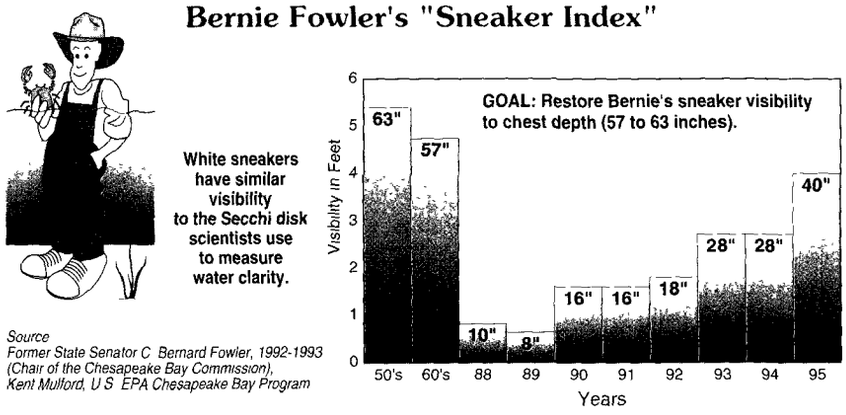
There are many reasons for these improvements. The CBP sets tough, but realistic, numerical goals (e.g., a 40% reduction in nutrients by 2000), and employs ecosystem-based efforts to achieve those goals. Thousands of farmers have joined the restoration effort, and over one million acres of farmland are under nutrient management. A ban on phosphate detergents has led to a 16% drop in phosphorus in the Bay. Bay grasses (submerged aquatic plants) have increased from 38,000 acres in 1984 to 65,000 in 1994; the CBP's goal is 114,000 acres by 2005. Removal of man-made blockages has reopened 173 miles of stream spawning habitat for anadromous fish; the Program's goal is reopening 582 miles by 1998, and 1,365 miles by 2003.

Federal legislation, along with improving water quality and fishery moratoria in MD and VA, has led to a resurgence in striped bass numbers, and to limited commercial and recreational fishing seasons. Strong spawning stocks indicate a solid future for striped bass.

Bay initiatives have resulted in significant reductions in many toxic contaminants discharged to the Bay, and is reflected in cleaner sediments and fish tissue. The 1994 Chesapeake Bay Basinwide Toxics Reduction and Prevention Strategy joins government with industry to achieve voluntary reductions of 75% for Toxics of Concern, and 50% for other toxics, by the year 2000. Federal facilities aim to reduce releases of all toxic chemicals by 75% by 2000. The proportion of industries in violation of their Clean Water Act discharge permits has fallen to 1%, an all-time low. The Bay Program's banning of the use of tributyltin (TBT) boat paint led to a nationwide ban of TBT in 1988.

The Chesapeake Bay Program is a perfect example of what government can do well. It is a cooperative effort by states, the federal government, private industry, and citizen groups to address a problem that concerns most citizens of the Bay's watershed. The Bay restoration continues to generate tremendous public support and involvement, with everyone benefiting from the restoration.

FIGURE 1
Bernie Fowler's "Sneaker Index"



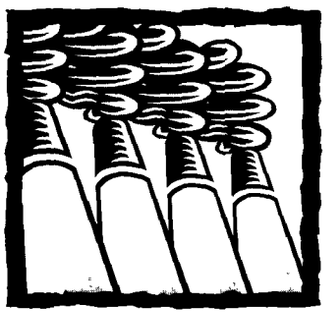
Source
Former State Senator C Bernard Fowler, 1992-1993 (Chair of the Chesapeake Bay Commission), Kent Mulford, U S EPA Chesapeake Bay Program

URBAN ECOSYSTEM INITIATIVES

In the Mid-Atlantic Region

"A consciousness is emerging that no segment of society should become the dumping ground for other people's pollution."

Robert B. Bullard



People living in urban areas share space with many polluting facilities, dense traffic, and abandoned industrial sites. These factors, combined with increased exposure to environmental pollutants, poor nutrition, and a high incidence of lead poisoning and asthma in children, have brought inner cities to the forefront of our environmental concerns.

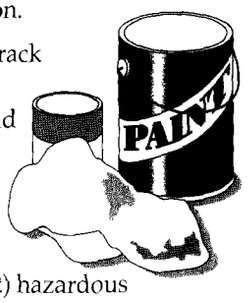
Chester, PA

As one graphic example of urban concerns, the City of Chester has the highest concentration of industrial facilities in PA, including two nearby oil refineries, a large infectious medical waste plant, and several waste processing plants. Over 85% of Delaware County's raw sewage and sludge is treated in Chester, the county's poorest community. Residents are concerned about the health effects of living and working amid toxic substances, and with the area's high frequency of illnesses. Chester has the highest infant mortality rate, lowest mean birth weight, highest death rate due to malignant tumors, and highest percentage of African-Americans of any municipality in the state. Blood lead in Chester's children is unacceptably high. Over 60% of children tested between 1989-93, had blood levels above the Center for Disease Control's recommended maximum level of 10 micrograms per deciliter (Fig. 1). Both cancer and non-cancer risks estimated from pollution sources calculated for the City of Chester exceed levels that EPA deems acceptable (Fig. 2). Air emissions contribute significantly to these estimated cancer and non-cancer risks, and it seems unwise to eat fish from the Delaware River and tributary streams due to concerns related to fishing advisories.

To address the problems inner-city residents face, Region 3 has launched several Ecosystem Initiatives. The initiatives cited here are for a specific city, but apply generally to other urban areas.

Baltimore, MD, Urban Environmental Initiatives

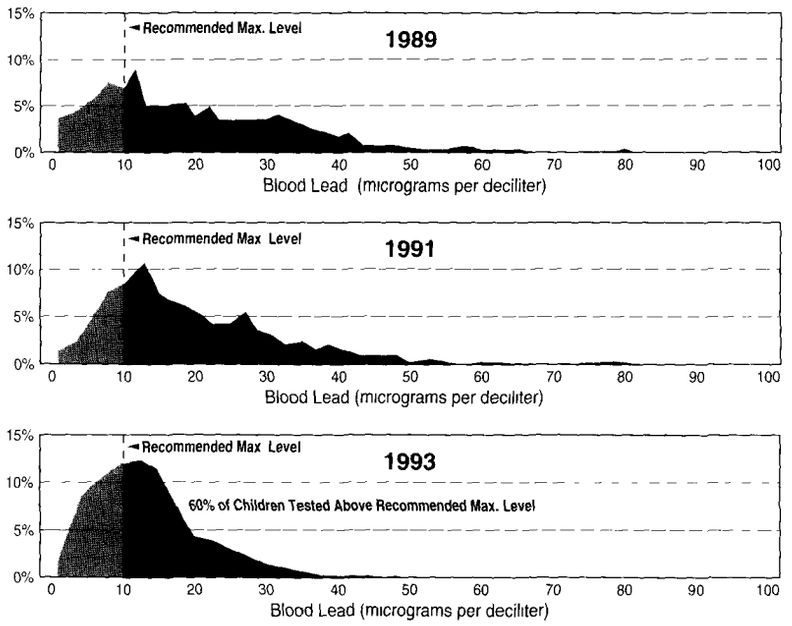
The Baltimore initiative is an interagency project conducted by EPA in cooperation with the State of Maryland and the City of Baltimore. The initiative plans to identify and rank areas of disproportionate risk in the city in order to implement risk reduction, pollution prevention, public awareness, and other activities that can eliminate or minimize these risks. This project has two tracks: a "Short-Term Track" addressing issues of immediate concern and initial data collection and analysis; and a "Long-Term Track" addressing issues from the Short-Term Track that call for continued research and action.



The Short-Term Track activities applied the knowledge and experience of an interagency team to target areas of environmental concern: 1) lead, 2) hazardous materials incidents, 3) fish consumption/toxins in the harbor, 4) air toxins,

FIGURE 1

Blood Lead in Children in Chester, PA



5) ground-level ozone, and 6) indoor air and radon. The Long-Term Track will: 1) follow up with actions identified in the Short-Term Track, 2) identify future concerns requiring environmental monitoring, 3) use public focus groups to identify perceptions and feedback based upon findings, and 4) use feedback to target long-term actions for risk reduction and environmental improvement.

Environmental Justice Community Pilot Project

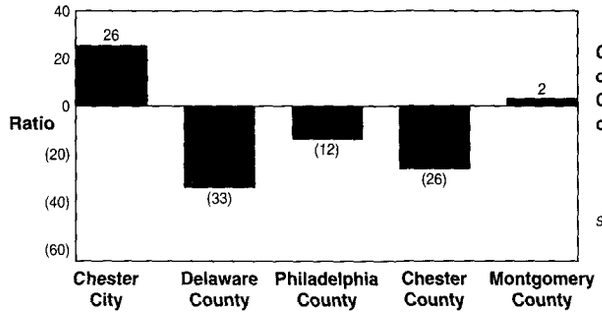
As a result of the Baltimore Initiative, partnerships were formed to address the concerns of the environmental justice movement and communities. The goal is to develop relationships with state and local governments to help communities assess and address their environmental concerns, uniting residents, businesses, and government in addressing such issues from the perspective of the neighborhood. We expect the first-hand experience of the pilot project to provide real insight into the needs of communities, states, and the Region. The workgroup will also consult with many regional, state, and local staffs to learn how we can more effectively assist their ongoing and future environmental justice initiatives.

South/Southwest Philadelphia Environmental Health

In South and Southwest Philadelphia, 250,000 people live in close proximity to oil refineries, chemical plants, dry cleaners, auto shops, and major highways. In 1995, EPA funded Johns Hopkins University to examine sources and types of pollution in this area and profile community health. To involve the residents, Hopkins created a Community Advisory Committee that meets every three months. In parallel, EPA, PADEP, and Philadelphia teamed to find solutions to specific issues. Region 3 is also addressing pollution issues in S/SW Philadelphia through other, complementary efforts. By responding to chronic problems like illegal dumping and traffic noise, and by localized air monitoring, we hope to improve the quality of life in this highly urbanized area.

FIGURE 2

Ratio of Cancer Incidence for Selected Pennsylvania Male Populations, 1987-1991

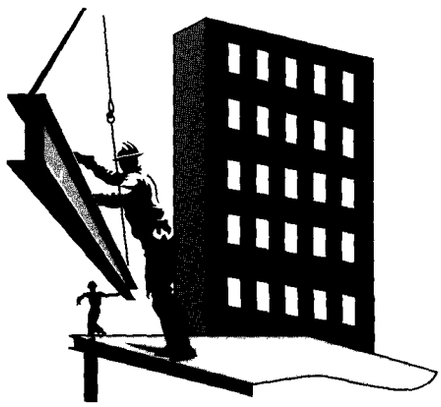


Graph shows a high incidence of leukemia in the City of Chester compared to other areas in Pennsylvania.

Source Pennsylvania Department of Health

Brownfields Economic Redevelopment Initiative

"Brownfields" are abandoned, idle, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. Prospective purchasers, developers, insurers, and lenders are reluctant to acquire and develop such properties, particularly in urban areas. EPA firmly believes that revitalizing contaminated property must go hand-in-hand with bringing back community life and economic vitality. EPA's Brownfields Initiative empowers states, localities, and other agents to work together in a timely manner to prevent, assess, safely clean up, and re-use Brownfields. The agenda has four broad categories: 1)Brownfields pilots, 2) liability and cleanup issues, 3) partnerships and outreach, and 4) job development and training. To test this agenda, five Mid-Atlantic cities/counties (Philadelphia, PA; Pittsburgh, PA; Richmond, VA; Northampton County, VA; and Baltimore, MD) have been awarded up to $200,000 over two years. In addition, EPA has successfully negotiated prospective purchaser agreements at numerous Superfund sites. At one such site, Publicker Industries in Philadelphia, Holt Cargo Systems paid $4.3 million for the rights



to develop the site as a marine terminal, projected to employ over 1,000 workers.

Student Environmental Development Program

This Environmental Education and Outreach program uses a holistic approach to teach inner-city students about issues such as lead, radon, and water pollution that are of particular concern in urban communities. The students do research projects and are taught communication and presentation skills that enable them to go into their communities to teach others, especially elementary school children, about the environmental issues that affect their community. They are challenged in a manner that promotes maturity, self-esteem, and a positive attitude.

OUR HOME ENVIRONMENT

In the Mid-Atlantic Region

"Home is where one starts from."
T.S. Eliot

In 1970, environmental protection focused primarily on the outdoors through controls on emissions to the air and waterways. Today, there is a growing awareness that a healthy environment begins at home.

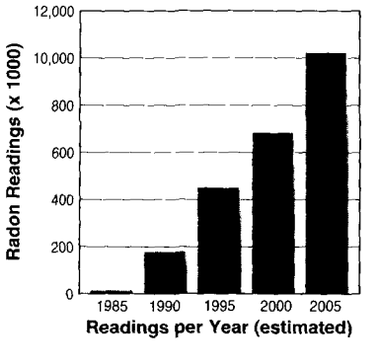
Indoor Air

Most people spend up to 90% of their time indoors. Infants and the elderly, those most likely to stay at home, are also the most susceptible to the effects of air pollutants. Exposures to tobacco smoke, pesticides, lead wall paints, carpet chemicals, and other man-made products can be many times higher indoors than outdoors, as are exposures to natural materials such as dust, fungi, and radon.

In 1986, Congress gave EPA authority to conduct indoor air research and to disseminate information on this issue. As one result of such outreach, radon tests have increased from 10,000 in 1985 to nearly half a million in 1995 (Fig. 1).

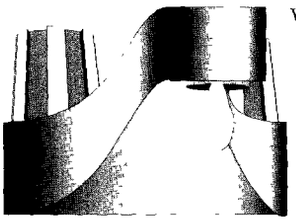
EPA's research program on lead shows that, of the 19 million homes in the northeast with lead-based paints, 17 million were built before 1978, and 13 million were built before 1960. This is, by far, the highest proportion of old homes in the nation; these older homes are more likely to contain lead-based paints.

FIGURE 1
Region 3 Radon Readings from Database



Lead in Drinking Water

Lead in drinking water contributes about 10-20% of total lead exposure to children. Lead often enters drinking water after the water leaves the local treatment plant; the source is most likely the leaching of lead from pipes and solder in a home's plumbing. EPA requires public water utilities to ensure that their customers' water does not exceed safe lead levels at the faucet.



Pesticide Use on Food and in Homes

Pesticide use through the 20th century contributed significantly to better public health and agriculture, but actual pesticide use is now declining. About 21,000 pesticide products are registered with EPA, a decline from about 45,000 in 1988. EPA estimates that conventional pesticide use in the U.S. grew from 540 million pounds in 1964 to 1.3 billion pounds in 1988. Since then, usage has shown a slight declining trend nationally, and in Region 3 as well. This trend reflects the availability of pesticides that are more effective at lower rates, changes in application practices by users, and adoption of integrated pest management (IPM) practices.

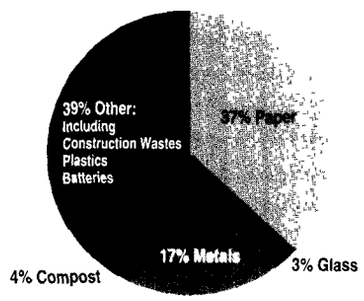
Household Waste Trends

The trend toward increased recycling of household trash has been a major environmental success story (Fig. 2). Over the past 25 years, recycling of household waste has increased significantly. Purchases of products made from recycled materials are also increasing, a trend that now makes certain wastes valuable commodities.

Solutions Are Often Simple

In many cases, home environmental problems are now being reduced or eliminated by simple steps. These include: inspecting furnaces, not smoking indoors, testing for radon and asbestos (and preventing or reducing exposure if necessary), damp mopping/dusting in homes with lead paint, flushing water from the taps in the morning (use this water for cleaning or watering), buying organically-grown food, buying natural alternatives to harsh pesticides and chemical cleaners, and many other simple activities.

FIGURE 2
Types of Recycled Waste



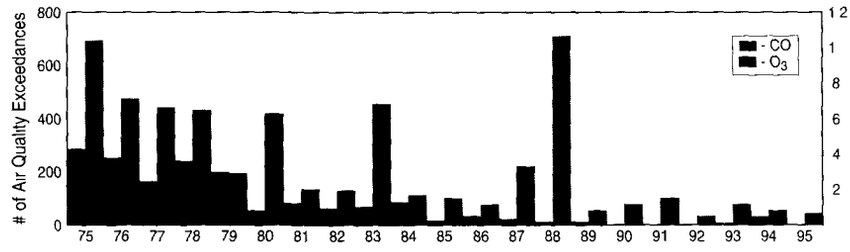
INTO THE FUTURE

Planning for the 21st Century

"Those who cannot remember the past are condemned to repeat it."
George Santayana

EPA Region 3 has used strategic planning to identify the Mid-Atlantic Region's most pressing environmental problems, and to set goals for the year 2000. The areas of prime concern are: 1) Acid Pollution, 2) Ozone Pollution, 3) Chesapeake Bay, 4) Using Sound Data, 5) State Partnerships, and 6) Managing for Change.

FIGURE 1
EPA Region 3 Air Quality Trends



Source US EPA AIRS Database
Particullate Matter (PM10) Standard promulgated 1987, Ozone Standard Revised 1979

Acid Pollution

Acid pollution affects our region in two ways. First, air emissions from factories, power plants, and vehicles contribute to acid deposition that falls as acid rain or snow, or as dry deposits between storms. Second, low pH water seeps from working and abandoned coal mines as acid mine drainage (AMD). Acid deposition can be controlled by reducing the amounts of sulfur dioxide (SO_2) and nitrogen oxides (NO_x) emitted by industries and power plants; thus, one strategy is source control through the Clean Air Act Amendments of 1990. Vehicle emissions are also a major source of NO_x. Strategies for reducing auto emissions focus on driving habits, fuel composition, and auto maintenance, and have been somewhat controversial. Region 3 is following national guidelines in addressing these issues.

We can control AMD from working mines through discharge permits administered by EPA, the Office of Surface Mines, and the states. AMD from abandoned mines is often difficult to control because we cannot always locate the sources of the drainage, or even the responsible parties. However, local sportsmen's groups and watershed associations have become effective partners of government in addressing AMD from abandoned mines. Our basic approach is to work on a watershed basis with concerned organizations and residents. This is an example of EPA's Community-based Environmental Protection Initiative.

Ozone Pollution

The goal set by the Clean Air Act - meeting the health-based ozone standard across the Mid-Atlantic Region by the year 2006 - is a major challenge. The urban corridor, from Richmond, VA, to Portland, ME, experiences ozone violations in most years. Region 3 is part of a broad effort to reduce ozone along this corridor by controlling pollutants that combine in the air to form ozone.

Acid Rain

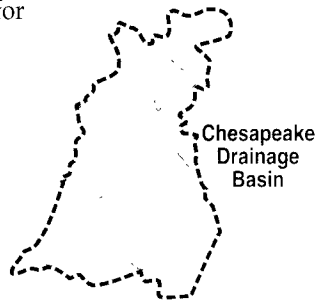
The Mid-Atlantic Region is the nation's largest consumer and producer of fossil fuels, particularly coal, which results in significant emissions that contribute to acid rain. Coupled with this problem is the fact that the Mid-Atlantic Region receives additional emissions from coal-burning sources outside of the geographic boundaries of the Region by atmospheric transport.

The 1990 Clean Air Act Amendments provide for reductions in these emissions nationally. However, given the extent and magnitude of the problem, the Region developed a five-year Acid Pollution Strategic Plan to further address ecological concerns. Key features of the Acid Rain portion of this Plan include: forging partnerships and alliances with other federal agencies, states, businesses, industry, environmental groups, and academia to promote innovative approaches to further reduce acid rain emissions; promoting energy efficient/conservation programs (e.g., Green Lights) ; coordinating with the Department of Energy, state public utility commissions, and regional utilities on programs such as energy demand/supply management, renewable energy sources, and electrotechnologies; enhancing expeditious source regulatory compliance, providing technical assistance, and promoting Supplemental Environmental Projects in enforcement negotiations to reduce acid rain emissions; and enhancing public educational and outreach programs to further promote energy conservation measures.

Such pollutant sources include cars, chemical plants, gas lawn mowers, bakeries, and many other sources. Due to a combination of factors, ozone levels can show sudden increases amidst a declining trend (Fig. 1). Increased driving, use of gas-powered tools, and other activities have shown that additional strategies, including broad public education, are needed to reach our goal.

Chesapeake Bay

The Chesapeake Bay is the nation's largest estuary. The Bay, and most of its drainage basin, lies within Region 3, which has been working with state and local governments, other federal agencies, and concerned citizens for more than 20 years to set



common goals for the Bay. The first major goal was a 40% reduction in nutrients by the year 2000. This set the stage for an additional 25 specific, measurable goals such as increasing the use of integrated pest management to reduce toxics and nutrients entering the Bay and its tributaries. Some of the Bay's restoration goals have already been met; others are in sight.

Using Sound Data

We are committed to using sound science and high quality data to assess environmental trends, and to plan for the future. Our goal is to develop good Environmental Indicators to track progress and plan future operations. Region 3 has conducted two projects to establish baselines for setting priorities. Our 1988 Comparative Risk Study ranked the relative threats from a broad array of environmental problems, while our 1993 Environmental Indicators Transition Project looked at environmental and human health data to gauge the health of rivers and streams, forests, and human populations in Region 3. The results were used to set our Year 2000 Strategic Goals.

State Partnerships

Environmental protection in this country has always focused on the states as the logical units of government to implement laws and programs. Before 1970, the federal role was secondary, focusing mainly on support of state efforts. With the passage of the Clean Air and Clean Water Acts, EPA had the broader role of establishing and overseeing consistent baseline programs across all states, addressing problems that cross state boundaries, and leading national environmental protection efforts in general. Starting in Fiscal Year 1996, EPA will enter into Performance Partnership Agreements with states. These agreements will focus EPA-state cooperation on an shared set of desired environmental outcomes, and will use a more flexible grant structure.

Business Initiatives

Region 3's staff is dedicated to finding new ways to achieve our environmental and public health goals. A strong enforcement program historically has helped achieve many environmental improvements. To supplement enforcement, EPA has initiated other programs (many described in this report) that challenge industries to change raw material usage and prevent pollution at the source. Specifically, Region 3 is working with the printing industry under the Common Sense Initiative to help this mainly small-business sector comply with regulations and reduce or prevent pollution. Our Business Assistance Center and hotline opened in August of 1995, informing businesses on regulations, pollution prevention, and even overseas marketing of environmental services.

Managing for Change

EPA's strongest asset is its work force. In recent years, efforts to reinvent and streamline government and to reduce spending have presented new Agency challenges. We in EPA Region 3 recognize that we need to assume leadership of the process and manage the changes that are occurring. To this end, we recently reorganized and streamlined our component divisions and offices, and are actively developing new tools to improve our performance without disrupting staff or interrupting operations. We are also developing a new focus on Customer Service to improve our ways of doing business with the public throughout the Region.

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