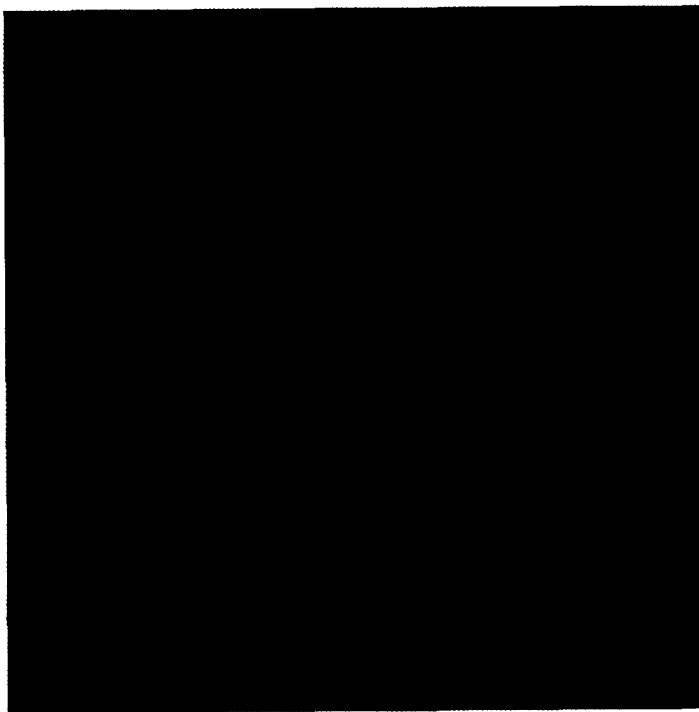


1970

30 YEARS OF ENVIRONMENTAL PROGRESS

2000

REMEMBER THE PAST



PROTECT THE FUTURE

EPA/904/R-00/002



U.S. Environmental Protection Agency
Region 4/Southeastern States
EPA-904-R-00-002

ALABAMA | FLORIDA | GEORGIA | KENTUCKY | MISSISSIPPI | NORTH CAROLINA | SOUTH CAROLINA | TENNESSEE

*The mission of the
U.S. Environmental Protection Agency
is to protect human health and to
safeguard the natural environment
— air, water, and land —
upon which life depends.*

United States Environmental Protection Agency



EPA was born 30 years ago at a time when rivers caught fire and cities were hidden under dense clouds of smoke. We've made remarkable progress since then. But we can't rest on our success.

Our mission to protect the environment, and to protect public health, is a mission without end. New challenges loom over the horizon as surely as the new day.

We must continue our work to ensure that with each new dawn, the sun shines through clear skies and upon clean waters—and all our families enjoy the blessings of good health.

Carol Browner, Administrator

During our 30 year journey, we have worked to create new partnerships with other government agencies and public-interest groups. We've reached out to the public with education and information programs designed to increase environmental literacy and to empower citizens to make environmentally responsible choices in their daily lives.

In order to continue to reach our ongoing environmental challenges, all levels of government, all sectors of society, and every citizen must help. All of us must share in the responsibility for harmonizing human activities with the needs and constraints of nature. We invite everyone who has not yet done so to join us in the challenging quest for a safe and healthy environment.

We are proud to present you with this report which celebrates EPA's 30 year journey in environmental protection.

John H. Hankinson, Jr.
Regional Administrator, EPA Southeast

EPA Southeast, created December 2, 1970, serves the eight southeastern states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee. We also serve six federally recognized Indian Tribes—Catawba, Eastern Cherokee, Choctaw, Miccosukee, Creek Poarch and Seminole. From Nags Head to Biloxi, from Kentucky's northern tip to the Gulf of Mexico and the Florida Keys, we're a region of diversity by any standard. EPA Southeast encompasses temperate, subtropical and tropical environments and is home to some of the world's most diverse ecosystems, including: the Appalachian Mountains, the coastal areas of the Atlantic Ocean and the Gulf of Mexico, the Okefenokee Swamp, the Great Smoky Mountains National Park, Everglades National Park and the Florida Keys Marine Sanctuary.

The southeastern United States has witnessed a substantial growth in population over the past two decades. We are home to 52 million Americans, and we're still growing. In addition to demographic changes, we've witnessed an increase in environmental awareness and consequent demand from our citizens for improved air and water quality, pesticide and toxics monitoring, effective hazardous waste management and improved science and technology. EPA Southeast employs a diverse work force to meet the demands of our citizens.

The environmental issues we're facing today are very different from those of previous decades. In the past, pollution sources were specific and well defined. Today's primary pollution sources are much more difficult to define and control. Non-point source pollution, mobile air emissions and environmental impacts from urban sprawl are all major contributors to our current pollution woes. Our traditional regulatory approach to dealing with pollution is not easily applied to our current problems. Therefore, effective solutions will require that we work more closely than ever with local and state governments and our citizens to develop successful environmental management strategies.

EPA Southeast envisions a 21st century in which healthy and economically secure people sustain, and are sustained by, a healthy environment. While we're proud of the progress we've made, we still have far to go. We're committed to working harder than ever to ensure that nature's activities and human activities can exist in harmony—side by side.

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CLEAN AIR

The Breath of Life—For A Healthy America

"One can exist for days without food or water... but life without air is measured in seconds. In seconds."—Caskie Stinnet

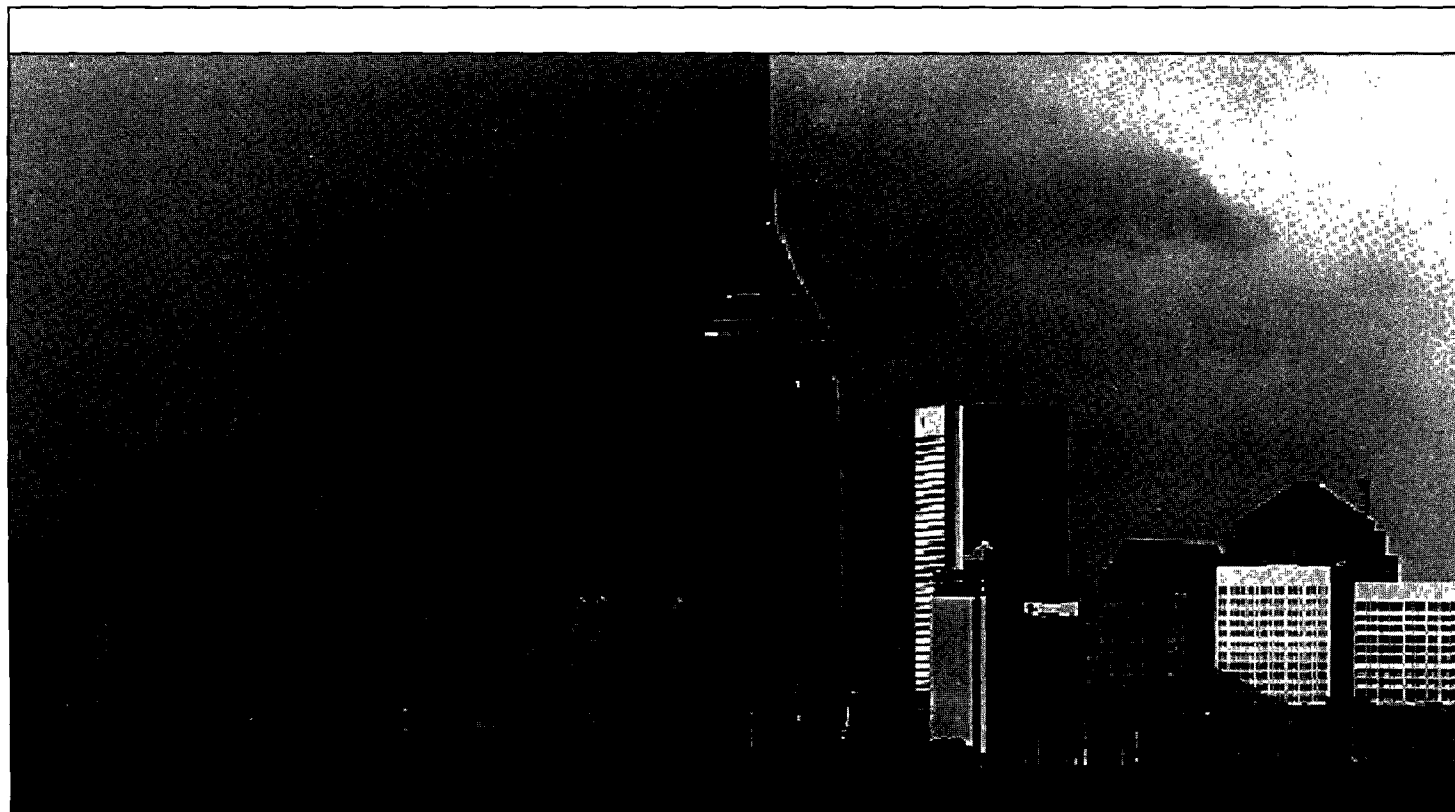
EPA Southeast is dedicated to clean air for every man, woman and child in our region. Growth in our region has been rapid and our challenge is to work with our states, local governments and communities to ensure that a growing economy and clean air are goals in concert—not in conflict.

In 1970, the Clean Air Act (CAA) was passed to improve air quality. While emissions of pollutants such as carbon monoxide, particulates and lead have been greatly reduced, much work remains to be done to reduce air pollution in our larger cities. The 1990 CAA Amendments were passed to address our persistent air quality problems and protect human health from the harmful effects of air pollution. The Amendments also signaled a change from strictly pollution control to pollution prevention through measures such as the use of low sulfur fuels. Through these regulations, EPA Southeast has worked with our states to bring many highly populated areas into compliance with clean air standards.

EPA Southeast is working to prevent and minimize stationary—industrial—emissions.

Stationary pollution is what we commonly think of when we picture billowing smokestacks. Based on our current Toxic Release Inventory (TRI), an EPA report on 600 designated air toxics, one major source of stationary emissions in the Southeast is produced by coal burning power plants. Currently, there are 89 coal burning power plants in the Southeast releasing more than 1.4 million tons of nitrous oxide, sulfur dioxides and particulates into our air each day. Nitrogen oxides are a major contributor to the formation of ground-level ozone (smog), acid rain and haze. The combined effect of these emissions is the daily equivalent of six million commuter cars.

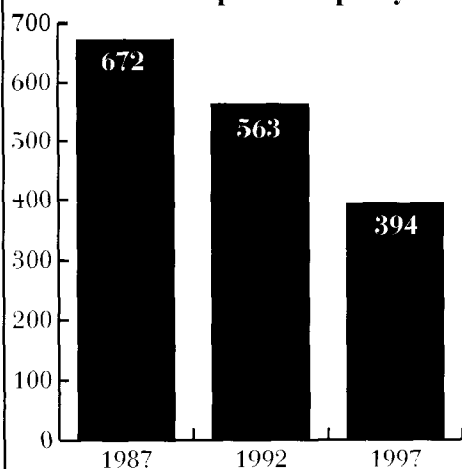
Mobile emissions from autos, boats, planes, buses and trains are another major source of air pollution in the Southeast. Today, more Americans than ever are dependent on automobiles to take them to and from work. Relocation into the suburbs and a lag in mass transit development and commuter buy-in has created longer, more environmentally costly commutes. For example, Atlantans now have an average workplace commute of 38 miles.



Left half of photo demonstrates smog and reduced visibility, right half of photo demonstrates clear visibility with no smog

the longest in the country. Atlanta also reported a record breaking 70 consecutive "smog alert"

Toxic Releases Inventory (TRI) millions of pounds per year

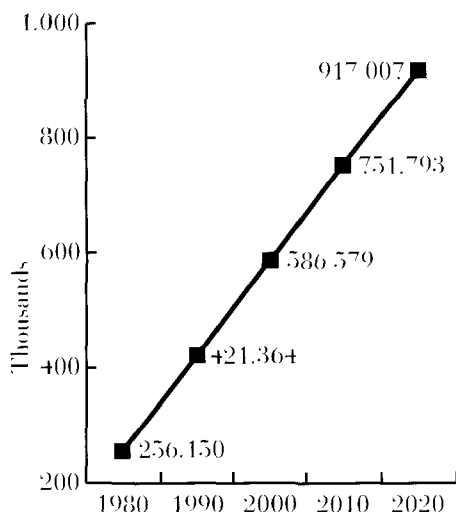


days in the summer of 1999, putting it among the top ten U.S. cities with the poorest air quality. (A **smog alert** day is declared when outdoor air quality is so poor that it can trigger health related problems in individuals with asthma or other respiratory disorders.) Although we've made progress in the Southeast, we're now driving almost 60 percent more than in 1980, and experts fear we'll lose all our gains in reducing tailpipe emissions within the next decade.

EPA Southeast continues to strive to regulate and improve our region's air quality, knowing that our

health is directly impacted by the quality of the air we breathe. The Center for Disease Control (CDC) has reported that in one 15 year period, asthma rates for all Americans have increased by 75 percent. Asthma now affects more than 15 million Americans, with children being the most affected. Children under 5 years of age have suffered a 160 percent increase in asthma rates, and asthma is now the most prevalent chronic disorder for all children under the age of 17. Cancer, lung scarring and other chronic respiratory ailments can also be attributed to poor air quality.

Vehicle Miles Traveled (VMT) per year with projection



Population growth brings new pressures—particularly increased vehicle traffic—on air quality. Despite already crowded roadways, our traffic problems are predicted to worsen.

Geographically, we face a big challenge regarding air pollution in the Southeast. Wind currents and the jet stream push pollutants toward our region and prevent those created within our region from moving on. Additionally, the Appalachian Mountain Range and our moist, warm air inhibit the movement of polluted air out of our region. We are at greatest risk during our warmest months, but air pollution risks really never go away.

EPA Southeast, working with our states, will continue to implement air quality standards. With your help we can be successful in attaining clean air and better health for everyone.

Here's What You Can Do to Help Keep Our Air Clean:

- *Car pool, take mass transit, or bike to work.*
- *Work at home.*
- *Combine errands and conserve trips.*
- *If you do drive, fuel up after dark to reduce fuel evaporation at the pump.*
- *Conserve electricity whenever possible.*

Smoky Mountain Haze

Much of the phenomenon of the white or brown haze that hovers around the Smokies (hence their name) is actually manmade air pollution. The visual range of the Smokies should be around 70 miles, but because of air pollution (haze) the average visual range is only 15 to 30 miles. Haze is caused when sunlight hits tiny pollution particles in the air. Some of the light is absorbed by the particles and the light is scattered before it reaches an observer. More pollution means more light absorption, which reduces the clarity and color of what we see. This effect is particularly true during humid conditions when the air is heavy with tiny water molecules. Some haze forming pollutants are emitted directly into the air while others are formed once they enter the air and bind together. Some of the pollutants that form haze have been linked to serious health problems and environmental damage. To reduce haze, we must minimize planned burning and reduce emissions of haze-forming pollutants from vehicles, power plants and other industrial sources.



CLEAN WATER

Safe Drinking Water for Everyone
A Presidential Mandate

"When the well's dry, we know the worth of water." —Benjamin Franklin

Water—the very essence of life. It's a source of sustenance, recreation, transportation and livelihood. EPA Southeast recognizes the importance of water and the need to protect it. Within the eight states that comprise EPA Southeast—Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee—there are 461,216 miles of rivers and streams, 18,000 miles of shoreline, 4,945,231 acres of lakes and numerous underground sources of drinking water. Our water resources are threatened by millions of diffuse sources of pollutants. Water bodies receive polluted runoff from agricultural lands, residential areas, city streets, forests and airborne pollutants that settle onto our land and into our waters. Armed with Congressional legislation, EPA has led the fight to restore and protect our nation's rivers, lakes and coastal waters.

The Clean Water Act (CWA) was passed in 1972, only two years after EPA was established. This legislation gave the Agency initial authorization to reduce industrial, municipal and agricultural discharges into public waters. The CWA provided the strong regulatory guidance and financial resources needed to clean up municipal sewage and industrial waste discharges into our waters.

By 1987, significant progress had been made in curbing impacts from these sources, and awareness was growing regarding the threats posed by pollutants from runoff. The 1987 amendment to the CWA further expanded the financial and technological tools necessary to address additional sources of water pollution.

Protecting our water resources directly impacts each of us every day through the water we drink. The Safe Drinking Water Act (SDWA) signed in December 1974 created the first mandatory national program to protect public health through safe drinking water. The SDWA was amended in 1996 to provide us comprehensive protection from "source to tap." Under the SDWA, EPA has developed standards for 90 contaminants and established monitoring, reporting, public notification and source water assessment requirements for public water systems.

For more than 25 years, the SDWA has protected the public health by ensuring safe drinking water for millions of Americans. Safe water is essential for good health, and particularly for the health of our children, the elderly and individuals with increased susceptibility to illness. Today in the



Enjoying a refreshing day in one of our region's many clean streams

Southeast more drinking water systems than ever before are meeting all health based standards, despite stricter requirements. As of January 1, 2000, 95 percent of the population in the Southeast was being served by a regulated drinking water system reporting no health standards violations.

EPA Southeast's safe water successes are due in large part to the Agency's efforts to establish networks and partnerships between federal, state and local governments, drinking water utilities, system operators and engineers, scientists, healthcare providers, community groups and the

public. Information sharing empowers the public to take a more active role in drinking water issues.



EPA SE protects our waters from raw sewage

In addition to educating and empowering the public, EPA Southeast has recognized the need to provide expertise, training, advisory services and on-site/off-site assistance to the 170,000 rural water systems in the region. The 1996 SDWA amendments created more complex standards that challenged the Agency and the rural water systems to work together even more closely.

EPA Southeast's Small System Peer Review Program helps rural water systems meet the requirements of the 1996 SDWA amendments. The Program, which began in Georgia in 1996, is an innovative approach for addressing environmental performance of small drinking water facilities through a voluntary effort of self-assessments, on-site peer reviews, evaluations and recommendations. The Small System Peer Review Program brings together a trained network of experienced drinking water personnel who volunteer their time and services to participating small communities and Tribes. Since its inception, Kentucky, Mississippi and Virginia have also initiated similar efforts, and the Program has been adopted by the United South and Eastern Tribes representing 23 Native American Tribes from Maine to Texas. Additionally, the Program was recognized in

1999 with a Hammer Award from the National Partnership for Reinventing Government for its innovative approach to ensuring safe drinking water throughout the Southeast.

EPA takes its responsibility to protect our waters very seriously, and our work is not finished. The States in their 1998 reports to the Agency on assessed waters stated that 48 percent of our streams and rivers, 29 percent of our lakes, 26 percent of our estuaries and 39 percent of our coastal shoreline have water quality problems. Many of these problems are due to non-point source pollution. (*Non-point source pollution*—pollutants that run off lands, roadways and parking lots. This type of pollution is indirect and not pumped directly into waterways from industry.) Non-point source pollution drains pesticides, silt, metals, bacteria, excessive nutrients, oils and oxygen depleting substances into waters that are used for recreation and for drinking. The importance of preserving our water cannot be overstated.

EPA Southeast recognizes the important relationship between our land and water and the delicate balance between all natural resources. We continue to work to preserve and conserve these precious commodities for future generations of Americans.

Pigeon River: An EPA Southeast Success Story

In 1908, the Champion pulp and paper mill was built along the banks of the Pigeon River in North Carolina. The mill uses water from the river in its daily operation and discharges its wastewater back into the river. When the mill began operation more than 92 years ago there was no EPA and no regulatory mechanism to determine that the river was too small to support such a large industrial operation. Because of the environmental impact on the river, EPA Southeast began regulating the mill's operation and wastewater discharges, resulting in major improvements in water quality.

In 1985, EPA Southeast assumed permitting authority for the mill's wastewater discharges and discovered the presence of dioxin, "the most potent carcinogen known," and chloroform in the mill's discharges. EPA Southeast issued a discharge permit for the mill that became one of the first in the country to contain a dioxin limit. Based on this permit, a 300 million-dollar mill modernization plan was completed in 1994, and

today the plant has realized a 74 percent reduction in harmful discharges into Pigeon River.



EPA Southeast played a proactive role in the restoration and protection of Pigeon River. The states of North Carolina and Tennessee have seen an increase in recreational use of Pigeon River as well as economic benefits from tourism.

EPA Southeast continues its role of protecting Pigeon River, protecting our health and ensuring that established water quality standards are maintained.

Here's What You Can Do to Help Conserve Water:

- *Install a low-flow showerhead.*
- *Install low-flow toilets.*
- *Make sure all your faucets are well maintained and repair leaky faucets quickly.*
- *Water your lawn during early morning or late afternoon.*
- *Turn off water between washing and rinsing your car, and wash your car on the lawn to reduce runoff.*



1980

1982

CLEAN LAND

From Superfund to Super Parks

*"We don't inherit the land from our parents;
we borrow it from our children." —Native American proverb*

EPA Southeast comprises the largest region served by the U.S. EPA, both geographically and in terms of population. Our region is also the most geographically diverse region of the country, which presents us with a very distinct challenge to ensure the health and survival of these precious natural resources.

To empower EPA to meet these challenges, Congress has passed legislation related to important land issues. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1972 gave EPA the authority to study and control the use of pesticides. Amendments to FIFRA now require pesticide users to take exams for certification to ensure that pesticides are properly labeled and properly applied to avoid harm to people or the environment. In 1976, the Resource Conservation and Recovery Act (RCRA) gave EPA the authority to control all hazardous waste and non-hazardous solid waste from "cradle to grave." Amendments to RCRA in 1984 required phasing out land disposal of hazardous waste, and amendments in 1986 further strengthened the Act by focusing on regulation of underground petroleum storage tanks.

While RCRA helps regulate waste disposal, the 1980 Comprehensive Environmental Response Compensation and Liability Act (Superfund) authorized the cleanup of uncontrollable or abandoned hazardous waste sites as well as accidents, spills and other emergency releases. These statutes have had a great impact on EPA Southeast's role with regard to land use and preservation.

Historically, southeastern land use has been agriculturally based. While agriculture provides us with our foods, it also contributes to pesticide, herbicide and animal waste pollution of our soil and water as well as a general loss of forests, erosion of topsoil and silt runoff. EPA Southeast and our farmers are working together to learn more about these complicated issues and find better ways to minimize environmental risks and to incorporate environmental practices in daily agricultural operations.

EPA Southeast is also focused on environmental factors accompanying our vast change in land use from agriculture to industry. One challenge that we now face is the phenomenon of *edge effects*, or conflicts arising from the proximity

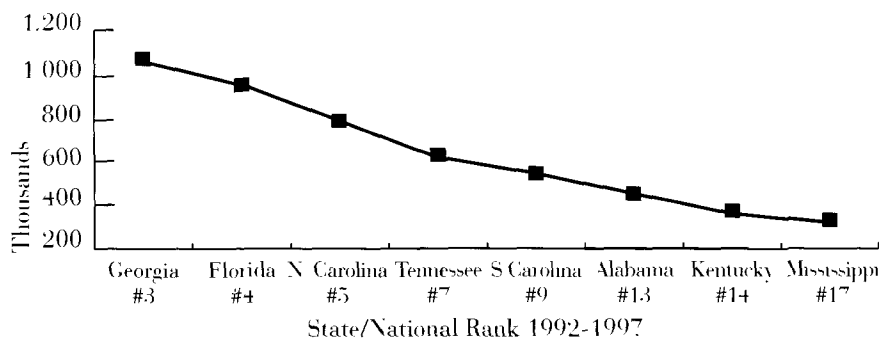
RCRA And Hazardous Waste

Using the Resource Conservation and Recovery Act (RCRA), EPA Southeast is able to oversee the transportation, generation and storage of hazardous waste in our region. Since 1981, RCRA has facilitated the closure of 758 of the 760 hazardous waste land disposal facilities in the Southeast. The two facilities that remain operational are required to extensively treat and stabilize all flammable, corrosive, toxic, reactive and/or explosive waste prior to disposal. Additionally, more than 40 of the 70 hazardous waste incinerators operating in 1991 are now non-operational and those remaining are operating under strict permits. Our states play an important role in regulating hazardous waste, and nearly every state in our region is fully authorized to implement the federal RCRA regulations. With our state partners, we are successfully controlling and regulating hazardous waste in the Southeast.

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Trees are important to the prevention of soil erosion

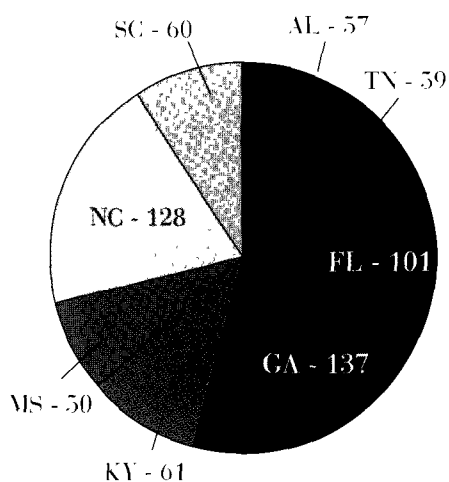
**Conversion of Undeveloped Land
1992-1997 (in acres)**



All southeastern states ranked among the top 20 states in land conversions; three of the top five fastest developing areas in the nation were in the Southeast.

Superfund Removal Actions

653 Total Removal Actions
(1980 to Present)



Through the Superfund program, EPA SE screens suspected hazardous waste sites to determine the extent and type of response needed. Response actions include removal and remediation (long-term cleanup). In our region, 653 removal actions have occurred since 1980.

of two very different land uses. Incompatibility between new urban areas and agricultural areas can bring unwelcome complications. Airborne drift from farm chemicals and dust can have very negative health impacts on heavily populated, residential areas. Conversely, toxic urban runoff and urban air pollution can damage crops and waterways and endanger livestock.

EPA Southeast has made significant strides in pioneering new ways of handling and disposing of hazardous materials like pesticides.

Use Pesticides Wisely

Pesticides should only be applied for those uses clearly identified on the container. Using pesticides for a purpose they are not intended—for example, to poison unwanted animals, can lead to serious injury or death to domestic animals and children. It may also lead to prosecution of the person who applies the pesticide and the person who supplied it. This illegal practice has resulted in the death of many animal species, including endangered ones.

Homeowners should be very careful when applying pesticides in or around the home. Do not accept pesticides from neighbors or friends unless they are clearly labeled for home use and in their original container. In recent years, some homeowners have applied a highly toxic pesticide known as methyl parathion that is intended for agricultural use

only. The use of this pesticide inside homes in the Pascagoula, Mississippi area resulted in the evacuation of 1,756 individuals and the decontamination of 399 homes. There are many highly effective pesticides that can be safely and legally applied by both homeowners and licensed pesticide professionals. Information on what pesticides to apply in or around your home can be obtained from the Cooperative Extension Service in your area.



Here's What You Can Do to Help Protect Our Land:

- Read labels and properly dispose of all hazardous household items, like paint and petroleum products.
- Use lawn fertilizers and pesticides properly and sparingly.
- Use plants or manmade barriers to control soil erosion.
- Protect the trees on your property and contact your Forestry Department or Cooperative Extension Service if you suspect any health problems related to your trees.
- Plant a tree. This is a great way to help the environment and mark special occasions in your life or your family's life.



LIVABLE COMMUNITIES

*A Decent Home and Suitable Living Environment
— A Congressional Mandate*

*"Each generation writes its own biography in the cities it creates."
—Lewis Mumford*

The Southeast has enjoyed economic prosperity and significant growth over the last decade. Atlanta's population has doubled to almost four million, and South Florida currently supports six million people with an expected increase to 20 million by 2050. North Carolina has grown by 2.5 million since 1970, nearly a 50 percent increase, and its Office of State Planning predicts another 1.9 million increase over the next 20 years. EPA Southeast is working with our communities to optimize the benefits of our growth.

With so many people living in our region, cars are more prevalent than ever. EPA estimates that, over the next decade, this extra driving could eradicate all our gains in reducing air pollution. As a matter of fact, every state in EPA Southeast violated at least one clean air standard in 1999. Our population growth and resulting sprawl have also contributed to our loss of wetlands. Nearly half of the wetlands of

the Florida Everglades—almost one million acres—have been destroyed. In 1920, two million wading birds populated the Everglades, but today the area has fewer than 200,000. The Chattahoochee River in Georgia has been referred to as a "river in peril," and EPA considers the 70 mile stretch of river below Atlanta to be among the five most polluted stretches of river in the nation.

We are working to assist our communities in dealing with environmental impacts and ways to avoid them. Many environmental impacts are the result of our past growth pattern which has been primarily single family homes that require large amounts of land and leave residents automobile dependent and stuck commuting in traffic. Commuter effects can be dramatic when you consider that a one acre parking lot generates 16 times more polluted runoff than a meadow.



Smart Growth involves planning and wise land use

EPA recognizes that environmental protection and economic development must be mutually compatible. We support efforts to build and rejuvenate our communities and fight sprawl. This concept, commonly referred to as Smart Growth,

addresses urban sprawl and improves our total quality of life. It involves preserving scenic beauty and the environmental assets of open spaces and creating livable communities. Smart Growth requires that we work together to rebuild inner cities where land has already been developed and city services exist. It's about planning wisely for the future.

Smart Growth at EPA Southeast includes the Brownfields Program. Brownfields are "abandoned or under used industrial and commercial facilities where redevelopment is complicated by real or perceived contamination." EPA launched the Program in January 1995 to empower

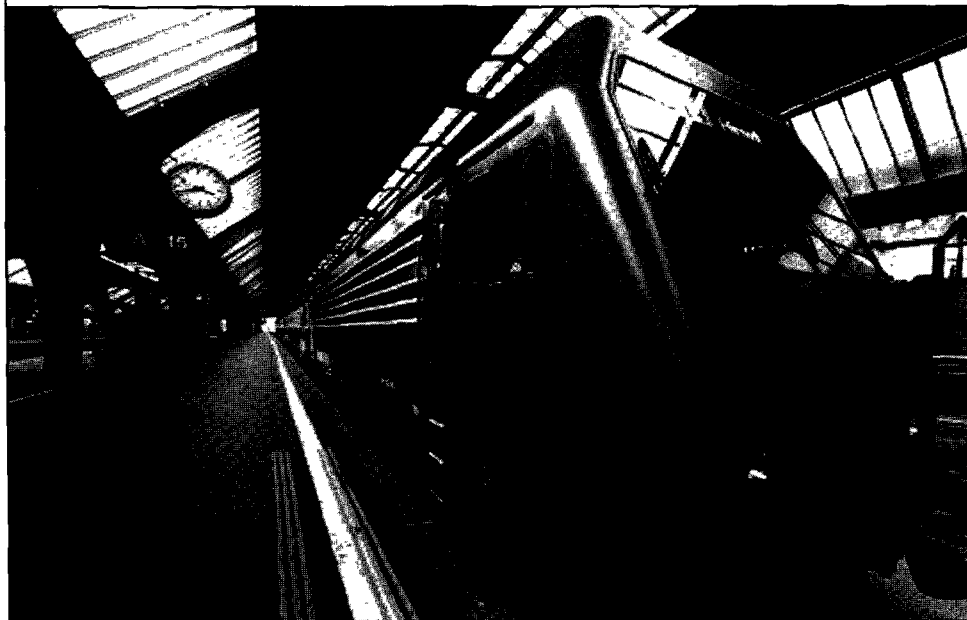


Eastward Ho! Revitalizing Southeast Florida's Urban Core and Protecting the Everglades

The Eastward Ho! Brownfields project identifies approximately 2,100 Brownfields sites in the 115-mile corridor that stretches through five Florida counties. This represents a partnership effort of public, private and non-profit community organizations—including local, state and federal government agencies—that serve as one arm of a larger strategic initiative to direct future growth in southeast Florida. This project is revitalizing southeast Florida's historic urban core and alleviating development pressures on the threatened Everglades ecosystem.

Desired outcomes:

- Enhance ecosystems, public health, economic development and transit-related efforts.
- Promote sustainable communities.
- Protect the region's drinking water.
- Establish easy-to-use process for developers.
- Attract private development.



Mass transportation is important for healthy communities

states, communities and stakeholders to work together to assess, clean up and reuse Brownfields.

The Brownfields Program encourages partnerships. Communities are critical to the success of this Program and they are strongly encouraged to participate as stakeholders. In addition to the Brownfields grants that provide seed money, EPA also provides grant dollars for job training that improves employment related to the environment.

The Brownfields National Agenda includes commitments from more than 25 organizations and 20 federal agencies. These commitments represent a 300 million-dollar investment in Brownfields communities by the federal government and an additional 165 million dollars in loan guarantees. EPA Southeast has 4,224 Brownfields properties, with

EPA's Project XL - eXcellence and Leadership

EPA's Project XL is designed to test innovative strategies to restore and protect our environment. The Atlantic Steel Project XL promotes Smart Growth and urban livability by facilitating the redevelopment of a former steel mill to productive mixed use in downtown Atlanta. The 138-acre site is now slated for a pedestrian friendly, commercial and residential development that will provide 2,400 new residences and nearly 20,000 new jobs.

The proposed site's location, design elements and potential connection to an existing transit system work together to combat the auto oriented nature of growth in the Atlanta area. EPA Southeast used the flexibility of Project XL to allow bridge construction connecting the

community to existing roads and highways that are crucial to accessibility. In return, it is expected that this project will lead to better air quality through the use of mass transit, access to services within walking or biking distance, revitalization of an urban community and productive reuse of land that was previously considered a liability.

The Atlantic Steel Project XL provides EPA an opportunity to showcase a project that encourages in-town growth while balancing environmental protection. This project is a positive example that abandoned industry sites can be reclaimed while providing a healthy community and ideal environment for local economies to thrive.



Citizens and local officials work together on community planning issues

every state in the southeastern region participating in the Program.

The communities of EPA Southeast have shown that they want to decrease traffic congestion and increase planning and Smart Growth. We're working together to make our communities healthy communities.

Here's What You Can Do to Help Maintain a Healthy Community:

- *Get involved in local planning efforts.*
- *Use mass transit.*
- *Car pool.*
- *Recycle.*
- *Practice water conservation.*



HEALTHY *The Dynamic Interaction of Habitat and People* ECOSYSTEMS

"In all things of nature there is something of the marvelous" —Aristotle

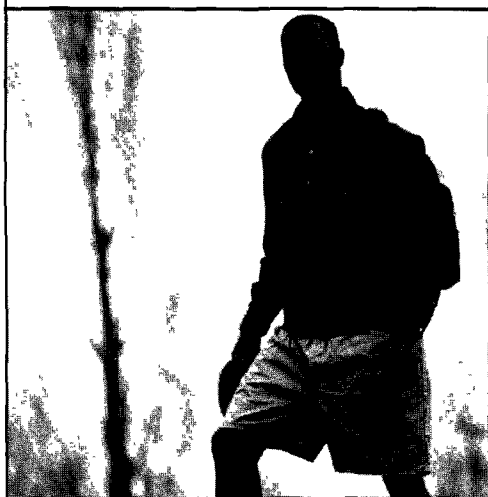
EPA Southeast has almost one-third of the total shoreline in the continental United States, and currently 35 percent of the population in the Southeast resides along the coasts. Nationally, it is estimated that by the year 2015, more than 75 percent of the U.S. population will live, work and play along the nation's coasts.

Six of the eight southeastern states boast coastal land—Alabama, Georgia, Florida, Mississippi, North Carolina and South Carolina. However, all eight states contribute to the southeastern coastal watershed. (*Watershed*—a common outlet—river, lake, bay or ocean—into which water, sediments and dissolved materials drain.) The southeastern coastal watershed begins at the headwaters of our region's streams, rivers and wetlands, all of which eventually drain into our coastal waters. While on their journey to the sea, these waters pass through farming, residential, business and forested areas picking up pollutants such as metals, excessive nutrients, pathogens and debris.

All of these pollutants are then deposited into our nearshore waters and onto the beaches of our coasts.

Our coastal waters and watersheds provide food, recreation, education, ports and marinas. These waters also help protect us from severe weather impacts and support fishing, shipping and other industrial activities. Coastal waters are a very valuable part of the Southeast and of our nation's economy. For example, the Gulf of Mexico provides more than 40 percent of the total U.S. commercial fish yield. Sales of seafood from the Gulf of Mexico are worth two billion-dollars annually.

The health of the coastal watershed is intimately linked with the health of the nearshore ecosystem. Nearshore waters provide a unique habitat for a variety of plants and animals. Sea grasses and other aquatic plants living in these waters provide food and shelter for many fish



A hiker enjoys the scenic beauty of the Appalachian Mountains

and shellfish. Many marine organisms, including most commercially valuable fish species, depend on nearshore waters at some point during their development. So vital are nearshore waters that 80 percent of all fish species in the United States depend on them for their primary habitat.

Estuaries are also an important component of the health of the coastal watershed ecosystem. (*Estuary*—a partially enclosed body of water formed where fresh water from rivers, streams and

groundwater flow to the ocean, mixing with salt water.) Recognizing that estuaries provide critical habitats necessary for the survival of tens of thousands of birds, mammals, fish and other wildlife, EPA implemented a National Estuary Program (NEP) in 1987. This program brings together federal, state and local agencies, and the community in the six NEPs of EPA Southeast to restore and protect estuaries serving as habitats and nursery grounds for two-thirds of our nation's commercial fish and shellfish.

Coastal watersheds and estuaries are very vulnerable to the effects of pollution that can impact human health and the environment. These coastal waters are greatly stressed by people and events like: overuse, toxic urban runoff, soil runoff, runoff from fertilizers, storm water and animal waste runoff, acid rain deposits, bacteria from faulty septic tanks and sewage treatment plants, medical waste and boat and marina waste. Additionally, watersheds are adversely affected by habitat alteration from the filling of marshes, wetlands and tidal flats as well as construction and other land clearing activities.

EPA Southeast has seen the devastating effects of various forms of coastal pollution. There were 136 beach closings and advisories in the Southeast

EPA Southeast's Southern Appalachian Ecosystem

The Southern Appalachians are one of the most biologically diverse, temperate ecosystems in the world. The mountain chain runs through the southeastern states of Alabama, Georgia, Kentucky, South Carolina and Tennessee. It is home to an estimated 80 species of amphibians and reptiles, 175 species of birds, 65 species of mammals, a large number of plants and trees and the headwaters of four major southeastern rivers. The Appalachian ecosystem experienced many changes during the early 20th century largely due to land management practices that exploited the natural resources. This exploitation resulted in eroding cropland and pastures, heavily logged forests with little economic value and related environmental harm. With the assistance of federal, state and local communities, restoration and conservation began and national forests were created. As the 21st century begins, the Southern Appalachians are on the mend.

in 1999; of these closings, 15 were permanent closings or advisories (i.e., more than 12 weeks in duration, or lasting for one entire beach season). The primary causes of the 1999 beach closings and



EPA SE helps protect our region's diverse ecosystems

“Dead Zone” in the Gulf of Mexico

Up to 7,000 square miles of the Gulf of Mexico are totally devoid of life for several months of the year. This “dead zone” is caused by pesticides and fertilizers washing off agricultural lands in the Mississippi River’s watershed and traveling downstream into the Gulf. Each spring and summer, the massive amounts of nitrogen in these products trigger a growth of algae that strips the Gulf water of oxygen. Low oxygen conditions kill most bottom-dwelling organisms, including starfish and many single-celled animals.

The long-term economic, ecological and biological effects of this recurring event

could be devastating. For example, fishermen who make their living from the Gulf have to travel farther out into deeper waters for the same catch. This takes time and extra fuel, which is then passed on to the consumer in higher prices.

The dead zone is an example of what happens in coastal estuaries around the country. Seasonally, large amounts of nitrogen-rich compounds enter the nation’s estuaries as runoff upsetting the delicate chemical and biological balance. It’s also an example of how a harmful environmental event can occur far from the source that caused it.

advisories were as follows: 56 percent were due to bacteria levels exceeding beach water safety standards, usually from sewage or storm water



Working to protect our ecosystems for future generations to enjoy

discharges: four percent were due to a known pollution event such as a spill; and 40 percent were initiated as a precautionary measure after known polluted rains fell in swimming waters.

EPA Southeast views our watershed and its ecosystems as a whole system that is intimately tied together. What happens in one part of the watershed often affects another part, sometimes hundreds of miles away. EPA Southeast assists states in assessing the quality of their watersheds and in applying established

watershed protection plans. We also oversee the wetland permitting process, provide financial assistance to states, territories and Tribes to promote watershed planning and management, and provide information to you, the citizens we serve, so that you can make wise environmental choices.

Here’s What You Can Do to Help Keep Our Ecosystems Healthy:

- *Use pesticides and fertilizers sparingly and correctly, remembering that what runs off your yard will eventually end up in our watersheds and coastal waters.*
- *Choose environmentally friendly products and compost organic waste.*
- *Practice good housekeeping by properly disposing of toxic substances like paint, paint thinners, automotive fluids and cleaning products.*
- *Curb your dog and properly dispose of pet waste. Do not leave it on the ground or throw it down a storm drain.*
- *Maintain your septic tank.*
- *Pick up litter and properly dispose of your trash.*
- *Practice water conservation.*
- *Properly maintain your boat, use pump-out facilities, and operate your boat in a responsible way to avoid shoreline erosion and harming sensitive aquatic environments.*



HEALTHY *The Responsibility Of All Nations* PLANET

*"We use the power of science to protect people and the environment."
—Jane Rissler*

In October 1999, our world population surpassed six billion. Only 12 short years ago the number stood at five billion. This recent rate of growth is staggering considering that in the 123 years between 1804 and 1927 the population grew only by one billion—taking the world's total population to two billion.

Rapid population growth makes management of our environment all the more difficult. Indeed, EPA Southeast recognizes that the need for environmental protection does not stop at our nation's borders. Through our international outreach programs, we share technology and educate other countries about actions and regulations that will protect human health and the environment. We take seriously our responsibility to help our global neighbors identify and solve environmental problems.

Since 1995 the U.S.-Asia Environmental Partnership (US-AEP) has been working with

the South Korean Ministry of Environment on an Advanced Drinking Water Treatment Project. EPA Southeast's South Korean Action Teams traveled to South Korea in 1995, 1996 and 1997, visiting numerous drinking water facilities. EPA teams documented problem areas where technical assistance was needed and provided expertise related to drinking water disinfection technology, upgrades and optimization for existing drinking water plants, protection of drinking water sources and consultation on regulatory development and implementation. Additionally, the 1997 South Korean Action Team conducted an international symposium at the National Institute for Environmental Research, speaking to more than 100 South Korean government officials, environmental regulators, drinking water researchers and drinking water utility managers and operators.

South Korea is not the only international

outreach project that EPA Southeast has participated in. During the past decade, EPA Southeast and the U.S. EPA's Office of International Activities supported environmental protection in Ukraine. Working through the U.S.—Ukraine Binational Commission, EPA Southeast provided technical assistance to the Ukrainian Ministry of Environmental Protection and Nuclear Safety (MEPNS) on a pilot project for hazardous waste management and wastewater problems. The goals of the project were to evaluate treatment and disposal of hazardous waste, identify hazardous waste disposal sites and make recommendations regarding hazardous waste management. In order to facilitate this project, EPA Southeast personnel assisted with

inspections, conducted sampling and helped local authorities compile information on the quantity, nature and source of hazardous waste. A modern laboratory has been equipped in Kyiv, Ukraine to further analyze samples taken from waste sites and waterways. The lab provides vital scientific data needed for computer models of areas of environmental concern, like the Kaniv Reservoir and the Dniro Estuary near the Black Sea. EPA Southeast also held a three-week training course for 20 Ukrainian environmental specialists to facilitate the project.

Through an interagency agreement, EPA Southeast also traveled to Central America to provide technical assistance and environmental

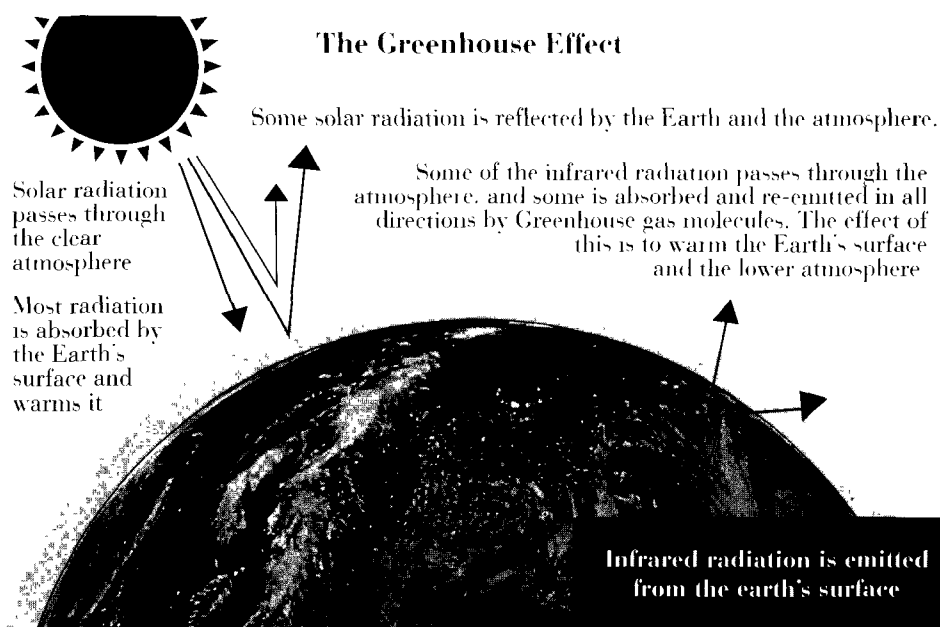


Information sharing in South Korea

education for International Development (US-AID). We participated in efforts promoting sustainable development through environmental protection. These efforts fulfilled a treaty obligation signed by the U.S. Government in 1994 at the Summit of the Americas to support Central America in its efforts.

This environmental project focused on wastewater problems in Central America. A pilot wastewater treatment project was established in Puerto Barrios, Guatemala, where the teams provided technical expertise, training, design review and consultation for the collection and treatment of wastewater. The pilot project treated wastewater through installation of a wastewater treatment and distribution system. The teams also provided a workshop in

The Greenhouse Effect



Guatemala where 32 participants from Guatemala, El Salvador, Honduras and Costa Rica were educated about traditional and alternative wastewater treatment systems. The group examined case studies from Guatemala, Venezuela and Honduras and plan to meet in the future for follow-up seminars and workshops. This pilot project provided an excellent example for other Central American communities to follow.

Pollution knows no boundaries. Therefore, EPA Southeast has made it a priority to reach out to our global neighbors in the belief that every human is entitled to a safe and healthy environment. Our international activities in Korea, Ukraine and Central America are intended to educate and provide solutions for very real environmental problems that could

potentially have a significant global impact.

Here's What You Can Do to Help Maintain a Healthy Planet:

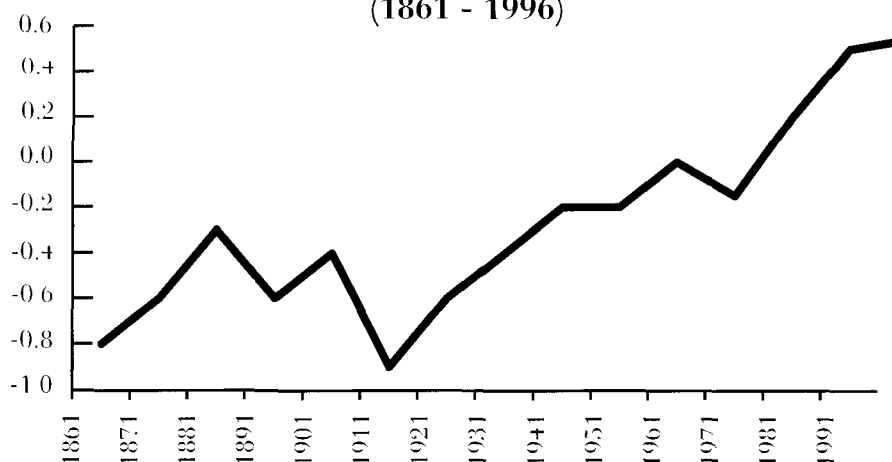
- *Turn off all lights when they're not needed.*
- *Insulate hot water heaters to save energy.*
- *Use energy efficient fluorescent light bulbs.*
- *Purchase fuel efficient vehicles, and investigate alternative fuel vehicles like electric or natural gas cars.*
- *Install energy efficient windows, or storm windows, in your home and office.*
- *Make sure all doors and windows are properly sealed to prevent heat and energy loss.*

Global Warming

The Earth's climate may be changing because human activities are altering the chemical composition of our atmosphere. The buildup of greenhouse gases—carbon dioxide, methane and nitrous oxide—contribute to heat-trapping within the Earth's atmosphere. Although uncertainty exists about the extent to which the Earth's climate responds to these gases, global temperatures are rising. This phenomenon is known as the Greenhouse Effect and could have an impact on sea levels, rainfall amounts, land use, human health and ecosystems.

Scientists generally believe that the combustion of fossil fuels is the primary reason for the increased concentration of greenhouse gases. Fuels burned to run our cars and trucks, heat our homes and businesses and power factories—such as the coal fired utility plants in the Southeast—are responsible for nearly 80 percent of carbon dioxide emissions, 25 percent of methane emissions and 20 percent of nitrous oxide emissions. Increased agriculture, deforestation, landfills, industrial production and mining also contribute significant emissions. In 1994, the United States emitted one-fifth of the total global greenhouse gases.

**Global Temperature Changes
(1861 - 1996)**





FUTURE *We've Still Got a Long Way to Go* CHALLENGES

"...the problems that exist in the world cannot be solved by the level of thinking that created them...." —Albert Einstein

The world is home to many more people than it was 100 years ago, and we're still experiencing a significant growth rate. For example, the world's population has doubled over the last 40 years. In addition to population growth, the United States has become more industrialized. We use more natural resources now than at any other time in our history.

Population and industrial growth have created many environmental challenges. Our forests and wetlands are disappearing. Usable water is becoming scarce because it is being diverted into urban areas and agriculture. Agricultural land is being converted for development. Tourism is encroaching on pristine wild areas. Greenhouse gas concentrations are increasing as more people and industries use greater quantities of fossil fuels. Knowing this, our greatest challenge is to find a way to balance unprecedented growth through better planning, personal choices and implementation of innovative methods and

technological advances.

Here in the Southeast, we're experiencing the fastest growth rate in the nation. Miami and Atlanta are among the nation's top 10 sprawling cities, and Atlantans drive more miles per day than any other Americans. This growth has brought unparalleled prosperity, but it is also placing unprecedented pressures on our environment and natural resources. In an attempt to keep up with our changing needs we're working with our communities, local governments and states to identify problems and find solutions.

Part of EPA Southeast's strategy is to provide helpful information about the environment to our communities and support their ability to make informed choices. Our role has evolved from that of an enforcer reacting to pollution problems to that of collaborative partner and regulator, sharing resources, encouraging

pollution prevention and working together with communities for environmental protection. Business, industry and other institutions are now benefiting from many voluntary EPA partnership programs such as: Project XL, Green Lights®, Waste Minimization, Waste WiSe and Energy Star™.

Pollution prevention technology is also an important part of EPA Southeast's strategy. For example, pulp and paper mills technology has advanced more in the last 10 years than perhaps in the 50 previous years. Pulp and paper industries now have proven options available to minimize their environmental impact, even though they are not required by regulation to use them. These new methods include technology for reducing water use, decreasing or completely eliminating harmful bleaching chemicals and decreasing the amount of toxics emitted into the air. EPA Southeast seeks out opportunities to encourage the installation of technologies like those available to the pulp and paper mills, which will prevent pollution and protect our environment.

Our region is a special place, the largest geographic region protected by the U.S. EPA. We enjoy remarkably rich and diverse terrain, beautiful

shorelines, more miles of rivers than any other area of the country, more wetlands and five million acres of Southern Appalachian National Forests and Parks—the largest

contiguous tract of public land in the eastern United States. Using the nation's environmental laws, we will continue to work to protect this special place. Our state

EPA Southeast's Science for the Future

EPA Southeast is fortunate to have an entire division of scientists, the Science and Ecosystem Support Division (SESD), that travel throughout our region investigating environmental concerns of citizens and government agencies. These teams of men and women dive to ocean floors, climb mountain peaks, and wade out into swamps to collect samples for testing. After collection they analyze the samples in mobile labs or at their main laboratory facility. When the answers are discovered, the findings are reported to EPA Southeast's regulators and administrators. But for our scientists the job does not end there. They are constantly seeking innovative ways to apply sound science and cutting edge technology to environmental issues. Many situations require that our scientists refine standard testing methods to meet new challenges in quantifying and qualifying their data. Additionally, they are

continuously searching for new and efficient ways to monitor our environment and prevent environmental events. These men and women travel the world assisting other countries and sharing their knowledge with our global neighbors. Quality and innovative science is the foundation that they build upon to protect our health and the environment upon which we all depend.



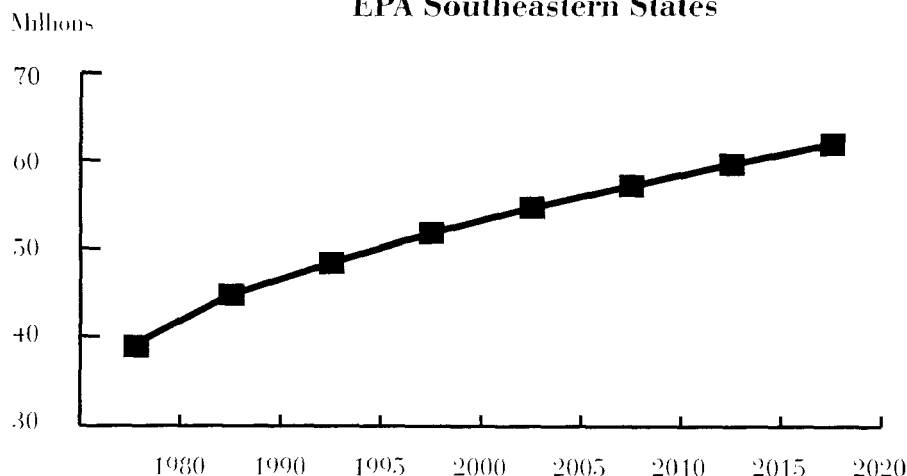


The Mississippi Gulf Coast is among the areas being examined in EPA's Gulf of Mexico Program

and local governments, community partners and you—our citizens—play a crucial role in helping us get this important work done. Our future depends on innovative and creative thought to correct

the problems of the past. Each of us shares an obligation to be conscientious and steadfast in our commitment to environmental stewardship.

Total Population Projection in EPA Southeastern States



Mississippi Gulf Coast Growth

The Mississippi Gulf Coast has experienced unprecedented growth and development since dockside gambling was legalized in 1990. The existing casinos attract more than 50,000 visitors per day, and more than 20,000 new residents moved to gaming counties between 1990 and 1995.

Gambling has brought an economic boost to the counties along the Mississippi Gulf Coast, but environmental impacts are present. EPA Southeast has seen wetland loss, increased water demand and sewage needs and increased construction of roads and parking lots—which contribute to non-point source pollution.

As we grow, it is important to consider the environmental consequences. The Mississippi Gulf Coast is a good example of a growing area with a protected ecosystem that must be considered. It provides an essential habitat for numerous fish species, approximately 138 species of birds, 31 species of shellfish, 6 reptile species and 11 mammal species. Among these are several threatened or endangered species, such as the brown pelican, bald eagle and peregrine falcon.