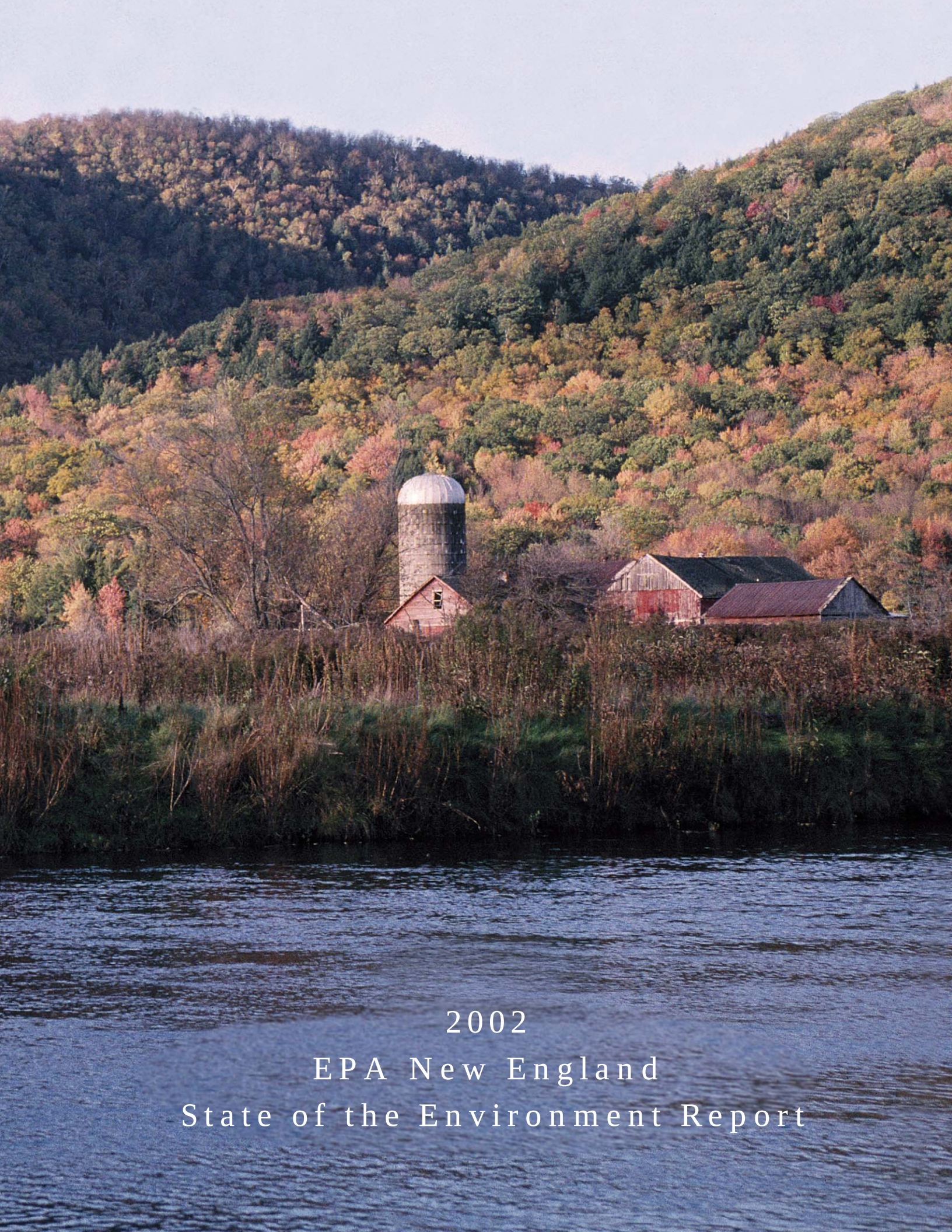


2002
EPA New England
State of the Environment Report

DEDICATION

This State of the Environment report is dedicated to the memory of Maria Pirie, EPA New England's first champion of environmental education. During her many years at EPA, Maria was passionately committed to incorporating science and the environment into school curriculums, starting in very early grades. It was her hope that children who learn to respect the environment would become life-long stewards of its protection.

June 2002

I am pleased to present to you *State of the New England Environment 2002,* a report that highlights environmental trends and conditions across our region and EPA's strategies for protecting and improving public health and the environment. The report reflects the four basic goals that drive the agency's work: achieving cleaner air, purer water, healthier ecosystems and healthier communities.

As you will read, we've made enormous progress on many of these goals—fewer smog alert days, reduced childhood lead poisoning rates and lower mercury emissions, being just a few of the examples. But the region still faces significant challenges—challenges that require closer collaboration with our state and local partners and stronger working relationships with businesses and others in the regulated community to foster environmental stewardship.

EPA and the states have developed specific goals and strategies for tackling these challenges. For example, two of our goals in Rhode Island are cleaning up 60 acres of contaminated land and restoring 500 acres of habitat by 2003. In Connecticut, we have set a goal of restoring 2,000 acres of coastal habitat in Long Island Sound by 2008. And in Boston, we're working with neighborhood groups and other organizations to eliminate childhood lead poisoning and make the Charles River safe for swimming by 2005.

Some of these goals have prompted new approaches within our organization. To help improve environmental conditions in our urban neighborhoods, we recently launched an Environmental Justice Action Plan, a two-year strategy that includes mandatory EJ training for all EPA employees and development of specific EJ guidance that staff can use in evaluating permits and targeting enforcement inspections. Developing enforcement settlements which include specific environmental projects in EJ neighborhoods is just one example of how this guidance will help us better achieve our goals.

Strong enforcement remains a top priority at EPA New England and is critical to achieving our environmental goals. Encouraging environmental stewardship is a vitally important goal, too. By expanding our compliance assistance and offering voluntary, stewardship-oriented incentive programs, we're finding that many businesses in the region can achieve better environmental results at less cost.

We hope you will find this 28-page report informative and provocative and that it will inspire you to do your part—whether as a citizen, an elected leader, or a company owner—to help New England's environment. Please do not hesitate to call us at 1-888-EPA-7341 or email us at if you have questions or suggestions about this report.

Thank you.

Robert W. Varney
Regional Administrator
EPA New England

Please note, signatures have been removed from this document.

TABLE OF CONTENTS

Healthy Air.....4

Healthy Water.....10

Healthy Communities.....16

Healthy Ecosystems.....22

Contacts/Web Resources.....28

Healthy Air

New England has made great strides improving its air quality, the most obvious indicator being the dramatic downturn in summertime smog pollution. Since the mid-1980s, the number of days when smog levels were unhealthy has been cut in half. Still, the 31 smog alert days we experienced last summer were a reminder of the challenges that remain in combating nitrogen oxides (NO_x), volatile organic compounds (VOCs) and other pollutants that contribute to smog and other public health threats. Our environment continues to be compromised as well by mercury, dioxin and other air toxics, acid rain precipitation and greenhouse gas emissions. In tackling these challenges, we're focusing attention on the energy and transportation sectors, the largest contributors to air pollution in New England.

Tackling Diesel Bus Fumes

Carmen Cordero of Hartford, Conn. is very attuned to air pollution because both of her children suffer from asthma. Diesel fumes from Hartford's school buses, transit buses and trucks have long been one of her biggest concerns. So last year, as a volunteer with the Hartford Environmental Justice Network, she visited four public schools to evaluate the problem firsthand. What she saw was alarming—at one school, she counted seven school buses lined in a row with their engines idling for 25 minutes.

"We wonder why these kids are getting sick," said Cordero, who lives in a city where nearly a third of the households have at least one person with asthma. Diesel exhaust causes lung damage, respiratory problems and even premature death. It is also known to aggravate asthma, especially for children.

New diesel-engine vehicles coming off the assembly lines in 2007 will be significantly cleaner than today's engines. However, because trucks and buses can operate for up to 30 years, EPA New England is reducing pollution from diesel vehicles being driven on our roads today. Among our biggest priorities is reducing emissions from school buses. In partnership with state agencies, we are working with school administrators and public health groups to highlight ways to reduce school bus emissions.

This includes guidelines for eliminating unnecessary idling and adding pollution controls—such as diesel particulate traps—to school buses. This technology, when used with a cleaner diesel fuel, reduces particulate emissions by as much as 90 percent. This spring we announced a project to install particulate traps on 150 school buses in Boston. We also are using grants to empower grassroots groups like the Hartford Environmental Justice Network. "We need to act now," said Cordero.

ENERGY RELIABILITY AND CONSERVATION

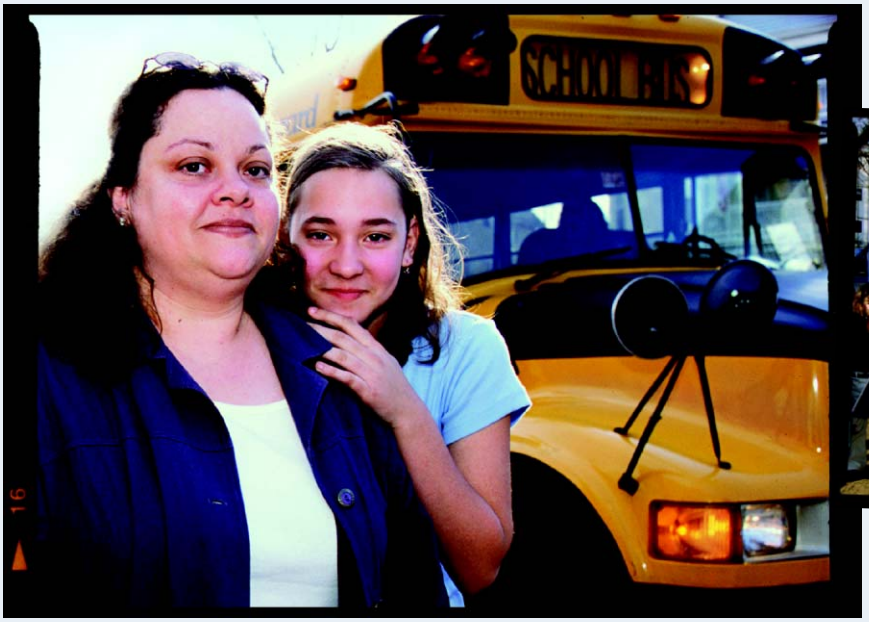
Safe and reliable energy has long been an issue of concern in New England and that's still the case today. Fortunately—and, in large part, through the efforts of EPA and the states—New Englanders can take comfort knowing that the region will have sufficient, cleaner-than-ever electricity supplies in the years ahead.

Since the late 1990s, the New England states have approved permits for 26 new, clean-burning power plants that will provide more than half of the region's electricity needs during peak summer months. The permits for these natural gas-fired plants are among the tightest in the country. The facilities emit virtually no sulfur dioxide or mercury and only a tiny fraction of nitrogen oxides compared to the region's older oil- and coal-fired power plants. As more of these power plants come on line, New Englanders will see corresponding drops in smog, particulate matter, acid rain and mercury deposition.

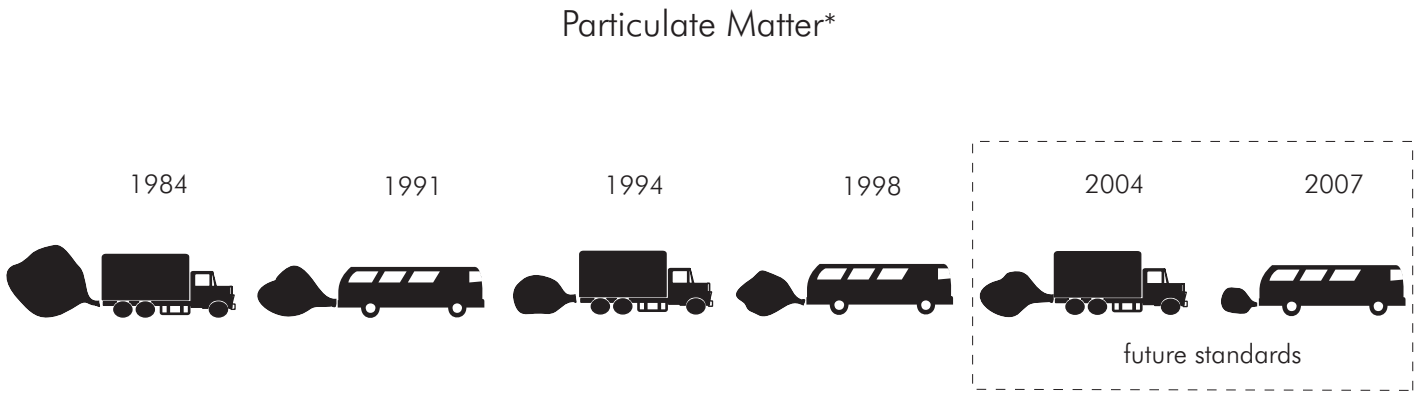
Another way to ensure reliable energy—improving air quality and saving money at the same time—is boosting our energy efficiency investments. EPA's Energy Star® program, which offers recommendations on how to conserve energy, has already saved New England organizations and consumers more than $2 billion on their energy bills. And more savings are expected now that Energy Star has expanded its offerings to other sectors, such as healthcare facilities, hotels, food retailers, schools and universities. Over the next year, EPA New England will aggressively market the Energy Star tools to such sectors as K-12 schools, hospitals and public buildings.

To further enhance our efforts, EPA New England recently formed an Energy Team. Among the team's focuses: boosting the use of renewable and clean power, improving energy efficiency and streamlining permitting of energy-related facilities and infrastructure.

We wonder why these kids are getting sick. We need to act now.
— Carmen Cordero



TOUGHER EPA STANDARDS REDU



*EPA's emission standards for trucks and buses are based on the amount of pollution emitted per unit of energy (expressed in grams per brake horsepower hour).

TRANSPORTATION: CARS, TRUCKS, BUSES AND FUEL

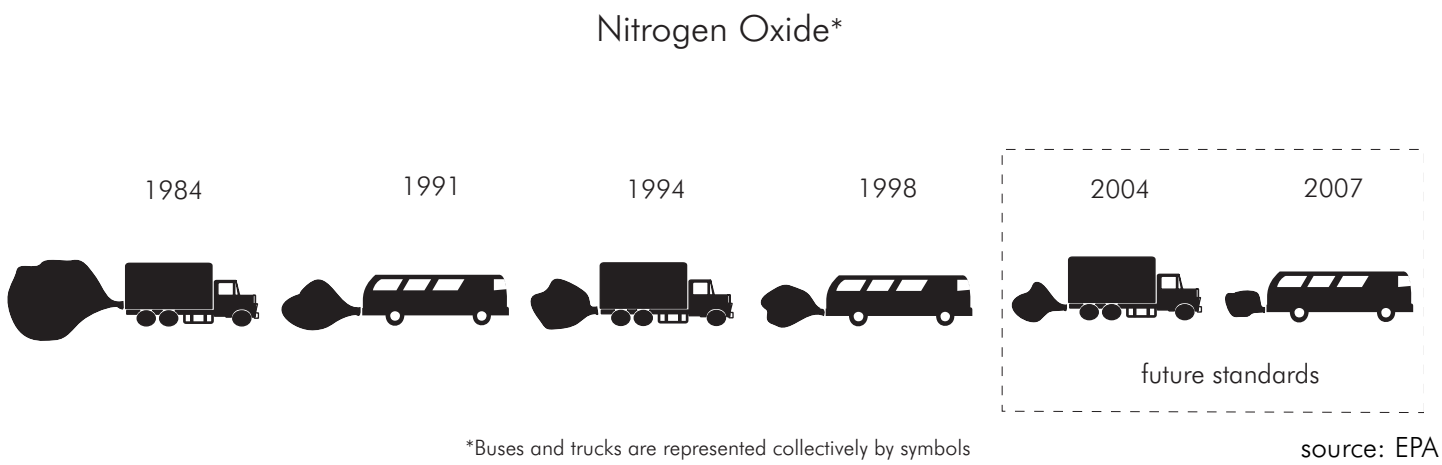
Clean air is directly related to cleaner vehicles and cleaner fuel. On both of these fronts, EPA has made dramatic progress. Today's new cars operate 90 percent cleaner than they did 30 years ago. Still, cars and trucks continue to be the region's largest source of air pollution, emitting about one-third of all volatile organic compounds and half of the nitrogen oxides and air toxics that compromise our air. The reason is simple: there are more cars and trucks on the road. In just 30 years, the number of vehicle miles driven in New England has nearly doubled.

EPA has adopted various programs to make our cars and trucks even cleaner. Aggressive new standards starting in 2004 will for the first time require identical emission limits for passenger cars and light-duty trucks, including pickup trucks, minivans and sports utility vehicles. Smog-causing emissions from new cars will be cut by 77 percent while emissions from dirtier light-duty trucks will be slashed by as much as 95 percent. The agency also adopted new rules for heavy-duty trucks and buses, the first phase of which will begin in 2004.

Fuels also are getting cleaner. EPA's reformulated gasoline program, which covers much of New England, is credited for achieving substantial reductions in VOCs, NOx and air toxics. Beginning in 2004, low sulfur gasoline will be available nationwide. EPA is also requiring diesel fuel to have ultra low-sulfur content beginning in 2006.

EPA New England is especially concerned about diesel pollution, particularly in congested urban areas where diesel fumes cause elevated levels of soot (fine particulate matter) which, in turn, can exacerbate asthma and other respiratory problems. EPA New England is moving aggressively to slash diesel emissions from trucks and buses already in use. We are encouraging each of the states to develop diesel retrofit programs so more diesel vehicles—construction equipment, school and transit buses—are equipped with pollution

CING BUS AND TRUCK POLLUTION



control devices. We're also using enforcement settlements to curb diesel emissions, one example being an agreement by Waste Management of Massachusetts to spend $1.4 million to retrofit about 150 diesel school buses in Boston.

EPA is also working to reduce the number of vehicle trips by increasing the use of less polluting alternatives, including commuter rail, transit and ride-sharing. A cornerstone of this effort is expanding participation in the EPA/Department of Transportation Commuter Choice Leadership Initiative, a program that recognizes companies and organizations that provide financial incentives to employees who commute to work in ways that cut air pollution, reduce traffic congestion and save money. As of June 2002, 17 companies and organizations in the region had signed up, including Harvard University.

CLIMATE PROTECTION THROUGH VOLUNTARY ACTION

The New England Governors, along with the Eastern Canadian Premiers, recently made a commitment to reduce the emission of greenhouse gases to 1990 levels by the year 2010. EPA New England is strongly committed to achieving this goal and has launched a number of activities—in addition to our extensive energy and transportation work—to help accomplish it. We've provided more than $200,000 to each New England state to develop greenhouse gas inventories and an additional $387,000 for the states to develop mitigation plans. We're providing additional support to the Cities for Climate Protection Program, an international effort to help municipalities reduce their energy footprint. More than two-dozen New England communities—the highest of any of EPA's 10 regions—are participating.

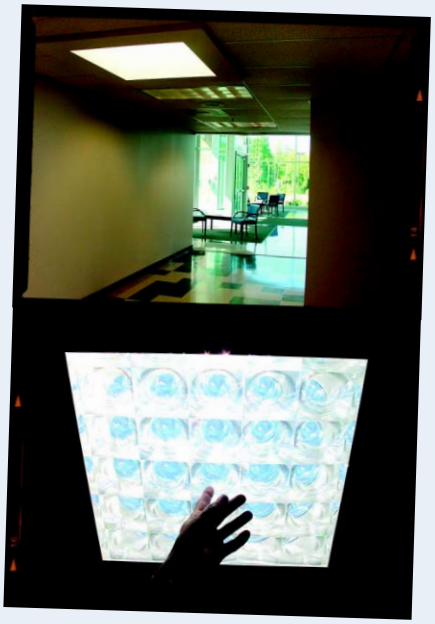
AIR TOXICS

Mercury is still far too pervasive in the New England environment. For years, our lands and lakes have been on the receiving end of mercury emissions from incinerators and power plants, many of them outside of the region. Once mercury gets into the environment, it bioaccumulates in fish which is why all six New England states have fish consumption advisories in place.

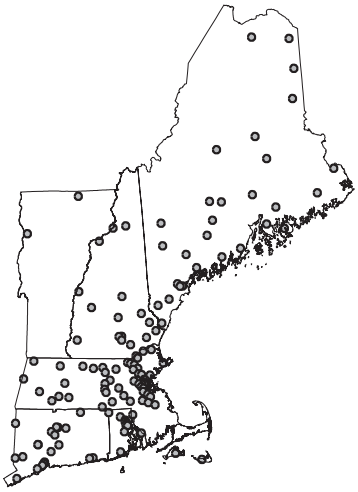
The good news is that EPA New England, our partner states and the Eastern Canadian Provinces have been national leaders in eliminating mercury. While New England's municipal incinerators have slashed their emissions by 90 percent, most of the region's medical waste incinerators have closed altogether due to tougher emission requirements. Meanwhile, dozens of area hospitals have stepped forward under our voluntary Partners For Change program to eliminate mercury containing products. And states such as Maine, New Hampshire and Rhode Island are banning mercury fever thermometers altogether. These efforts are clearly working and we'll see even more improvements when we start reducing mercury emissions from coal burning power plants all across the country.

Dioxin is another toxic pollutant that poses enormous health risks. While we've made some progress in reducing emissions from incinerators and in curbing discharges from paper mills, there's more we will be doing in the coming year, with much of our attention focusing on how we can apply our regional mercury reduction model to dioxin.

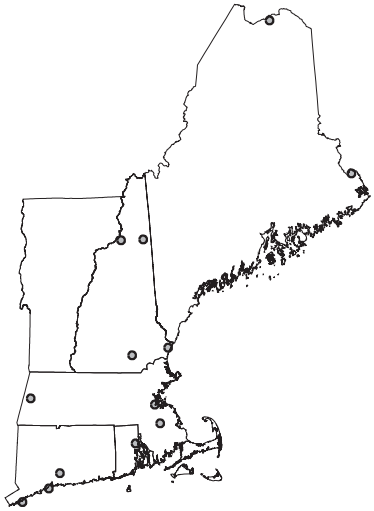
The new regional laboratory is a testament to our commitment to reduce the environmental impact of our facilities and operations.



Reduction In Medical Waste Incinerators Operating In New England



210 in 1995



13 in 2001

(2 of the 13 facilities are closed but they are still capable of operating)

source: EPA

EPA New England 'Walks The Talk' With New Lab

EPA New England's new regional laboratory in Chelmsford, Mass. is a testament to our commitment to reduce the environmental impact of our facilities and operations. Throughout the planning and building phases, special features were incorporated to make this happen. For starters, natural resources available on the property were used in construction. More than 17,000 tons of rock outcroppings were crushed on site and used as based material for paving, footings and other structures. The landscape design—Xeriscape—has native pest-resistant plants that require little watering.

The 66,000-square-foot laboratory, which opened last fall, is at least 35 percent more energy efficient than comparably-sized facilities. Among the conservation features: energy-efficient lights, high-efficiency motors, insulated windows, highly rated insulation and occupancy sensors with system setbacks for night and low occupancy. The building also utilizes photovoltaic (solar energy producing cells) awnings that shade office windows, while also supplying about 2,000 watts of electricity each day to the regional power grid. And, reflecting our commitment to 100 percent renewable power, the building is being powered through a contract with a wind-generation company, Green Mountain Power of Vermont.

The Chelmsford lab is just one example of how EPA New England is reducing its environmental footprint. Through our Green Team, our regional office in Boston has achieved a near 20 percent reduction in energy use since 1999 and we're shooting for a 30 percent reduction by 2003. EPA New England also was the first EPA office in the country to lease low-fuel, hybrid vehicles which run on a combination of batteries and gasoline.

Healthy Water

Everyone in New England deserves clean and safe water, whether for drinking, for swimming or for recreation. We've made enormous progress in achieving this goal—the most noteworthy example, 92 percent of the region's community drinking water supplies had no health-based violations last year. But, as we celebrate the 30th anniversary of the Clean Water Act, challenges still remain. More than a third of New England's streams and rivers are still unsafe for swimming, boating and other activities, especially after rainstorms and other wet weather. Pollution-driven beach closures continue to be commonplace—last summer, the region's saltwater and freshwater beaches had more than 750 closure days, including more than 100 on Cape Cod alone. Tackling these problems requires multiple strategies. Much of our focus is on combined sewer overflows and "nonpoint" pollution such as storm water runoff, illicit discharges and failing septic systems. We're also targeting specific watersheds, especially those serving large populations such as Long Island Sound and the Charles River.

Rhode Island Pen Maker Leads Way In Cutting Pollution

A.T. Cross in Lincoln, RI makes about every exotic writing instrument imaginable. Scanning the company's cavernous manufacturing floor, visitors see countless rows and racks of pens of all shapes and styles crafted from steel, brass, plastic and aluminum. Cleaning these pens and pen parts for processing is a critical task. For years A.T. Cross relied on toxic solvents to do the job, but that practice has changed as the company has moved to embrace pollution reduction and pollution prevention in its programs.

A.T. Cross has been "greening" its manufacturing operations since the early 1990s. But since joining EPA's Metal Finishing Strategic Goals Program, the effort has really gained momentum. By replacing most of its solvent-based cleaners with water-based systems, emissions of trichloroethane, a toxic solvent, have fallen by 90 percent since 1993. By recycling its cleaning water, water use has been cut by a third, or nearly six million gallons a year. Even the cost of treating the company's wastewater has dropped—by nearly two thirds. Catherine Benjamin, the company's senior environmental safety engineer, credits much of the progress to the Strategic Goals Program, a partnership between EPA and the metal finishing industry to help companies go "beyond compliance" in reducing pollution.

To participate, companies must agree to specific goals, including 50 percent reductions in metal discharges and water use, 25 percent reductions in energy use and 90 percent reductions in air emissions. A.T. Cross is among 50 New England companies in the program and they have already reduced their overall water use by 41 percent, energy use by 27 percent and metal discharges by 67 percent. "The information sharing is great," says Benjamin, whose company joined the program in 1997. "We didn't have the resources that we have now. Before we had to research everything on our own."

PROTECTING OUR DRINKING WATER

EPA's mission has long been focused on ensuring safe drinking water, but in the wake of Sept. 11 and the anthrax scare we have redoubled our efforts. EPA New England moved quickly last fall to help the region's 12,000 public water supply systems better protect their supplies from possible terrorist attacks. In tandem with the six New England states and the New England Water Works Association, we held more than a dozen emergency security workshops to share information with suppliers, provide access to security experts and work on model emergency plans. We also developed a *Self-Help Guide for Security and Emergency Planning* to support small drinking water systems in their response efforts. The guide includes important information on security, system-wide vulnerability assessments and plant operations.

Emergency planning is just one of many strategies EPA is pursuing to make New England's drinking water supplies safer. Strong enforcement is one such tool, whether in pursuing the massive cleanup of the 14,000-acre Massachusetts Military Reservation on Cape Cod or conducting region-wide inspections to ensure that underground storage tanks (USTs) are complying with new, more-stringent construction requirements. Last year we conducted 149 UST inspections which led to 33 citations.

Ensuring that public water suppliers are assessing potential long-term contamination threats to their water sources is another priority. Our state partners have completed more than 700 assessments of community drinking water sources and all must be done by a 2003 deadline. EPA's new *Top Ten List for Water Security* will be released with those reports.

The information sharing is great. We didn't have the resources that we have now. Before, we had to research everything on our own.

— Catherine Benjamin

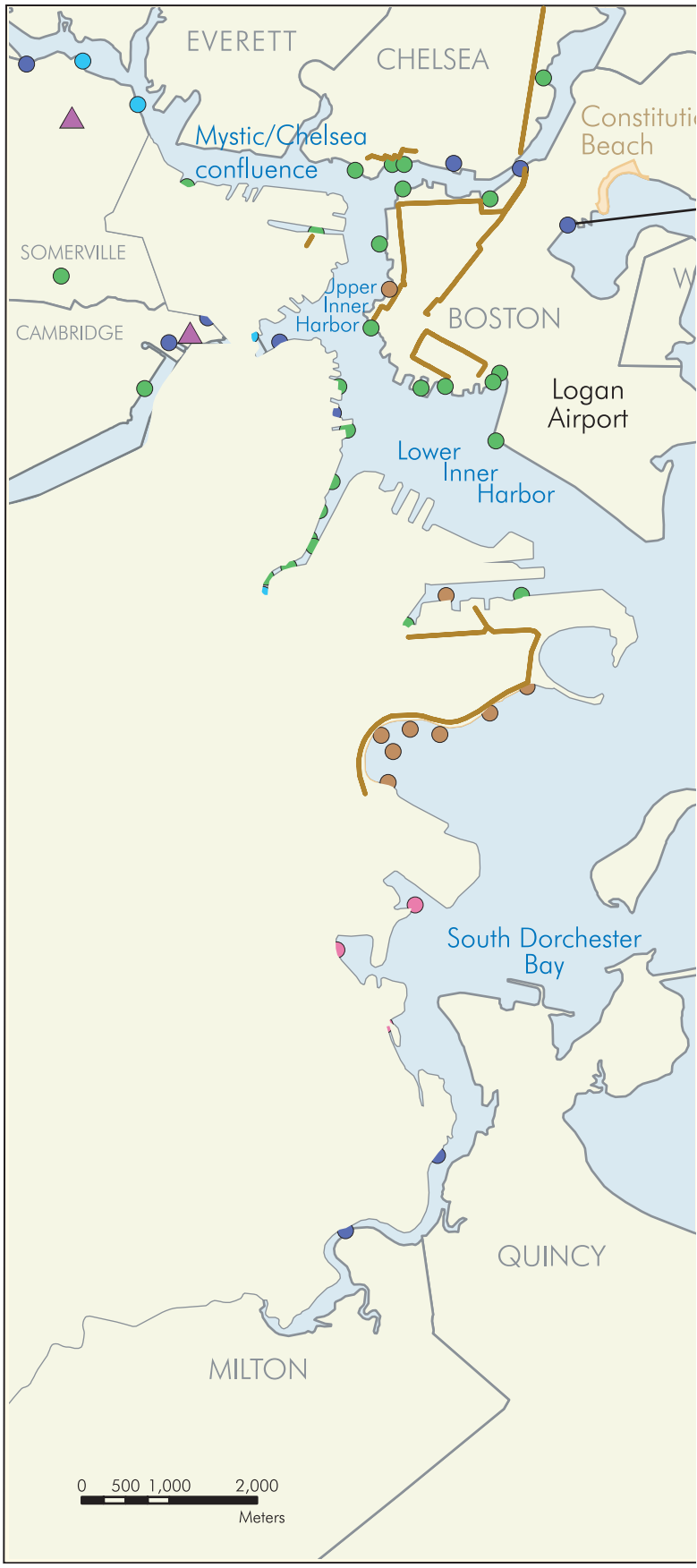
And, lastly, we're boosting public awareness about the importance of safe drinking water. Among our most successful efforts is our Drinking Water Business Initiative, a voluntary program to spur the region's 25,000 businesses operating in source water areas to minimize their own pollution threats. In partnership with our states and water associations, we're also supporting an outreach campaign to educate the region's 800,000 private well owners about potential contaminants in their well water and periodic testing that they should consider. Studies indicate that many private wells in the region are contaminated with at least trace levels of radon, arsenic and other pollutants, some of which are naturally occurring. Reflecting high public health concerns about arsenic, EPA Administrator Christie Whitman decided last year to tighten the arsenic standard for public drinking water, which for utilities starts in 2006.

RESTORING OUR RIVERS, LAKES AND BAYS

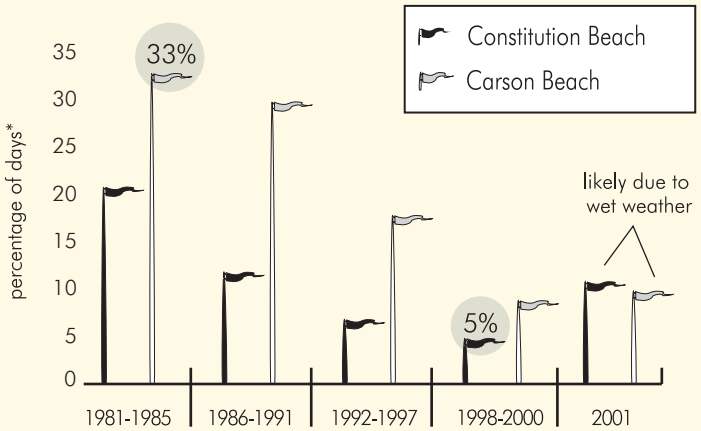
Contrary to public perception, much of the pollution fouling our beaches and waterways is not from sewage plants, factory pipes and other point pollution sources. One of the biggest sources is nonpoint pollution coming from storm runoff, illicit discharges and dumping into storm drains, failing septic systems, boater waste and an array of other sources.

One of our biggest priorities is storm water runoff—the water from rain and snow that runs off streets, parking lots, yards, agricultural lands and construction sites carrying with it sediment, oil, pesticides, toxics and other pollutants into storm drains, which flow to our rivers and lakes. In 1998, more than 1,500 beach closings and advisories in coastal and Great Lake communities were attributed to storm water. During the course of a year, erosion from a one-acre construction site may yield 20 to 150 tons of sediment if not properly managed.

We are tackling the problem on a number of fronts, including a new rule announced in 1999 to address storm water pollution in priority areas. Building on similar requirements for larger construction sites



Boston Beaches Becoming Cleaner



*Average percentage of days water samples failed swimming standards

source: Data provided by Massachusetts Water Resources Authority

Boston Harbor is substantially cleaner, but water quality continues to be a problem at harbor beaches. Improving these swimming conditions will require major reductions in pollution from combined sewer overflow (CSO) and storm water. EPA's biggest priority in the coming years is making sure CSOs are removed from Carson Beach.

Legend

CSO Outfalls
Action
- Closed by 2008
- Closed
- Minimized
- Treatment
- Treatment/Closed by 2008

CSO Facilities
Action
- Planned
- To be Upgraded
- Upgraded/Eliminated
- Proposed Pipeline (for abating CSOs)

sources: MassGIS, MWRA (CSO and beach closings) MDC (beach closings)

and municipalities, the new regulations will require by March 2003 the implementation of appropriate storm water management practices at construction sites disturbing between one to five acres, and development of municipal storm water management programs for urbanized portions of hundreds of New England communities. We've hosted dozens of workshops and meetings over the past 18 months to educate municipal officials and the construction industry on the new Phase II storm water rule.

We're also focusing attention on public education and innovative technologies. As part of our Charles River cleanup, for example, EPA and the Natural Resources Conservation Services created a storm water education handbook for communities to educate residents on the damage that runoff causes and how they can reduce those impacts. We also joined forces with the Massachusetts Institute of Technology this year on a first-of-its-kind national competition for engineers to develop innovative measures for managing storm water at the individual residential lot level.

Enforcement is another tool we're using, the most noteworthy case being our $1.4 million settlement last year with Amtrak for widespread storm water-related violations in the late 1990s at nine Amtrak facilities in Massachusetts, Rhode Island and Connecticut.

Sewage discharges from combined sewer overflow (CSO) pipes are another reason why many of the region's rivers and harbors remain unsafe for fishing and swimming. Across New England, more than 100 communities are burdened with CSO pipes that discharge hundreds of millions of gallons of untreated sewage and storm water into waterways after heavy rains. Many communities experience direct sanitary sewer overflows (SSOs) from their sewer systems as a result of line blockages, improper operations and maintenance, or inadequate capacity due to undersized pipes.

You could taste, smell and see the old style engines. With the new engines, the impact is largely invisible and they tend to be much quieter.

—Mark Thurston

Abating these overflows is a top priority of EPA New England. We worked with numerous cities and towns last year to develop innovative pollution abatement strategies that maximize environmental protection while ensuring that the projects are affordable. Among the communities moving forward to curb their CSO discharges are Providence; Springfield; Holyoke; Haverhill; Fitchburg; Lowell; New Bedford; Manchester, N.H. and the Boston-area Massachusetts Water Resources Authority. The work will lead to noticeable water quality improvements in bays and rivers all across the region.

WATERSHED PROTECTION

From Long Island Sound to the Charles River to Casco Bay, EPA New England has been a leader in community-based watershed protection programs. Among our biggest successes was an agreement last year regarding the cleanup of Long Island Sound. After years of negotiations, EPA, the states of New York and Connecticut and our community partners finalized a limit on the amount of nitrogen pollution that the Sound can safely handle. The limit, called a Total Maximum Daily Load (TMDL), allocates how much nitrogen can be discharged from point sources, such as sewage treatment plants, and nonpoint sources, such as storm water runoff. The TMDL builds on a 1998 agreement to cut the amount of nitrogen pouring into the Sound by 58.5 percent by 2014. Nitrogen pollution causes low levels of dissolved oxygen, a condition called hypoxia, which is the most serious water quality problem affecting the Sound.

Emboldened by the success of our watershed partnerships on Long Island Sound and the Charles River, EPA Administrator Christie Whitman this year announced a plan to target up to 20 of the country's most highly-valued watersheds for $21 million of cleanup grants.

New Hampshire Marina Leads Way On Clean Engines

When Mark Thurston first heard the idea of selling low-pollution motorboat engines at the family's marina on Lake Winnipesaukee in Laconia, N.H., he was skeptical. Sure, the low-pollution engines are substantially cleaner than conventional two-stroke engines, which discharge up to 30 percent of their fuel directly into the water and air as pollution. But would boat owners be willing to pay the higher price tag for the cleaner engines, especially when there was no requirement to buy them until 2006?

"It was uncharted territory," said Thurston, whose marina was among the first to participate in the New Hampshire Clean Marine Engine Initiative, a voluntary program to accelerate the sale and use of low-pollution engines used on outboard boats and personal watercraft. Thurston is no longer a skeptic. Virtually all of the marine dealerships participating in the program exceeded the goal of selling 50 percent clean engines in 2000 and 75 percent in 2001. "We've been pleasantly surprised to the point where we're now stocking only 100 percent high-efficiency engines," said Thurston, whose brother, Jeff, helped initiate the Clean Engine Campaign when he was president of the N.H. Marine Trades Association.

Thurston says boat owners are attracted by the lower operating costs of the clean engines, which use substantially less gas and oil. But their biggest lure is that they protect the environment. "You could taste, smell and see the old-style engines," Thurston said. "With the new engines, the impact is largely invisible and they tend to be much quieter." EPA New England is now expanding the Clean Marine Engine Program to the other five New England states. The goal in those states is to sell 75 percent clean engines in 2002, 80 percent in 2003 and 95 percent in 2004 and 2005. EPA will begin mandating the sale of the cleaner engines in 2006.

Healthy Communities

EPA's cornerstone mission is protecting public health and safeguarding the environment—our lands, our waters and our air—upon which New Englanders depend. To achieve this broad goal, we're focusing not just on pristine environments such as Cape Cod Bay, but on the communities where we all live. As traffic congestion worsens and weekend jaunts become less appealing, the quality of life in the neighborhoods where we live and work becomes increasingly paramount. This is especially true for the millions of New Englanders living in urban areas. EPA is strongly committed to making our cities more livable—revitalizing contaminated sites, restoring urban rivers and reducing lead poisoning and asthma, being just a few of our strategies. Outside of our cities, we're promoting smart growth development efforts and continuing our close partnerships with the region's nine Tribal Nations.

Corinna, Maine: A Superfund Success

Like many New England towns, Corinna, Maine's economic fortunes have long been tied to the textile industry. In Corinna's case, the mill industry was Eastland Woolen Mill, a large mill complex that for decades dominated the town center and provided virtually all of the local jobs. So when Eastland Woolen closed its doors in 1996, leaving 300 locals jobless and a big environmental mess in its wake, it's no wonder Corinna's 2,145 residents were nervous about the town's economic future.

Contamination on the 21-acre mill property was serious enough to warrant its listing in 1999 as a Superfund site. EPA has since demolished the 250,000-square-foot mill and the Main Street bridge, and diverted Main Street and the East Branch of the Sebasticook River so that 75,000 cubic yards of contaminated soils could be excavated. EPA has spent more than $30 million on the cleanup since 1999.

Just as important, EPA gave the town an $82,500 Superfund Redevelopment Grant to develop an economic recovery plan. The reuse plan, developed in close collaboration between EPA, architects, residents and town leaders, includes a redesigned village center with mixed-use commercial and residential zoning, riverfront walking paths and a new recreational trail bridge for bikers and snowmobilers. "We're looking to transform Corinna from a mill town to a New England village with lots of walking opportunities, little shops and wildlife areas," said Town Manager Judy Doore, who spearheaded the reuse plan that was approved overwhelmingly at the town's recent annual meeting.

Doore says the goal of the reuse plan is to attract travelers driving to Moosehead Lake. "We'd like to be the place where people stop to take a break before embarking on the final 90 minutes to Moosehead," she said. Doore has high praise for EPA's work in the cleanup and reuse efforts. "EPA is the white knight," she said. "They've been extremely helpful to the community."

RESTORING AND REUSING CONTAMINATED PARCELS

Stylish hotels. Professional baseball stadiums. Riverfront parks. These are just a few examples of how our Brownfields Program has transformed dozens of contaminated eyesore properties across New England into economically productive jewels.

Since 1995, EPA New England has provided over $50 million of Brownfields assistance—for grants, site evaluations, job training and cleanup loan programs to dozens of communities and agencies. The assistance has led to 630 site assessments, more than 100 cleanups (half of them already completed), and thousands of new jobs.

Among the successes: In Old Town, Maine, a restored paper factory site on the Penobscot River is now being used for waterfront trails, shops and a wooden boat museum; In Bridgeport, Conn., an abandoned property is now the home of a hugely popular professional baseball park; In New Bedford, Mass. a new riverfront industrial park has been built atop a restored 22-acre parcel and dozens of local jobs have been created through a Brownfields job training program.

And many more cleanups are expected in the years ahead now that President Bush has approved new Brownfields legislation and proposed to double the funds available to help states and communities revitalize Brownfields.

Meanwhile, our Superfund program continues to achieve remarkable success cleaning up the region's most contaminated sites. EPA has spent nearly $1.2 billion to date on the region's 110 National Priorities List (NPL) sites, including four new sites added last year. On three-

EPA is the white knight. They've been extremely helpful to the community.
– Judy Doore

Restoring Brownfields Sites in New England

	Assessments Completed with EPA funding	Cleanups Started
Connecticut	150	17
Maine	12	3
Massachusetts	142	55
New Hampshire	303	23
Rhode Island	8	3
Vermont	22	7

quarters of those sites, cleanups are underway or have been completed.

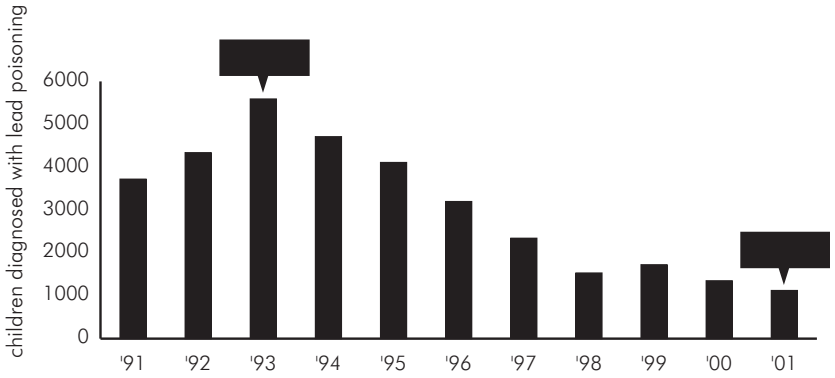
Reuse and redevelopment is a priority in all of these cleanups. Last year, for example, we celebrated the grand opening of a $23 million transportation center in Woburn built atop the 245-acre Industri-Plex Superfund site. We're also using prospective purchaser agreements to allow future owners to move forward in redeveloping sites without fear of paying future cleanup costs. Two such examples: an agreement that clears the way for the Gardner Little League to redevelop a restored parcel for baseball fields; a recent agreement with the Pittsfield Economic Development Authority regarding 52 acres being transferred from General Electric to the city as part of a comprehensive PCB cleanup.

PROTECTING CHILDREN'S HEALTH

Last September, EPA New England ordered a Fall River dance studio to postpone its children and adult classes due to lead-paint contamination in the studio building. EPA issued the order after samples showed high lead levels in dust caused by recent sandblasting. With the cooperation of the building's owner, the studio was temporarily closed while the public health threat was removed. The facility, now safe for children, reopened later in the fall.

The Fall River case reflects EPA New England's strong commitment to protect children's health, with lead poisoning, asthma and indoor air pollution being among our biggest priorities. Last year alone we spent

Childhood Lead Poisoning Declining in Boston



source: Boston Public Health Commission

more than $2 million on lead prevention activities, much of it targeted to urban areas where thousands of children are still being lead poisoned each year.

Among the groups we are working with is the Lead Action Collaborative, which recently held an all-day summit in Boston to end childhood lead poisoning in the city by 2005.

We're also focusing on landlords and property owners to ensure they comply with federal laws requiring them to notify tenants of potential lead-paint hazards. This includes targeted outreach and education for landlords and a heightened enforcement presence, including inspections. One such inspection resulted in a New Hampshire landlord pleading guilty last December to forging lead hazard disclosure documents. The criminal case stemmed from the lead poisoning death of a two-year-old girl in Manchester, N.H.

EPA New England is spending more than $350,000 a year on asthma prevention activities, including $65,000 to the New England Asthma Regional Coordinating Council which last year announced a 12-point action plan for reducing environmental triggers of asthma. The plan includes better tracking of asthma rates, expanded family health education, and new government policies aimed at improving air quality outdoors, in schools and in homes. New England's asthma hospitalization rates are among the highest in the country, with children and urban residents being especially vulnerable.

FOSTERING SMART GROWTH

Unchecked, poorly-planned growth is a major problem that threatens the environment and quality of life for much of New England. EPA New England has been a leader in this regard, using financial assistance, technical expertise and environmental-regulatory authority to foster smart growth projects that benefit both the economy and the environment.

One of the key elements of our Smart Growth Action Plan is offering assistance and expertise to municipal officials through our *Fundamentals of Smart Growth* and *Smart Growth in the City* training programs, which include expert speakers, slide shows and workshops.

We've also provided more than $2.3 million in grants to support 42 smart growth projects across the region. Among the projects: the state of Maine has launched a Great American Neighborhood Initiative that has already prompted alternative developments to typical large lot subdivisions; the Conservation Law Foundation and the Vermont Forum on Sprawl recently published a 100-page guide book on smart growth strategies for New England, including specific examples from dozens of communities.

I needed to know what I had to do to comply with environmental regulations with the new garage and, in the meantime, what to do to get the existing garage into compliance.

— Rocky Martin

TRIBAL PROGRAMS

EPA New England has strong partnerships with the region's nine federally recognized tribes, providing extensive technical support as well as about $3 million of financial grant assistance over the past decade.

With the assistance of EPA and other federal agencies, the tribes have developed cutting-edge environmental programs, one example being the Aroostook Band of Micmacs use of an advanced particulate matter air monitor that will help identify why Aroostook County has among the highest asthma rates in the country. Our assistance also has been pivotal in all nine of the tribes establishing water quality monitoring programs, including the installation of new laboratories and other infrastructure to support drinking water programs. We're also providing support to three tribes that are implementing best management practices to reduce nonpoint pollution.

High cancer rates among tribal members are a growing concern that has resulted in numerous studies to determine health risks to tribal members who continue fishing, hunting and gathering. The Houlton Band of Maliseets, Penobscot Nation, Passamaquoddy Indian Township, Passamaquoddy Pleasant Point, Wampanoag Tribe of Gay Head and Narragansett Tribes are all evaluating the effects mercury and other bio-accumulative toxics have to their environments from air deposition. These studies will provide invaluable information not just for tribal members but for all New Englanders who enjoy hunting and fishing on and near tribal lands.

Helping Municipal Highway Garages Comply With Environmental Laws

Last year when Rocky Martin began planning for a new highway department garage, he needed answers to a few questions. "I needed to know what I had to do to comply with environmental regulations with the new garage and, in the meantime, what to do to get the existing garage into compliance," said Martin, director of public works in the town of Hinesburg, VT.

As a town official in this community of 5,000, Martin had good reason to be concerned. EPA has assessed large penalties against municipal facilities that were not in compliance with environmental requirements. And he needed to keep an eye on his budget. Building a new garage is going to cost $250,000, he estimates. So he reached out to John Daly, who works in the Municipal Compliance Division at the Vermont Agency for Natural Resources.

Daly had recently learned of a compliance assistance initiative offered by EPA New England and the American Public Works Association. Under the program launched last year, public works departments are invited to perform self audits and then report their findings, including environmental violations, to EPA. They then must correct the violations within a specific time frame. In return, EPA offers substantial penalty relief and makes inspecting DPWs that participate a low priority.

"Rocky called me and grilled me with a bunch of questions," Daly said. "I went out and did an inspection and then he took the ball and ran with it."

Hinesburg is among a handful of DPWs in Vermont taking part in the voluntary initiative. More than 300 are participating from across New England.

Healthy Ecosystems

New England's ecosystems are our most valuable natural assets. The richness of our waterways provides opportunities to see remarkable creatures such as bald eagles and striped bass. The northern forest provides habitat for bear, moose and hundreds of species of birds. And, of course, our wetlands provide critical habitat and nurseries for birds and fish. But human activities can threaten these resources by altering environmental conditions. While we've made dramatic progress protecting many of our ecosystems in recent decades, we still face some enormous challenges, not the least of which are New England's changing climate, acid rain and protecting tidal and freshwater wetlands.

Partnering To Restore Connecticut's Fishways

Like hundreds of dams in Connecticut, the small dam at Ed Bill's Pond on the Eightmile River in Lyme has long prevented blueback herring, alewife and other migratory fish from swimming upstream to prime spawning grounds.

The Connecticut River Watershed Council designed a fish ladder to fix the problem, but when the construction bids came in there wasn't enough money. A $24,880 grant from the Connecticut Corporate Wetlands Restoration Partnership (CWRP) bridged the gap, and today visitors to Ed Bill's Pond see a new fishway alongside the dam that's attracting herring in the spring.

Ed Bill's Pond is among many aquatic habitats across Connecticut benefitting from the Connecticut Corporate Wetlands Restoration Partnership. Launched in June 2000, the voluntary program has a dozen active corporate members that have contributed more than $150,000 of funds and various in-kind services to enhancement projects around the state. The group is also commissioning a study to identify 30 to 40 coastal and inland projects that can be done in the coming years.

"This is a terrific program for us," said Tom Miner, executive director of the watershed council, which is using CWRP support for several fishway projects around the state.

"It allows companies to 'walk the talk' and really do something to restore our natural resources," added Timothy Keeney, environmental director at Northeast Utilities, which has taken a leadership role in the partnership. First launched in Massachusetts in 1999, CWRP initiatives are now underway in four of the six New England states, Rhode Island and Maine being the most recent additions to the program.

NEW ENGLAND'S CHANGING CLIMATE

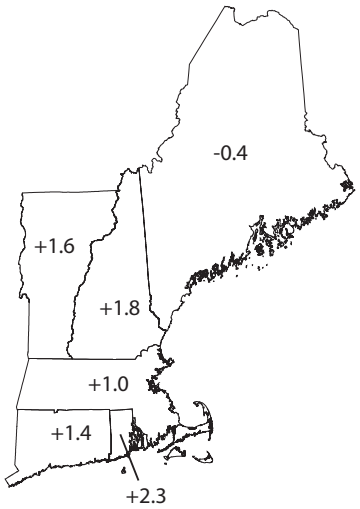
New England's climate is changing and the implications for the region's environment already are being felt. According to a report issued last year for the U.S. Global Change Research Program, temperatures in New England are getting warmer, especially in the winter months. From 1895 to 1999, overall temperatures in the region warmed by 0.7 degrees, with Rhode Island and New Hampshire warming by two to three times the regional average. Even bigger temperature hikes were recorded in the winter months, with the region's average temperatures rising by 1.8 degrees and New Hampshire and Vermont seeing the biggest jumps.

The warming trend is being felt all across the region, with earlier maple sap flows, earlier dates for ice melting and reduced snowfall being just a few of the examples cited in the *New England Regional Assessment Report*. Warming temperatures may also be a factor in the spread of insects and diseases in some of New England's forests and dramatic drops in winter flounder populations, which rely on near-freezing water temperatures to spawn.

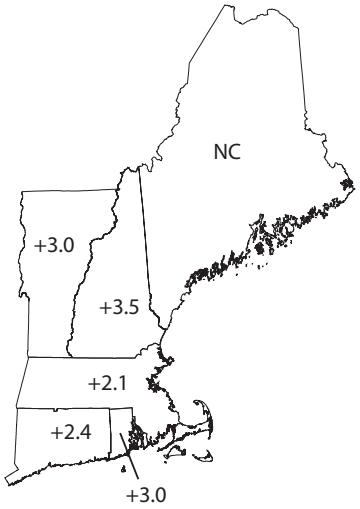
All of these changes are sending ripples through the region's economy, with Vermont's maple syrup industry seeing some of the biggest impacts. Optimum conditions for maple syrup production—freezing nights and warm daytime temperatures—have been gradually shifting from northern New England to the more northern Canadian Provinces. Vermont, the largest syrup producer in the U.S., historically had optimum sap flows from mid-March to mid-April. More recently, the sap flows have been starting a month earlier, resulting in reduced sap flows, shorter tapping seasons and a lower grade product. The end result: Vermont's annual

This is a terrific program for us. It allows companies to walk the talk and really do something to restore our natural resoures.
— Timothy Keeney

Regional Temperature Changes 1895-1999



Weighted Averages + 0.74°F



Winter Weighted Averages + 1.8°F

source: Data from New England Regional Assessment, provided by UNH

production is a third of what it was at the beginning of the 20th century and Canada's syrup output has tripled in just the past 25 years.

To lessen the risk of climate change in the years ahead, EPA has launched a number of voluntary programs to reduce carbon dioxide and other greenhouse gas emissions being released into the earth's atmosphere. In addition to our Energy Star program, which has prevented 150 million metric tons of greenhouse gas emissions, we've started a climate leaders partnership that encourages companies to develop long-term comprehensive climate change strategies, including commitments to specific reduction goals.

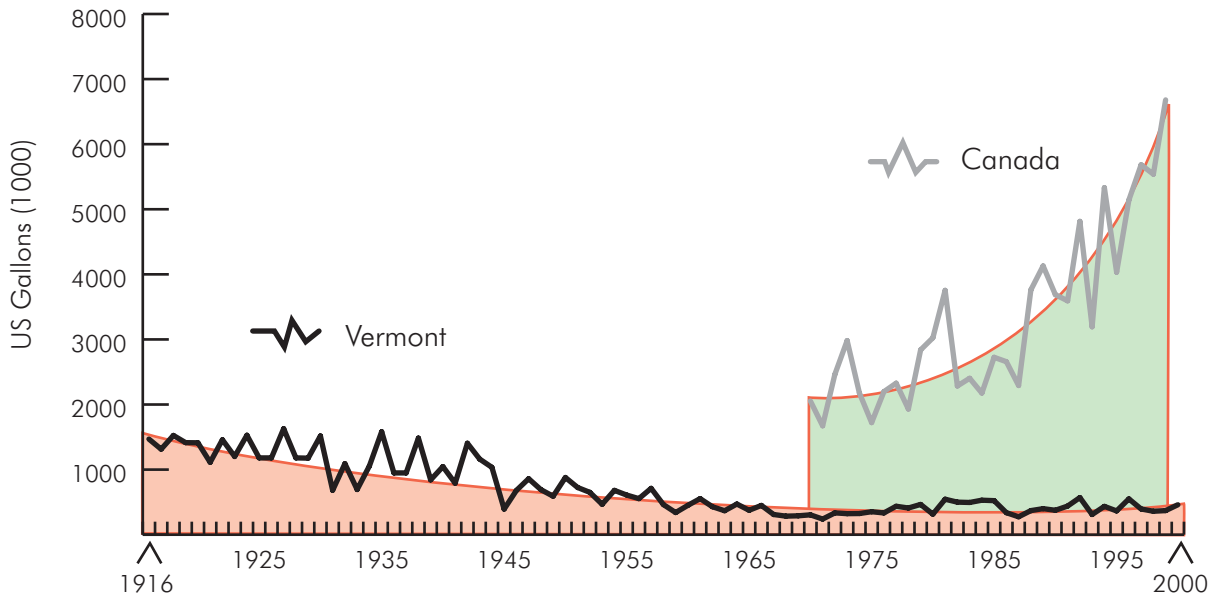
Our Global Climate Change Initiative commits America to cut greenhouse gas intensity by 18 percent over the next 10 years. Greenhouse gas intensity is the ratio of greenhouse gas emissions to economic output. The goal is to lower our rate of emissions from an estimated 183 metric tons per $1 million of gross domestic product (GDP) to 151 metric tons per $1 million of GDP in 2012. The initiative also supports vital climate change research and provides $4.5 billion for climate change related activities. This includes the first year of funding for a five-year, $4.6 billion commitment to tax credits for renewable energy sources.

ACID RAIN

New England's forests and water bodies are greatly influenced by the air that passes over the region. Air that is laced with sulfur dioxide (SO_2) and nitrogen oxide (NO_x) from power plants and other combustion sources causes insidious pollution known as acid rain.

Acid rain first emerged as a problem in the late 1970s and is still a major concern for New England. Acid rain disrupts the chemical balances in trees, weakening their natural defenses and making them more vulnerable to diseases and insects. It has been widely cited as contributing

Maple Syrup Production Declines in Vermont and Rises in Canada



source: Data from Shannon Spencer, New England Regional Assessment, UNH

to the decline of the spruce-fir forests throughout the Eastern United States.

Acid rain also increases the acidity of lakes and streams, making them uninhabitable for desirable species of fish. And, lastly, nitrates in acid rain contribute to eutrophication in many of New England's estuaries, which can lead to unwanted algae growth and oxygen depletion in the water. As much as 40 percent of total nitrogen entering Casco Bay in Maine, for example, may come from atmospheric deposition, which includes acid rain.

The good news is that SO_2 and NO_x emissions from power plants are declining. Relying on a market-based cap and trade program, New England power plants reduced their SO_2 emissions by 45 percent and NO_x emissions by 65 percent from 1990 to 2000. Those reductions have led to decreases in atmospheric deposition, the most telling example a 25 percent drop in average sulfate deposition in Maine between 1980 and 1999. Still, we have not seen significant improvements in our ecosystems. Some studies predict it will take decades for lakes and other water bodies to fully recover from the effects of acid rain.

To help foster those recovery efforts, President Bush recently launched a Clear Skies Initiative aimed at cutting power plant emissions of SO_2 by 73 percent and NO_x by 67 percent between 2000 levels and 2018. The strategy will rely on the same market-based approach that the agency's Acid Rain Program used so successfully in the 1990s.

PROTECTING TIDAL AND FRESHWATER WETLANDS

Tidal wetlands play a critical role in New England's environment, providing important habitat and nurseries for birds and fish and improving water quality by filtering out pollutants. Coastal salt marshes are among the most biologically pro

ductive ecosystems in the world, rivaling tropical rainforests in the amount of plant material produced each year.

For many decades, the public did not appreciate or understand the importance of tidal wetlands. As a result, thousands of acres of tidal marshes in New England were filled for development, used for garbage disposal, or drained to control mosquito populations. Laws passed in the early 1970s halted large-scale loss of tidal marshes by requiring permits for activities in these areas.

Restoring degraded tidal wetlands is a high priority in New England. The Connecticut Department of Environmental Protection has won national recognition for helping to restore more than 1,700 acres of tidal wetlands since 1980. Massachusetts has restored nearly 300 acres of tidal wetlands since 1994, including more than 100 acres in Rumney Marsh north of Boston through a local/state/federal partnership. We're also using enforcement settlements to reclaim tidal areas, the most noteworthy example an agreement by Amtrak to spend about $400,000 to improve tidal flows at seven culvert locations along Amtrak's shoreline rail route in Connecticut. Last year's agreement stemmed from Clean Water Act violations that EPA found at nine Amtrak facilities.

Reducing the loss of freshwater wetlands is another high priority. Hundreds of acres in the region are being altered or lost each year through wetlands permitting programs, although some of the losses are offset by wetland mitigation projects. Connecticut in 1999, for example, had

Opening up these shellfish areas is proof positive of our progress. It makes an inherent statement that the waters are clean.
—Katherine Groves

132 acres of permitted wetlands alterations and 66 acres of wetlands created through mitigation.

EPA also is concerned about wetlands losses that are occurring outside of permitting programs. Our enforcement team is investigating numerous cases of possible illegal filling of wetlands, including sites in Vermont, Maine and southeastern Massachusetts. A handful of cases have led to formal enforcement actions. We're also boosting outreach and education programs to help property owners understand state and federal wetland laws, one such example a $25,000 EPA grant to the state of Vermont for outreach and education to the state's farmers.

Partnerships Key in Restoring Casco Bay

Casco Bay in Maine has always been postcard beautiful. But the bay's water quality is a different story. More than three centuries of human activities on the shores and tributaries of the bay took their toll, with their worst pollution coming in the last 75 years. Old-timers can still recall the putrid odors of pollution that peeled the paint off houses. Shellfishing in the bay posed a serious health risk.

But the bay's fortunes are improving. In 1990, the EPA designated Casco Bay an estuary of national significance and provided substantial financial support for its recovery. The work is being done through the Casco Bay National Estuary Project, a collaboration between the University of Southern Maine, EPA, the Maine Department of Environmental Protection and many other local, regional and state partners.

With close technical support coming from Normandeau Associates and the MER Assessment Corp. of Harpswell, and assistance from municipalities and shellfish harvesters, the estuary project has identified and removed numerous pollution sources from around the bay, including dozens of antiquated septic systems as well as runoff from roadways and small farms. The improved water quality has resulted in 200 acres of shellfish beds, all north of Portland, being opened for harvesting.

"Opening up these shellfish areas is proof positive of our progress," said Katherine Groves, director of the estuary project. "Not only have sources of pollution been removed and shellfish beds opened, but the public 'feels' better about the bay and its environment when they see shellfishermen out there working. It makes an inherent statement that the waters are clean."

Groves credits the improvements to a strong cooperative spirit. "It is through partnerships with local, state and federal stakeholders that the estuary project is opening shellfish beds, protecting open space (more than 3,000 acres to date), developing sub-watershed protection plans and identifying and addressing water and sediment quality problems," she said.

CONTACTS & WEB RESOURCES

EPA New England's Customer Call Center
(888)-EPA-REG1 (888) 372-7341

Emergency Response
(Reporting spills/environmental incidents)
(800) 424-8802

Criminal Investigations Division
(617) 918-2300

EPA New England Library
(888)-EPA-LIBR (888) 372-5427

EPA New England
www.epa.gov/ne

Air
www.epa.gov/ne/topics/index.html#air

Cleanup
www.epa.gov/ne/topics/index.html#clean

Communities
www.epa.gov/ne/topics/index.html#comm

Compliance Assistance & Enforcement
www.epa.gov/ne/compliance/index.html

Regional Laboratory
www.epa.gov/ne/about/lab

Water
www.epa.gov/ne/topics/index.html#water

ACKNOWLEDGMENTS

2002 State of the New England Environment Report is published by:
U.S. Environmental Protection Agency
New England
1 Congress St. / Suite 1100
Boston, MA 02114-2023

Project Coordinators
Peyton Fleming, Mark Merchant,
Liz Pucci

Writers
Peyton Fleming, Mark Merchant

Graphic Design
Liz Pucci

Photography Credits
Roy Crystal (pages 11, 14, 26)
Steve Delaney (cover)
Liz Pucci (page 8)
Paul Shoul (pages 5, 17, 20, 23)

GIS Map
Paul Spina, Signal Corp.

Special Thanks
Catherine Benjamin, Bob Cianciarulo,
Carmen Cordero, John Daly, Judy Doore,
Lucy Edmondson, Lynn Gilleland,
Katherine Groves, Timothy Keeney,
Matt Liebman, Rocky Martin, Tom Miner,
Margo Palmer, Kristi Rea, Christine, Sansevero,
Diane Switzer, Mark Thurston, Paul Wintrob