# Environmental Quality
## in Connecticut

Council on Environmental Quality

2004 Annual Report

STATE OF CONNECTICUT
COUNCIL ON ENVIRONMENTAL QUALITY

May 16, 2005

The Honorable M. Jodi Rell
Governor of Connecticut
State Capitol
Hartford, CT 06106

Dear Governor Rell:

I am pleased to submit the Council's Annual Report on the status of Connecticut's environment for 2004.

The good news is that during 2004 Connecticut saw measurable improvements in the shellfish beds of Long Island Sound, air pollution levels, and coastal habitat for the rare piping plover and other species. Unfortunately, certain other indicators, especially those that could predict future conditions, are either static or, in a few cases, declining.

To reach these conclusions the Council uses a set of environmental indicators that we established several years ago to provide an unbiased measure of progress. We are confident that this report presents a reliable and comprehensive overview of Connecticut's progress in managing its air, water, land and wildlife.

The indicators in this report, however, do not fully capture one trend that is of great interest to Connecticut residents: the changes in our physical landscape. Statistics, while showing a need for even more attention to land conservation, do not reflect the reality of sudden and highly-visible conversions of farms and forests to other uses. The Council intends to work with other organizations on this challenge in the coming year.

The Council heard many comments from citizens across the state in 2004. Some of their concerns are summarized in the section called Activities of the CEQ in 2004. I hope you find the report to be useful. As always, the Council stands ready to provide you with any additional information or assistance that you may request.

Respectfully,

Thomas F. Harrison
Chairman

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http://www.ct.gov/ceq

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## Introduction to Environmental Quality in Connecticut

Scientists can measure subtle changes from year to year in Connecticut's air, water, and wildlife. Most of these small variations probably go undetected by state residents, except perhaps by those who spend much work or leisure time outdoors. Over years, however, subtle improvements and declines add up, and the result is a changed Connecticut.

The indicators in this report are designed to show the long-term trends that define Connecticut's environment. They also illustrate year-to-year changes. Notable improvements in 2004 included the following:

- Connecticut's air improved for the fourth year in a row. All six of the measured pollutants showed progress.

- More shellfish beds in Long Island Sound were open for harvesting, the result of gradual upgrades in water quality and monitoring.

- Piping plovers – beautiful, small, rare shorebirds – raised families in three new beach locations, continuing a four-year expansion. Conservation of plover habitat helps other species as well.

## Focus on the future: the leading indicators

Two years ago, the Council introduced a new category of environmental indicator: the "leading" indicator. While the other indicators describe actual conditions of air, water, land and wildlife, leading indicators do not. They track actions of Connecticut residents that can be expected to affect tomorrow's environment. As people drive more miles, for example, one can predict more laying of pavement, more runoff and more vehicle exhaust. None of the leading indicators projects an improving environment: traffic is up, bus riding is down, recycling is down, and compliance is stagnant.

The compliance indicator warrants additional attention. Taking into account all inspections that check for compliance with air, water, or waste management laws, the rate of compliance stands where it did in 1996, at about 89 percent. The Council has recommended in previous reports that the ultimate goal should be full compliance with environmental laws. The Department of Environmental Protection (DEP) has a critical role in managing compliance rates. Since 1996, the number of inspections conducted by the DEP has declined nearly every year. Connecticut's economy has changed much in the last decade, and the number of inspections needed to ensure compliance probably is changing also. In light of ever-diminishing staff resources, the DEP perhaps can view maintenance of a fairly constant compliance rate as a success. However, state government and regulated entities alike must do much more if the goal of full compliance ever is to be achieved.

## What this report does not show...

…are sudden and visible alterations of Connecticut's landscape. In contrast to the creeping statistical progress presented by most indicators, the conversion of forests and fields to other uses is often swift and intrusive. Many people and organizations have reported to the Council that the continuous development of land is their greatest environmental concern. There are aspects of this concern that go far beyond the development's visible effects. One is the quality of streams. In Connecticut, more miles of river are impaired by pollution from the land that goes into runoff and storm sewers than by industrial and municipal pipe discharges combined. A second consequence is the inevitable increase in traffic generated by development in areas where no other mode of transportation is possible. Growth in traffic, which in turn leads to more pavement, will impede Connecticut's efforts to attain its goals of clean air, streams that meet all standards, and reduced emissions of the gases that contribute to climate change.

Many Connecticut residents have grown accustomed over 10 or 15 years to what appear to be fairly steady air and water quality. They find it difficult to discern environmental progress, especially if their favorite woodlands are gone in a matter of weeks or small brooks in their neighborhoods are overwhelmed with muddy runoff. These are sudden negative experiences for which the Council has no adequate measure.

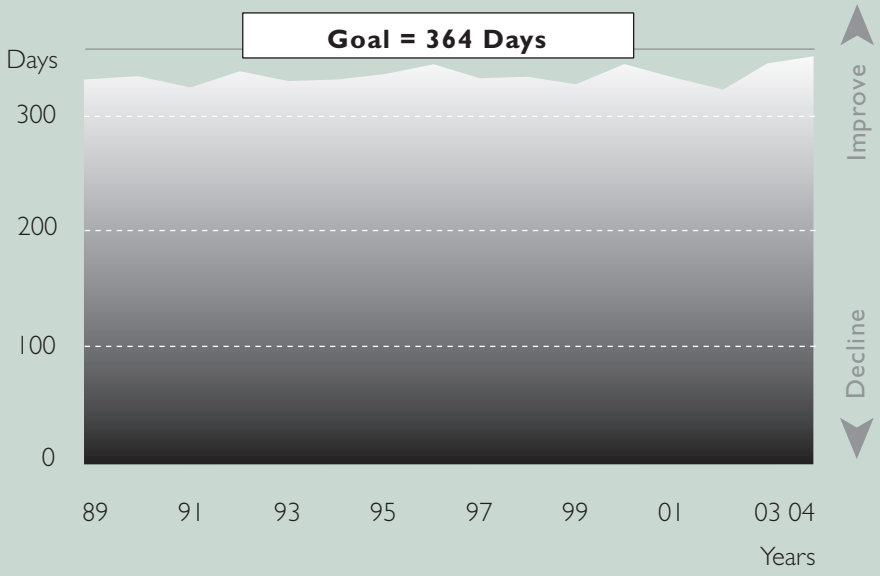
Researchers working with satellite images at the University of Connecticut have depicted the extent of land development in Connecticut, which has spread far faster than the population has grown. But the Council has not yet found a way to describe with numbers the ongoing conversion of the landscape that concerns so many residents. Indicators in this report tell us that progress is being made in the preservation of open space and farmland – though at rates too slow to meet the state's goals – but preservation activity is but one consideration in the continuous transformation of Connecticut's landscape. The Council intends to work during the coming year on the challenge of developing more meaningful land indicators, and to work with other organizations on the greater challenge of improving ways in which land is used and conserved.

## A note about the indicators

The following pages illustrate fundamental trends in Connecticut's environment. Readers who wish to know more about the sources of the data and the meaning of the trends will find this information in Part II: Details.

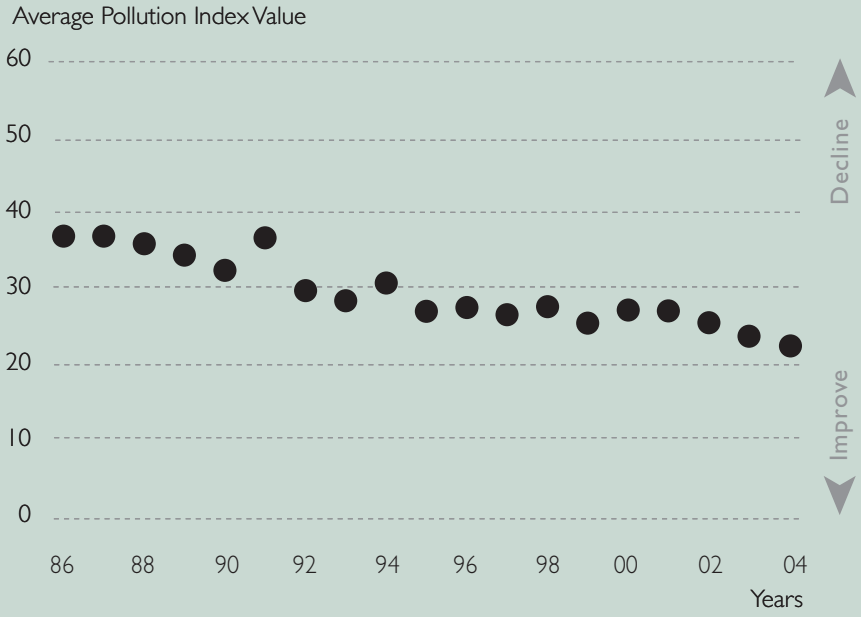
# Good Air Days

Connecticut's air meets all daily health-based standards except for one pollutant (ground level ozone) which normally violates the standard about 10 to 25 days each summer. The air was better than average in 2004.



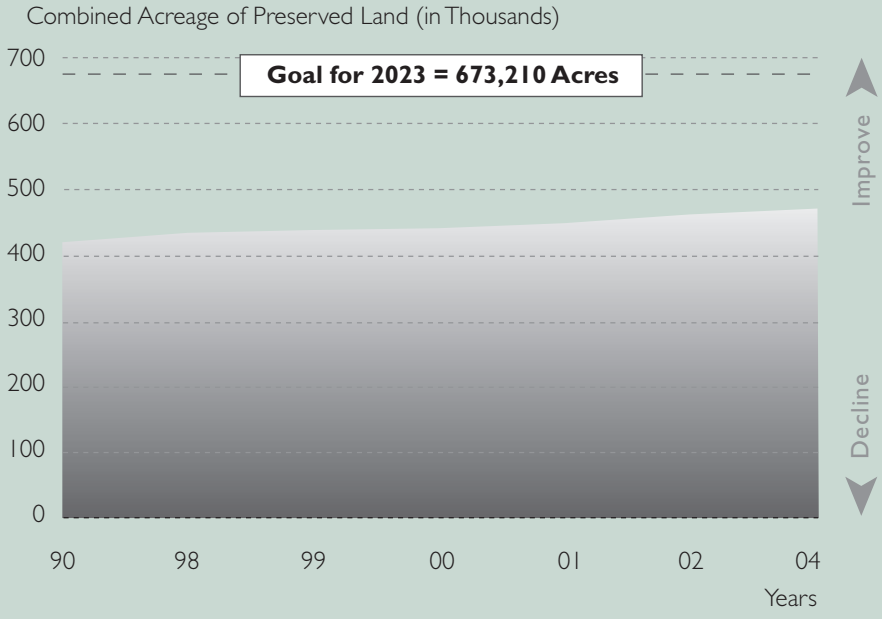
# Clearing the Air

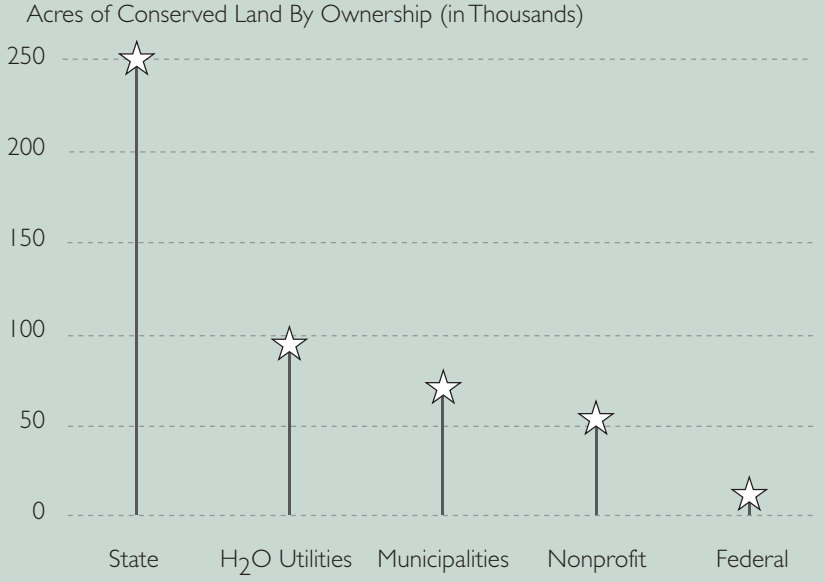
Connecticut's air shows gradual long-term improvement.



# Preserved Land

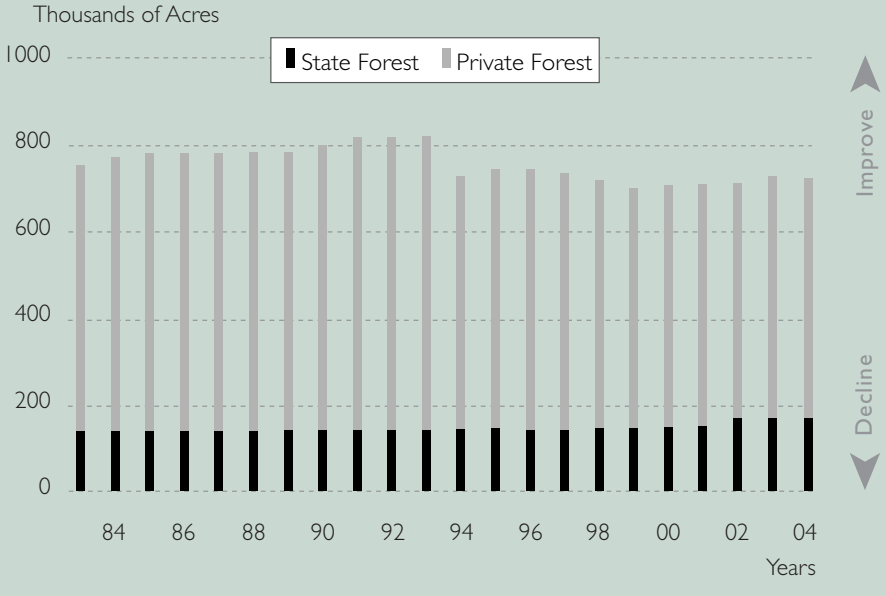
Connecticut has preserved an average of 8,600 acres of open space each year since 2000. To meet the goal for 2023, about 10,200 acres must be preserved every year.



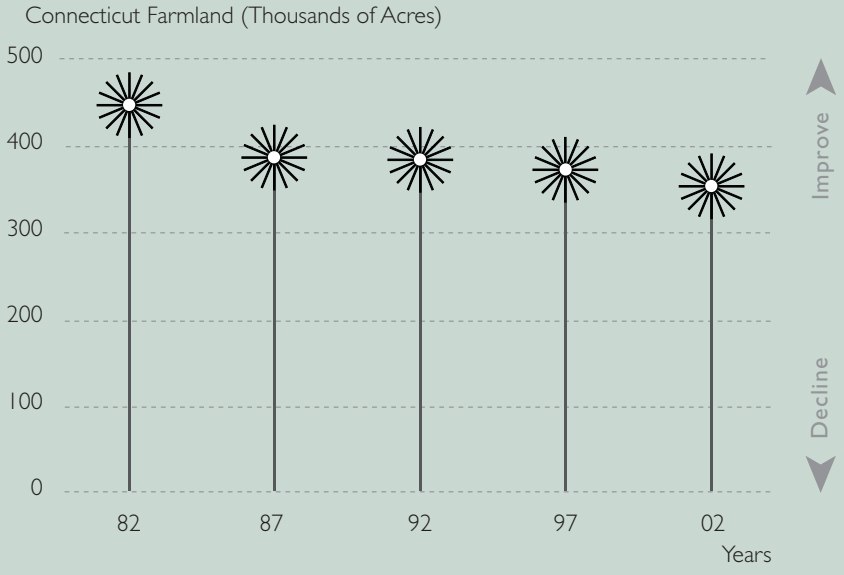
# Forest

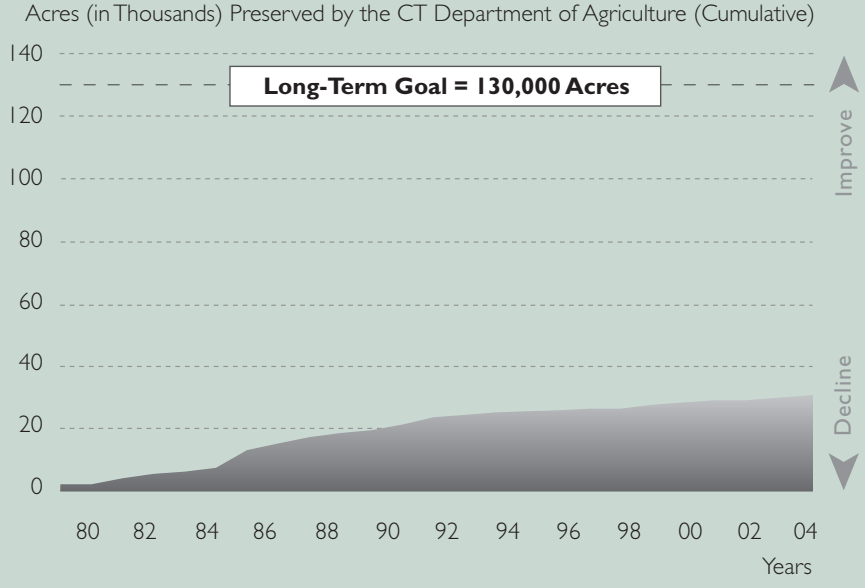
The state has added 30,000 acres
to the State Forest system since 1997,
while private forest acreage has declined.



# Farmland

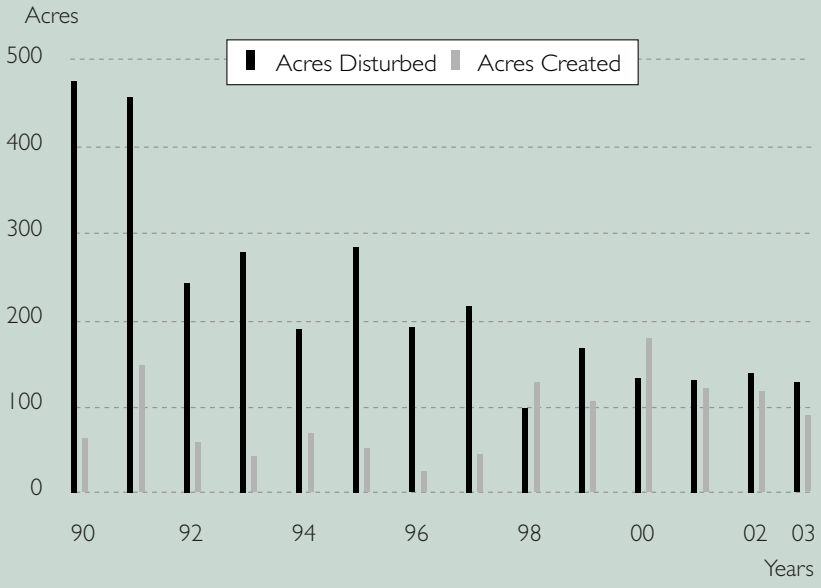
Farmland preservation resumed in 2004 when about 1,100 acres were preserved by the Department of Agriculture. At this pace, the goal will not be reached this century.



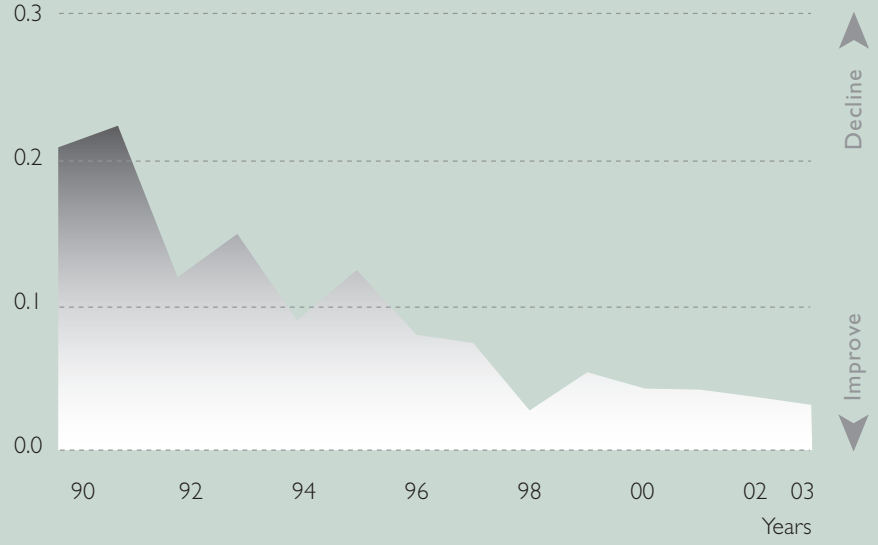



# Inland Wetlands

After fairly steady improvement from 1990 through 1998, disturbances of inland wetlands have kept a nearly constant pace over the last five years.

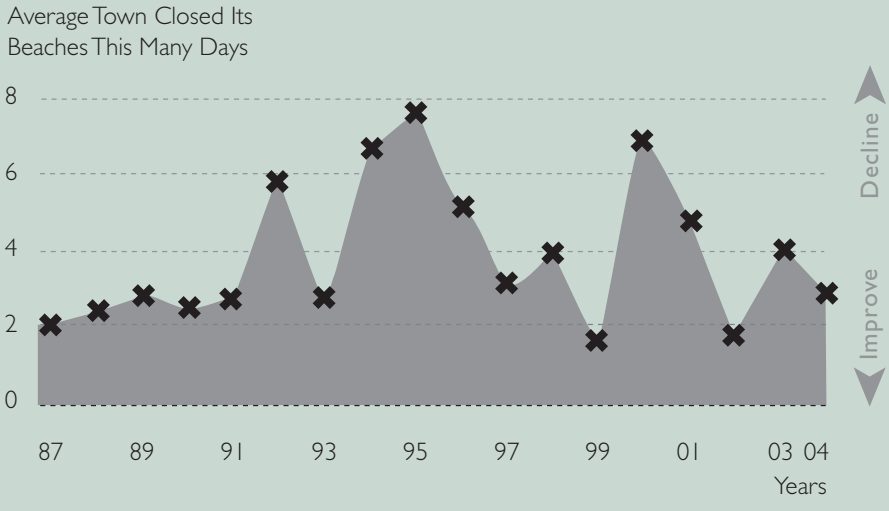



Acres of Inland Wetlands Affected by the Average Permit Issued by DEP & the 170 Municipal Wetlands Agencies



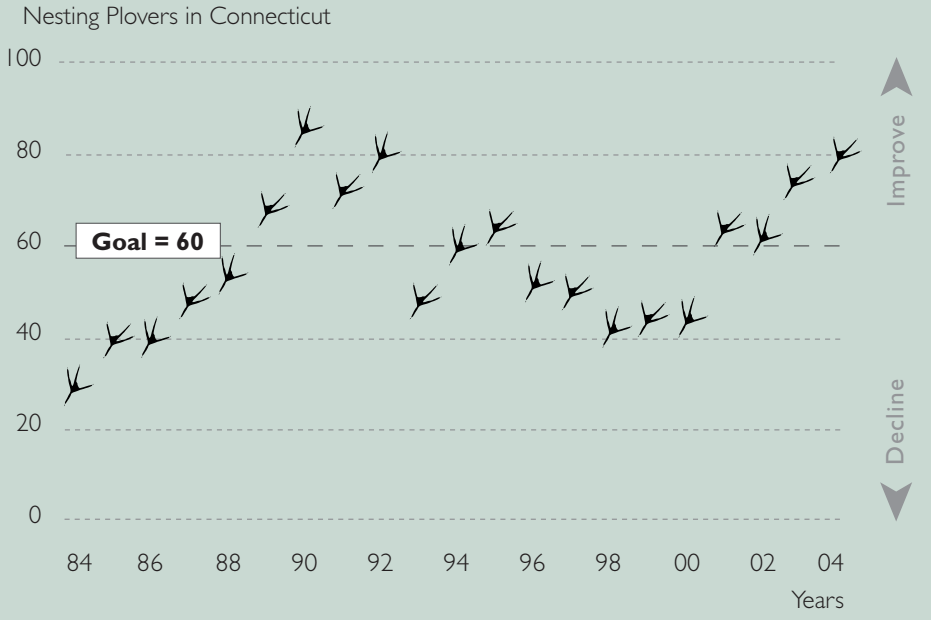
# No Swimming at the Beach

Many coastal towns and cities must close their beaches after heavy rains because of the pollutants that are washed into Long Island Sound.



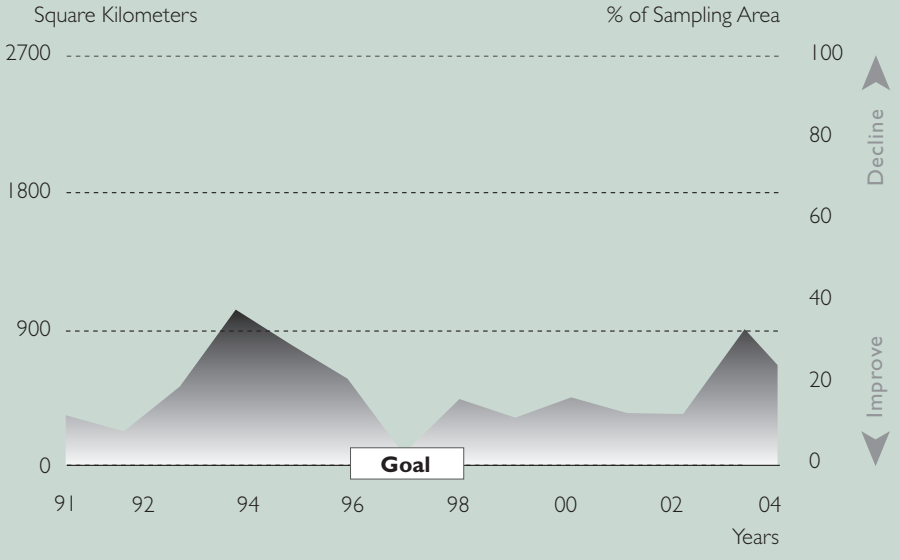
# Piping Plovers on the Beach

These small shorebirds found three new areas of suitable beach habitat (in Milford, East Haven, and Waterford) in 2004.



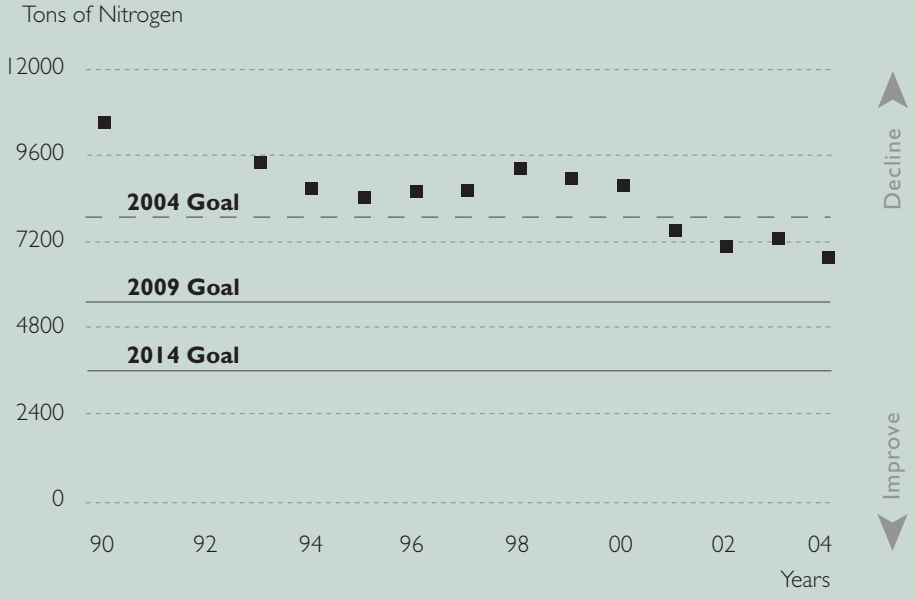
# Low Oxygen in Long Island Sound

The area of western Long Island Sound that was affected by hypoxia (oxygen levels too low to support aquatic life) was about average in 2004.



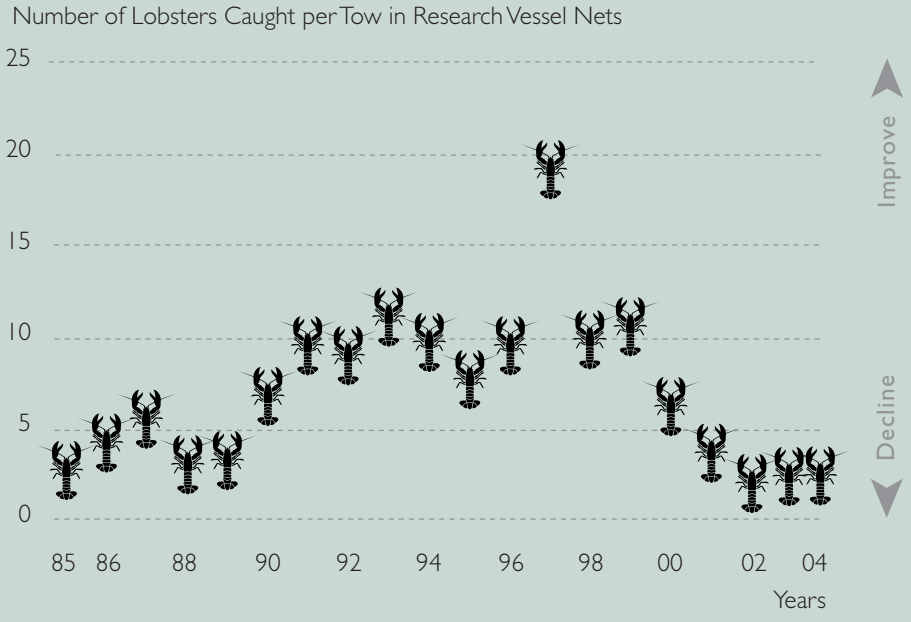
# Nitrogen in Long Island Sound

Connecticut's campaign to reduce nitrogen from sewage treatment plants and large factories is going well.
Next up: runoff from cities and lawns.



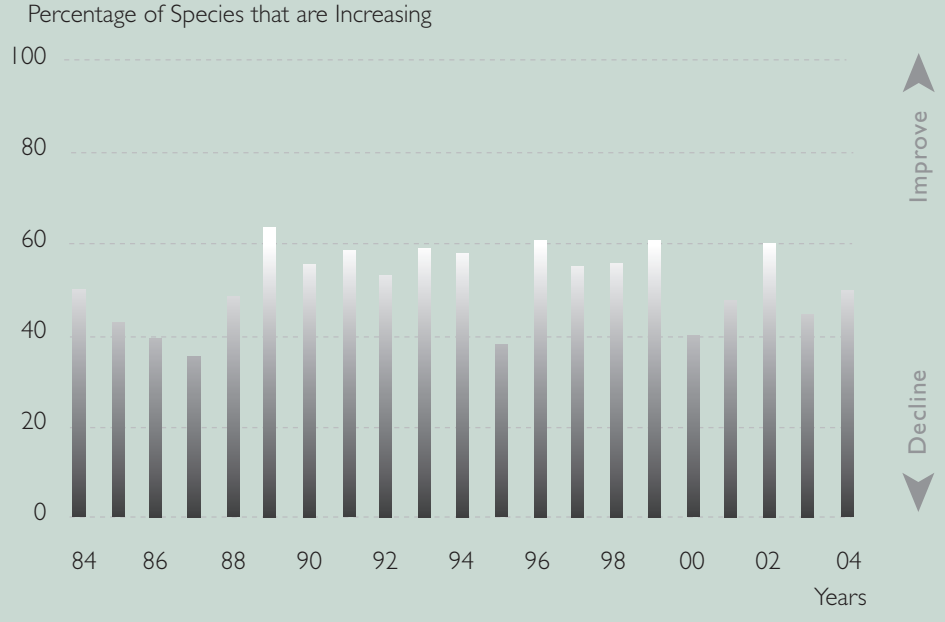
# Lobsters

The lobster population of Long Island Sound remains low.



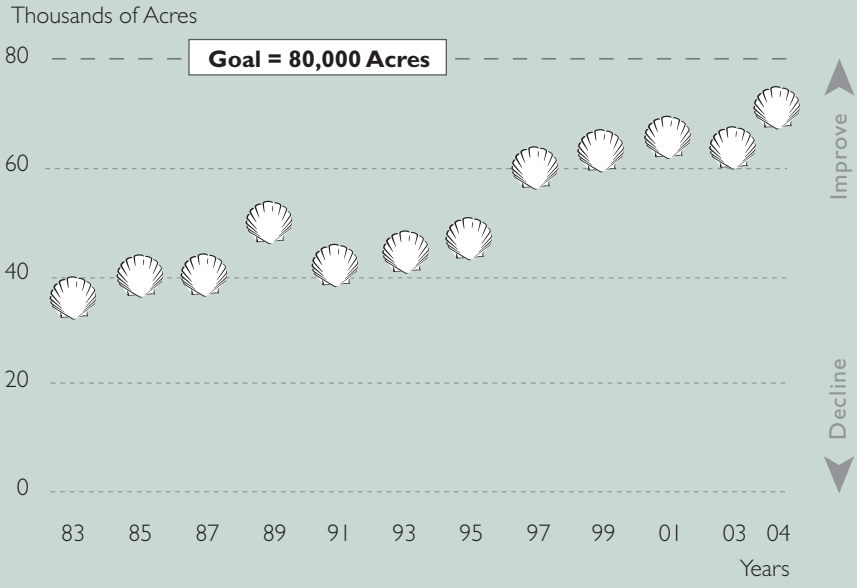
# Seafood Sampler

Half of the 40 marine species sampled in Long Island Sound during 2004 were found to have growing populations.



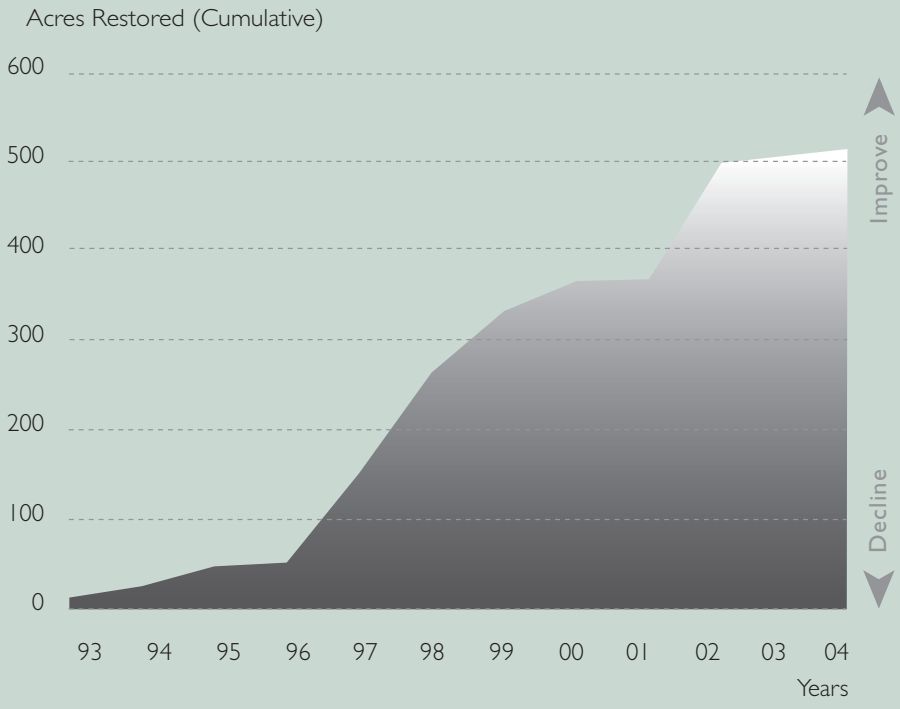
# Clean Shellfish Beds

Cleaner water has allowed the opening of more acreage.



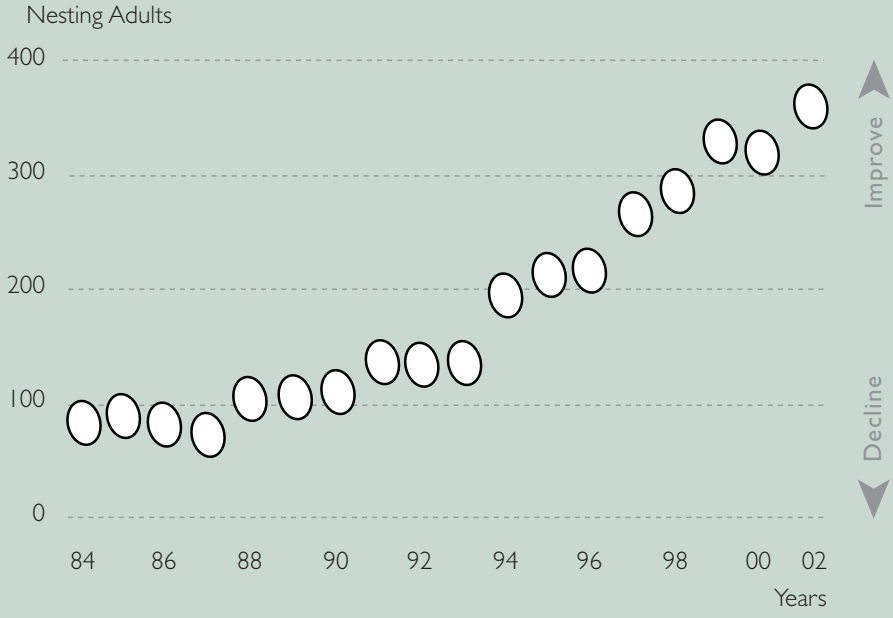
# Reviving Tidal Wetlands

Each year, less than one acre of tidal wetlands is lost to permitted development (not shown here), while an average of 50 degraded acres are restored.



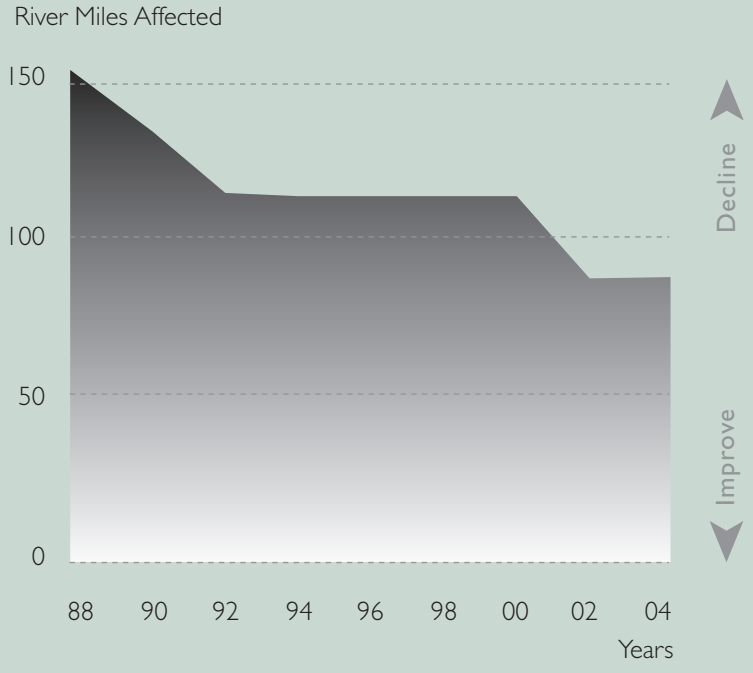
# Ospreys

Connecticut's comeback of these large birds of prey was made possible by bans on specific chemicals, and has been aided by construction of predator-proof nesting platforms.



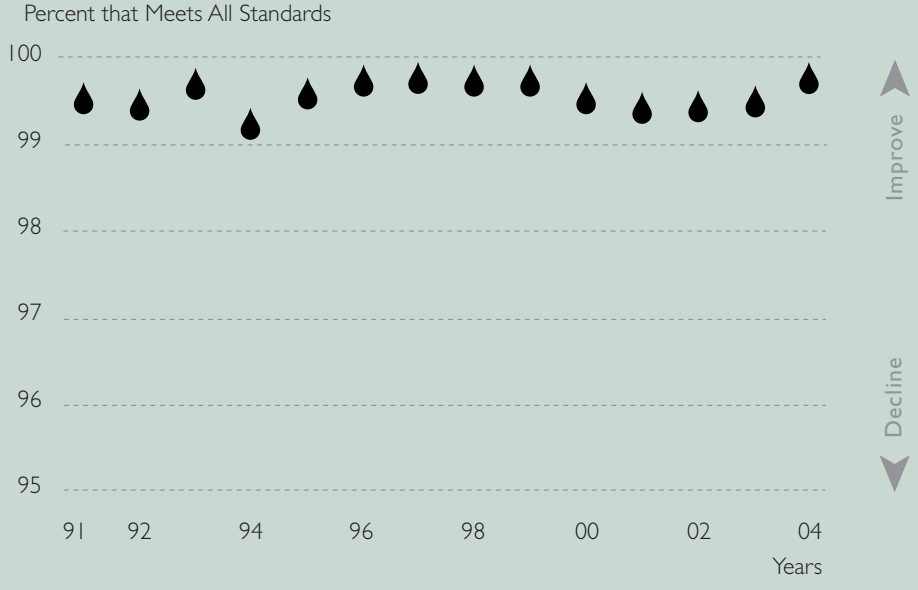
# Sewage Overflows

When it rains, raw sewage spills from cities' sewer systems because they were built with storm and sanitary sewers combined. Gradually, cities have been separating their sewer systems to prevent these overflows.



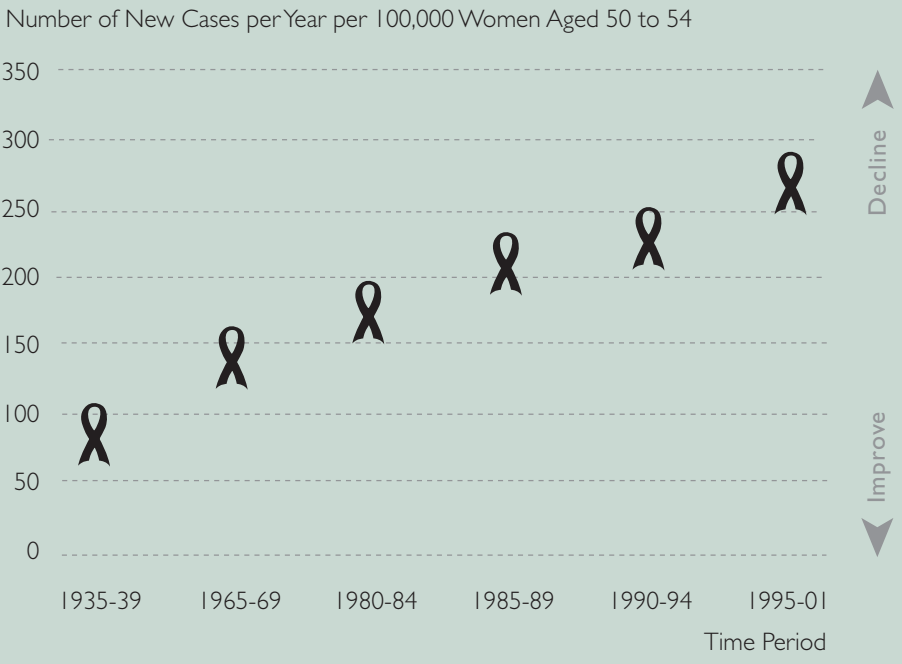
# Drinking Water

All large water companies delivered drinking water that met all standards in 2004, though a number of smaller systems reported temporary problems.



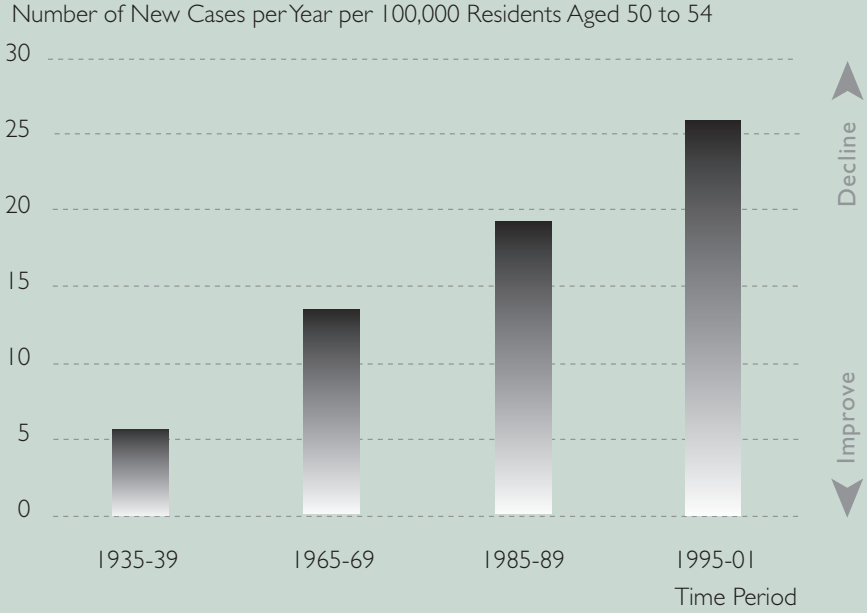
# Breast Cancer in Connecticut

Connecticut has the third highest incidence of breast cancer among the 50 states.



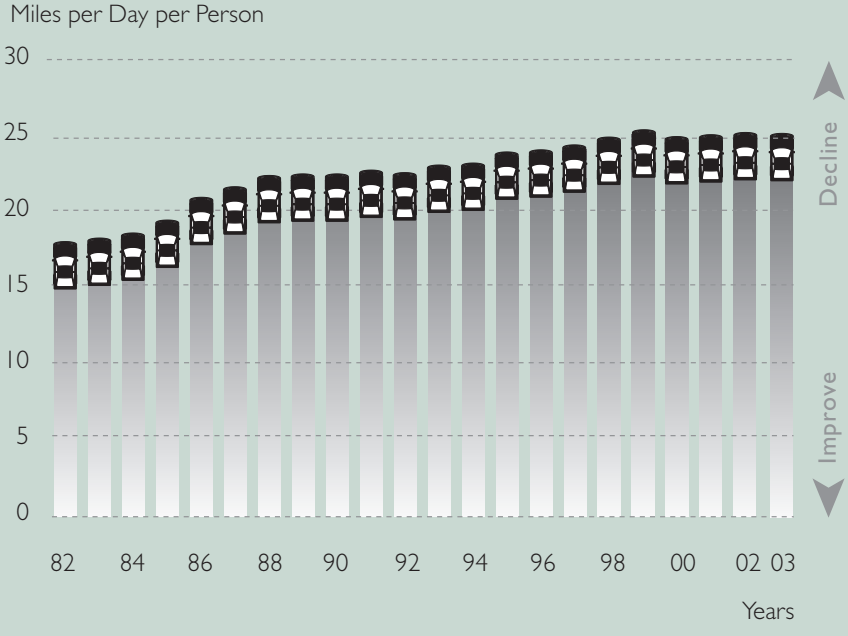
# Non-Hodgkin's Lymphoma

The reasons for the marked increase in this cancer are not well understood, but some reports cite exposure to certain fertilizers, pesticides and other chemicals as potential factors.



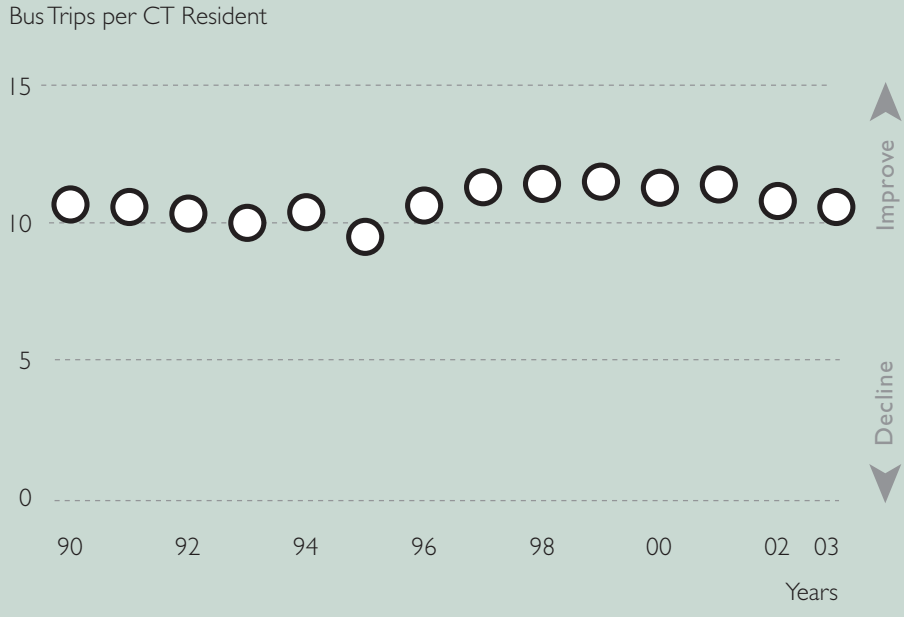
# Driving Our Cars

The average Connecticut resident drives more miles nearly every year.



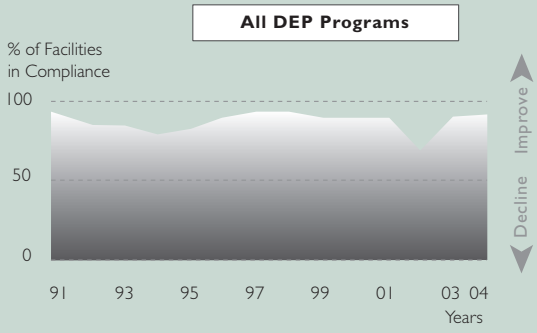
# Taking the Bus

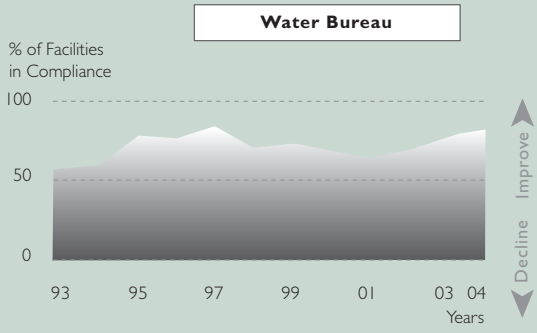
Bus ridership has declined more than 10% since 2001.

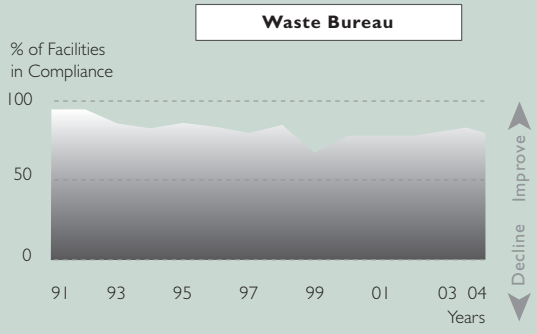


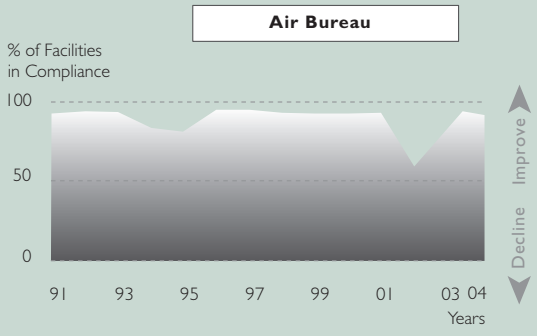
# In Full Compliance

In 2003 and 2004, DEP inspectors found about 89% of facilities in compliance with pertinent regulations. This is the same rate as in 1996.



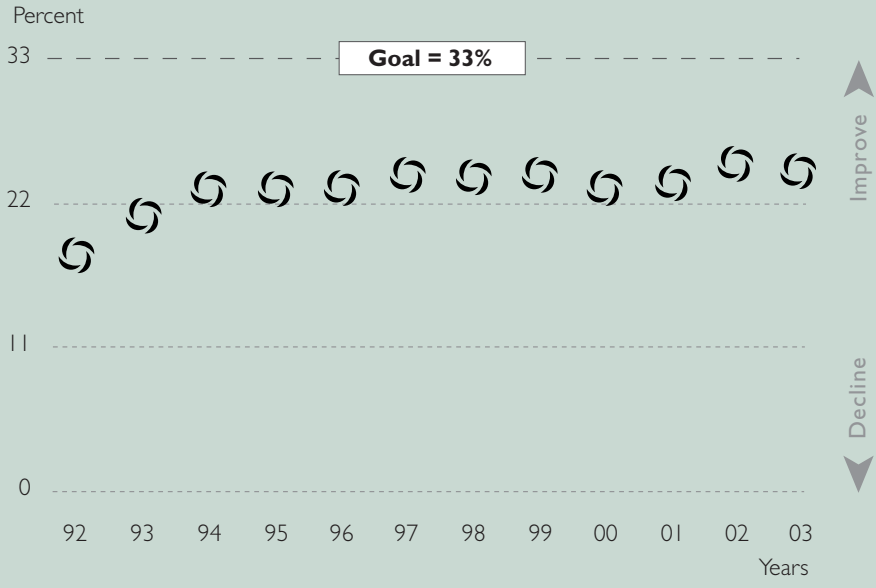



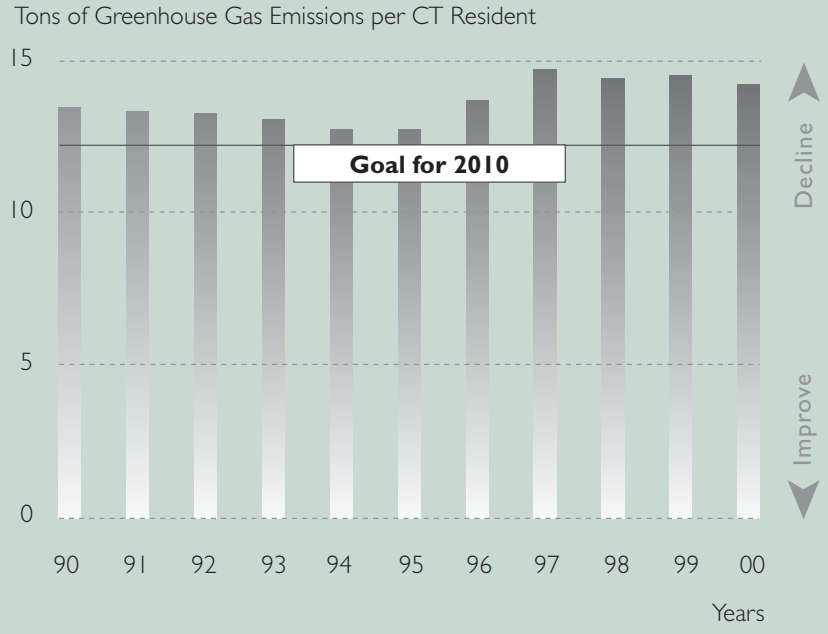
# Recycling

In 1993, Connecticut set a recycling goal for 2000 which it has not yet met.



# Climate Watch

In 2004, Connecticut set an ambitious goal to reduce emissions of "greenhouse gases," primarily carbon dioxide, that trap heat in the earth's atmosphere and alter the global climate.



# PART II: Details

The previous section of this report shows important environmental trends at a glance. The following pages contain more complete descriptions of each indicator and the sources of the data used.

## Air

### Good Air Days (page 4)

On a Good Air Day, every monitoring station in the state records satisfactory air quality. "Satisfactory air quality" is defined here as air that meets the health-based ambient air quality standards for all of the following six pollutants: sulfur dioxide, lead, carbon monoxide, particulates, nitrogen oxides, and ground-level ozone. Connecticut's goal is to have air that meets all health-based standards 364 days a year by the year 2010. (The official goal is not 365 days per year because the state can have one bad air day per year and still meet federal requirements.) Violations of the health-based air quality standards have been nearly eliminated for all pollutants except ground-level ozone, which is created when nitrogen oxides and volatile organic compounds react in the presence of sunlight. Motor vehicles remain a major source of ozone-forming emissions despite improvements in tailpipe standards. Much ground-level ozone originates in states to Connecticut's west. The last two years saw the greatest number of good air days since the 1980's.

There is one new consideration for 2005 and beyond. In December 2004, the federal government declared that Fairfield and New Haven counties failed to attain the standard for fine particulates (less than 2.5 micrometers in diameter). One monitoring station in New Haven measured a higher level of fine particulates, on an annual average basis, than is allowed by the standard. However, there have been no violations of the daily standard for fine particulates in Connecticut, and this indicator is not affected by the new federal classification.

Technical Note: Ambient air quality standards occasionally are changed by the federal government, which theoretically could affect the consistency of this indicator. When a change occurs, this indicator's usefulness is maintained by re-calculating historical data so all years are presented as if today's standards had been in effect all along.

### Clearing the Air (page 5)

Six air pollutants – sulfur dioxide, lead, carbon monoxide, particulates, nitrogen oxides, and ground-level ozone – are measured across the state by the DEP. At the end of every year, the average level of each pollutant is expressed on a numerical scale, where zero equals no pollution and 100 represents the "unhealthful" level of the specified pollutant. The Council takes the annual numbers for each of the six pollutants and averages them to yield the single index value on this graph. Levels of lead in the air have dropped so low that they barely register in this indicator. Most of the improvement since 1987 is due to reductions in carbon monoxide, sulfur dioxide, and particulate emissions. In 2004, the levels of all six pollutants improved slightly.

# Farm, Forest, Wetland

## Preserved Land (page 6)

State law (C.G.S. 23-8(b)) sets a goal of conserving 21% of Connecticut's land area. In 1998, Governor John Rowland established 2023 as the target date for meeting this goal. The graph titled "Combined Acreage of Preserved Land" displays progress toward the 21% goal. Current acreage of each type of land is shown in the chart labeled "Acres of Conserved Land By Ownership." The types of land are:

- state-owned forests, parks, and wildlife areas
- Class I and II watershed lands owned by water utilities
- estimated municipal open space
- estimated nonprofit lands (land trusts, The Nature Conservancy, etc.)
- federal conservation land.

In 2002, there was a shift in land ownership from water utilities to the state when the DEP purchased 5,471acres of Class II and III water company land to ensure its preservation. Conservation easements were purchased on 9,025 acres of Class I land. From 2000 through 2003, land preservation continued at a pace that kept Connecticut on track toward its 2023 goal, but acquisition slowed in 2004.

## Forest (page 7)

Connecticut's goal is to conserve forests for multiple uses, which only can be accomplished on parcels of sufficient size. Most forest is owned in small parcels, which often have limited value for wildlife, wood production, and other uses. To be eligible for property-tax benefits under Public Act (P.A.) 490, a landowner must own 25 or more acres of forest. Though imperfect, this indicator shows the state's most beneficial forests, which are state forests and private tracts larger than 25 acres. The apparent upward trend in forest acreage during the 1980s was believed to be a product of property revaluations, which prompted many landowners to enroll their land in P.A. 490 for the first time. Surveys of forest landowners show an average age of more than sixty years; the realities of inheritance will probably result in significant break-ups of large land holdings, which might be one important cause of this indicator's negative turn since 1993. In 2002, thousands of acres of forested land were shifted from private water utility ownership to state ownership. In 2003, a slight increase in acres in the P.A. 490 program may be attributable to more landowners looking for tax relief, and state forests gained almost 1,000 more acres from acquisitions throughout the state. The private forest acreage for 2004 is an estimate, and a new forest data reporting system will begin in 2005.

## Farmland (page 8)

The graph titled "Connecticut Farmland" illustrates the total acreage of land in Connecticut farms, as counted by the U.S. Department of Agriculture (DOA). The inventory is conducted quinquennially. The next inventory is expected to reflect a loss of several thousand acres. To preserve land for future agricultural use, the state DOA purchases the development rights to farmland (from volunteer sellers only). This keeps the land in private ownership with severe restrictions on future nonagricultural development. The number of "Acres Preserved by the CT Department of Agriculture" has slowed significantly. Seven farms were preserved in 2002 through the DOA's Farmland Preservation Program. No farms were preserved in 2003. Nine were approved for preservation funding in 2004.

## Inland Wetlands (page 9)

The "Acres Disturbed and Created" graph shows the acreage of wetlands disturbed by development and the number of those acres replaced by human-made wetlands. "Disturbed" wetlands are those affected directly by human activity, which can range from total destruction (when the wetlands are filled and built upon) to conversion from one type to another (as, for example, from shallow swamp to open water). No attempt is made here to evaluate the success of the created wetlands or their value relative to the natural wetlands altered. There is no goal for wetlands conservation. Inland wetlands are estimated to cover about 450,000 acres, or about 15% of Connecticut's surface. Some of the ups and downs in wetlands loss since 1990 are directly related to changes in the economy and the number of applications received. However, the graph showing the "Area of Inland Wetlands Affected by the Average Permit Issued" indicates that wetlands agencies had also become more conservative since 1990, a trend that leveled off or reversed slightly in 1999. Municipal wetland agency members and staff have many more opportunities for training than they did in 1990.

# Sound and Shore

## No Swimming at the Beach (page 10)

Connecticut's goal is to eliminate beach closings caused by discharges of untreated or poorly treated sewage, the most common cause of elevated bacteria levels. After rain storms, runoff, and overflows from combined sanitary/storm sewers are presumed to contaminate the water, prompting towns to close beaches automatically as a precaution. The Council adds up the number of days that each city and town closes one or more of its public beaches, and calculates an average for each year. Yearly variations are products of rainfall patterns and incidents such as sewer-line ruptures. The dry summer of 2002 brought far fewer closings, but significant rainfall in 2003 elevated the number of closings. In 2004, rainfall and sewage spills led to some beaches being closed for several days in the western half of the state.

## Piping Plovers on the Beach (page 11)

Piping plovers are thrush-sized shorebirds that nest on sandy, vegetation-free beaches, often with least terns. Human intrusion, storm tides, and predators frequently destroy nests. Nesting adults are counted and in most cases protected every spring by the DEP and volunteers working with The Nature Conservancy. The piping plover's status is "threatened." The protections afforded these plovers also benefit other nesting species. Since protection and monitoring efforts began in 1984, nesting success has improved, resulting in more returning adults in subsequent years. Yearly variations can occur when adult birds move from one state to another. Diminishing habitat and more disturbances are forcing many birds to nest within the vegetation zone and below the storm tide line where predation and washout took a toll in 2002. There was an increase in plovers in 2003, with nests in two locations that had not been used in recent years, and again in 2004 when birds nested in three new locations.

## Low Oxygen in Long Island Sound (page 12)

Hypoxia is the condition in the water when oxygen levels are too low to support desirable forms of life. (For this indicator, hypoxia was defined through 2003 as less than or equal to 3 mg/l of dissolved oxygen. Beginning in 2004, it is defined as less than 3.5mg/l of dissolved oxygen.) Hypoxia occurs when nitrogen stimulates excessive growth of aquatic plants, which die and are consumed by oxygen-using bacteria. Weather greatly influences hypoxia, making year-to-year changes less important than long-term trends. Connecticut's goal is to eliminate the effects of hypoxia. All of the hypoxia has occurred in the western two-thirds of the Sound. Mild winters followed by relatively cool summers result in fairly uniform water temperatures and less hypoxia in the depths. The second largest area of hypoxia was observed in 2003, and scientists believe it is attributable to an expansive brown algae bloom in the western end of the Sound, which was most likely fueled by a large amount of rain and nitrogen in the resulting runoff early in the summer. A cool beginning to the summer of 2004 led to less hypoxia.

## Nitrogen in Long Island Sound (page 13)

The amount of nitrogen dumped into Long Island Sound and its tributaries affects oxygen levels in the water. Overall, Connecticut's share of the total nitrogen pollution in Long Island Sound is about one-third, and New York's is two-thirds. In April 2001, the federal Environmental Protection Agency approved the New York and Connecticut joint plan for implementing a Total Maximum Daily Load (TMDL). The TMDL is the maximum amount of pollutants that can be discharged while still allowing water quality standards to be attained. Connecticut's target for 2014 is 3837 tons (or less) per year. This indicator tracks the nitrogen discharged to the Sound and major rivers by 79 sewage treatment plants, 3 large coastal industrial facilities, and a group of industrial sources in the Naugatuck River watershed. Connecticut's investments in nitrogen-removal technology have been successful. The goal for 2004 was met three years ahead of schedule. The next milestone is a goal of 5505 tons (or less) in 2009. There are large uncontrolled quantities of nitrogen entering Long Island Sound in the rain that runs off lawns and pavement.

## Lobsters (page 14)

The lobster is the second most economically important marine species in Connecticut (behind oysters). This industry supports the highest number of commercial fishermen. The DEP samples lobster populations every autumn by towing nets from a research vessel at randomly selected sites throughout Long Island Sound. Researchers are focusing on a combination of four possible causes for the downturn since 1999: disease and immune response, changes in water quality, changes in climatic conditions, and human impacts to the Sound. Research to date suggests that a trend toward warmer water temperatures is a factor in the decline of lobsters. Cooler temperatures in 2003 may have allowed the lobster population to stabilize. The fall 2004 data, depicted in the graph, show a very slight increase, while the spring numbers (not shown) were the lowest in at least twenty years.

## Seafood Sampler (page 15)

The DEP samples marine fish and invertebrates every spring and fall by towing nets from a research vessel. This indicator includes lobster, squid, and 38 species of fish, and shows general trends in their collective populations. In 2004, half of these 40 species were above their long-term averages, which means they are increasing over the short term, while the remaining species are declining. Scientists are unsure of the reasons behind the fluctuations of the last few years. One possible explanation for the decline of some prey species is the recent population growth of striped bass and other predators.

## Clean Shellfish Beds (page 16)

Connecticut met its goal of having 60,000 acres open by the year 2000, which is far fewer acres than were open a hundred years ago. The primary impediments to opening more acres are the presence of sewage discharges and the need to conduct frequent monitoring to satisfy federal health-assurance requirements. Beds are counted as open when they are clean enough and monitored sufficiently. The dramatic increase in 1997 was attributed largely to a decade-long increase in the commercial value of Connecticut's harvest, which prompted investments in expansion. Expansion has been a cooperative venture of industry and state government. Water quality and monitoring improvements led to modest expansion in 1998 and 1999, even as the industry saw oyster stocks depleted by disease in 1998. The expansion of shellfish beds in 2000 reflects even greater interest in the oyster industry as some lobstermen, responding to declining lobster populations, switched to harvesting oysters. The slight decrease in 2003 reflected a 15-month moratorium on new leases and fluctuations in the acreage of private beds. In 2004 progress resumed, and many shellfish beds that were already open with restrictions were upgraded because of better water quality and monitoring. Aquaculture experts believe 80,000 acres is a realistic target.

## Reviving Tidal Wetlands (page 17)

Restoration includes work performed by the state as well as by coastal landowners required by the DEP to restore wetlands as conditions of their permits. Restoration acreage is counted only where tidal flow has been restored permanently, and does not include minor enhancements or simple vegetation management. Tidal wetlands are estimated to cover 17,500 acres of Connecticut, though no precise inventory has been completed. Connecticut's goal is to produce net increases in tidal wetlands acreage and function. In 2002, more than 100 acres were restored, mostly associated with the Connecticut and Quinnipiac Rivers. Restoration has been outpacing development: with the exception of 1995, less than one acre of tidal wetlands has been lost each year to permitted development.

## Ospreys (page 18)

Ospreys are fish-eating birds of prey that live throughout the world. Locally, they nest mostly along the shoreline of eastern Connecticut, with potential to nest inland along rivers and large lakes. They require ample food supply, secure nesting sites, and an environment low in certain chemicals, notably chlorinated hydrocarbons. The osprey's status in Connecticut is "special concern." Nesting adults are counted each year by the DEP. The osprey continues to rebound from its low point in the 1960s. Now, with fewer chlorinated hydrocarbons in the food chain, and after years of cooperative ventures to erect nesting platforms along the coast, nesting success continues at a rate sufficient to sustain positive growth. Several factors have led to the highest number of breeding ospreys in recent history: a record number of fledglings in recent years, installation of new predator guards on many nesting platforms, and a surge in breeding success at an area considered to be the stronghold of Connecticut's osprey population.

# Rivers and Reservoirs

## Sewage Overflows (page 19)

In fourteen Connecticut cities and towns, sanitary sewers were built in combination with storm sewers. During storms, these systems carry more water than their treatment facilities can handle, and a combination of storm water and untreated sewage overflows directly to the rivers and Long Island Sound. Several of these combined sewer systems have been completely or partly separated since 1990, reducing the impact of untreated sewage on rivers. The improvement in 2001 can be attributed to the completion of projects in the towns of Waterbury and Naugatuck. It also reflects greater precision in the DEP's data collection and analysis. Connecticut's goal is to eliminate the effects of raw sewage discharges from combined sewer systems. Progress is slow because of the extraordinary expense of separating the sewers.

## Drinking Water (page 20)

Every public water utility submits monthly quality reports to the Department of Public Health. This indicator shows the percentage of monthly reports that demonstrate full compliance, after weighting the reports to account for the number of people served by each utility. Though problems persist, they occur most frequently with small systems serving relatively few households. This indicator would show greater fluctuations if the larger systems failed to deliver good water. While no major water companies reported contamination problems in 2004, numerous smaller companies experienced problems.

# Human Health

## Breast Cancer in Connecticut (page 21)

Number of new cases per year per 100,000 women aged 50 to 54

Of every 100,000 women in the state aged 50 to 54, a number will discover each year that they have breast cancer. That number is depicted in this graph. To minimize year-to-year fluctuations, groups of years are averaged together. (In other words, each data point on the graph shows the number of new cases in a single year, but that year is actually the average of five to six years.) While some breast cancers are linked to genetic factors, most are associated with non-genetic factors including diet, reproductive history, lifestyle, and external agents. There are numerous hypotheses connecting certain chemicals to breast cancer. Other hypotheses point to different environmental causes, including nighttime lighting and proximity to nuclear reactors. These factors, if significant, do not appear to be as important statistically as a woman's own reproductive history, but it is important to note that breast cancer rates vary greatly in different parts of the country. Among the fifty states and Washington, D.C., Connecticut has the third highest incidence of breast cancer (Source: American Cancer Society). There is little doubt that some of the increase since 1980 is attributable to better detection methods. But better detection, which might save lives by allowing for earlier treatment, cannot be responsible for all of the apparent increase in new cases.

## Non-Hodgkin's Lymphoma (page 22)

Number of new cases per year per 100,000 residents aged 50 to 54

Non-Hodgkin's lymphoma is a cancer of the lymphatic system. It begins in the lymphoid tissue which contains lymphocytes, white blood cells that help the body fight infections. Lymphocytes travel throughout the body and can carry abnormal lymphocytes, spreading the cancer. The data for this indicator are from the Department of Public Health's Tumor Registry, which records all known cancer cases in the state. Non-Hodgkin's lymphoma has increased markedly since record keeping began. The reasons are not well understood, though the rise of Acquired Immune Deficiency Syndrome (AIDS) since the 1980s accounts for some cases. Several studies also cite environmental factors, including exposure to certain fertilizers, pesticides, and chemicals.

# Leading Environmental Indicators...

…illustrate trends in behavior or practices that can be expected to influence the condition of tomorrow's air, water, land and wildlife.

## Driving Our Cars (page 23)

Driving a car is probably the most environmentally harmful activity a Connecticut resident will engage in. Trucks and the increasingly popular sport utility vehicles cause even greater damages. Impacts are direct (air pollution, oil leakage, etc.) and indirect (stimulating demand for new roads). The Department of Transportation (DOT) estimates total miles driven each year in Connecticut. Nearly every year, the average Connecticut resident drives more miles than in the previous year. The reasons are complex and include the fact that most new development is accessible only by car.

## Taking the Bus (page 24)

Riding a bus is just one alternative to the negative environmental consequences of driving a car. Ridership data are collected by the Department of Transportation. There was a 10% decline in per capita bus ridership from 2001 through 2003. Improvements prior to 2002 were probably the product of better bus routing and the successful efforts of some companies to encourage transit use by employees.

## In Full Compliance (page 25)

This indicator shows the approximate percentage of inspections performed by the DEP that found the inspected facilities in full compliance with pertinent environmental laws and regulations. The downturn in 2002 was due to a large number of violations in one air quality program (Stage II Vapor Recovery at gas stations). Most other programs in the Air Bureau showed compliance rates greater than 90%, but more than 1,000 gas stations had Stage II violations, characterized by the DEP as mostly minor labeling and record-keeping deficiencies. Short-term downturns might not reflect serious problems if the long-term trend is toward full compliance. Overall, compliance rates have rarely exceeded 90%. The number of inspections conducted by DEP programs, other than air pollution control, have declined every year since 1997 (with the exception of 2000, when there was a minimal increase). Maintaining a fairly constant compliance rate in the face of ever-diminishing staff resources is a success for the DEP, but for the state as a whole it reflects a failure to advance toward the goal of full compliance.

## Recycling (page 26)

The General Assembly established a goal of reducing and recycling 40% of Connecticut's municipal solid waste stream by the year 2000; the DEP has calculated that this would require 33% of the waste to be recycled (with the other 7% disappearing through waste reduction). This goal was not met. The actual numbers shown in this graph are probably low, as some recycled materials, such as batteries and bottles returned for deposit, cannot be counted. In 2002, the DEP changed the way its data are calculated. In the past, numbers were based solely on annual municipal recycling reports. Now they are based on recycling facility market reports as well as the municipal reports. This more accurate data probably accounted for the increase in the statewide average. Looking beyond the fine points of the data, this indicator shows that progress appears to be halted.

## Climate Watch (page 27)

Certain gases in the air function like the glass of a greenhouse: they allow the sun's energy to pass through, then trap the heat that radiates from the ground. They often are called "greenhouse gases." Worldwide, a build-up of greenhouse gases is causing average temperatures to rise. Carbon dioxide is the greenhouse gas emitted in greatest volume, but it is not the most powerful. Methane and other less common gases have much greater ability to trap heat. In 2003, the Department of Environmental Protection and other organizations estimated Connecticut's emissions of all greenhouse gases for the years 1990 through 2000. The quantity of each gas was adjusted according to the strength of its greenhouse characteristics and then reported in a common unit, the Metric Ton of Carbon Dioxide Equivalents. By statute (C.G.S. 22a-200b), the next comprehensive inventory shall be completed by 2006.

A state law adopted in 2004 (P.A. 04-252) established goals for future greenhouse gas emissions: return to 1990 levels by 2010, cut back another 10% by 2020, and ultimately achieve a reduction of 75% to 85% from 1990 levels at a date still to be determined. The graph on page 27 shows the average Connecticut resident's share of greenhouse gas emissions. The goal line on the graph shows the reduction in the average resident's share of emissions that must be achieved if the 2010 goal is to be reached. Because there probably will be at least 300,000 more people living in Connecticut in 2010 than there were in 1990, the per capita emissions will have to go below 1990 levels to reach a total state emission level equal to 1990. Most of the carbon dioxide comes from the combustion of fuels in houses, businesses, power plants, and vehicles, and the last of these is the largest source. Connecticut is more energy-efficient than the nation as a whole, and the average Connecticut resident's contribution to global climate change is less than the average American's.

# Activities of the Council on Environmental Quality in 2004

## Solving Problems

The Council received more complaints than usual that required detailed and extended attention. In many cases, the Council succeeded in gaining enforcement or other necessary action from the appropriate agency. In others, the Council discovered chronic deficiencies in state programs or policies and recommended corrective action where the solution could be implemented by a state agency. The Council also is preparing a list of solutions that require legislation.

Examples of complaints examined in 2004 and early 2005 include:

- Violations of water pollution laws by a town that seemingly did not respond to the DEP's instructions.
- All-terrain vehicles disturbing a stream that feeds a drinking water supply reservoir.
- A local conservation association that believed it was shut out of negotiations regarding a permit for a dock in a tidal cove.
- Mowing native vegetation on publicly-owned tidal wetlands, an activity which is not regulated or prohibited by law.
- Sale of undeveloped state-owned land with no inspection of the natural resources that might have been present.
- From the owner of a pond, a discussion of state policies that might discourage him from maintaining the pond which has public benefits.

## Reviewing State Projects

Notices of all state-funded projects that are subject to the Connecticut Environmental Policy Act are published twice a month by the Council in the *Environmental Monitor*. Citizens as well as state and municipal agencies can subscribe for free to this on-line publication.

The Council reviews Environmental Impact Evaluations prepared by other state agencies and comments on many. The Council pays particular attention to proposed projects' consistency with the Conservation and Development Policies Plan and the analysis of alternatives.

Two examples of state-funded projects in 2004 that warranted detailed Council review and recommendations include:

- A grant from the Department of Environmental Protection to assist a town in expanding its sewer system into areas that the State Conservation and Development Policies Plan designates as not appropriate for sewers.

- Clearing of several acres of woodland to build tennis courts at a state university. There were alternatives and, ultimately, the courts were constructed at another location with fewer impacts to the environment.

### Listening to the Public

The public is always welcome to attend the Council's monthly meetings or to submit comments at any time. To solicit even more commentary, the Council holds public forums in different areas of the state where citizens and local officials can say what is on their minds. A public forum in Stratford in November drew citizens concerned about tidal cove conservation, the proposed Merritt Parkway trail system, energy grant availability, the liquefied natural gas facility proposed for Long Island Sound, and a host of other issues. The Council gathers much information about Connecticut's environmental challenges from these meetings and forums, as well as from guests who are invited to address priority topics.

### Reporting to the Public

Since 1972, the Council has reported annually on the status and trends of Connecticut's environment. The report before you is the second to use the new format launched last year. As comments have been generally favorable, it will be continued as funds allow. One new leading indicator (Climate Watch) was added this year, and a few more indicators will be added as the necessary data become available.

## CEQ MEMBERS

(Terms that began in late 2004 or 2005 are noted)

**Thomas F. Harrison (Chairman)** Resident of Avon. Partner in the Hartford-based law firm of Day, Berry & Howard LLP. Member and Chairman, Avon Board of Finance. Board of Directors, Connecticut League of Conservation Voters. Executive Committee and Past Chairman, Environmental Law Section, CT Bar Association. Board of Directors and Past Chair, CT Chapter, Air & Waste Management Association. Board of Directors, National Audubon Connecticut. Former Member, Advisory Council on the Environment, MetroHartford Chamber of Commerce. Environmental Professionals Organization of CT. Small Business Compliance Advisory Panel, CT Department of Environmental Protection. CT Environmental Forum. Adjunct Instructor of Environmental Law, Rensselaer Polytechnic Institute (Hartford Graduate Center). Former Member, Avon Inland Wetlands Commission.

**M. Howard Beach** Resident of Simsbury. Conservation Officer/ Zoning Compliance Officer, Town of Simsbury. Member, Simsbury Conservation / Inland Wetlands Commission from 1980 to 2004, Chairman from 1994 to 2004. Member, Board of Directors, The Farmington River Watershed Association. Life Member and past Board Member, Simsbury Land Conservation Trust. Founding Member, Farmington Valley Biodiversity Project. Member, Town of Simsbury Open Space Committee. In 2004, completed a Master's Degree in Environmental Law at Vermont Law School.

**John M. Mandyck** (appointed 11/04) Resident of West Hartford. Vice-President of Government and International Relations, Carrier Corporation. Has directed environmental sustainability programs and creation of China Stratospheric Ozone Protection Awards Program. Former Director of Government Relations for the Greater Syracuse Chamber of Commerce. Member, Board of Visitors, Syracuse University College of Arts and Sciences.

**Susan B. Mendenhall** Resident and Mayor of Ledyard and Four-Term Town Councilor. Member, Land Use/Planning/Public Works Committee. Former Member, Finance Committee. Council Liaison to Inland Wetlands and Watercourses Commission, Zoning Commission, Ledyard Emergency Planning Council. Former Council Liaison to Senior Citizens Commission, Economic Development Commission, Board of Education. Past Member, Board of Directors of The Connecticut Institute for Municipal Studies. Member, Property Tax Reform Commission. Former Stock Trader, Investment Corporation of Virginia. Former Tax Consultant. Member, Navy League.

**Earl W. Phillips, Jr.** Resident of Middle Haddam, village of East Hampton. Partner with the law firm of Robinson & Cole LLP and Chair of its Environmental Practice. Executive Committee, Environmental Section of the CT Bar Association. Member, past and present DEP Advisory Committees, including E-2000, Waste, and Water. Executive Steering Committee, CBIA Environmental Policies Council and Chairman of its Hazardous Waste Section. Multiple publications, including: *Brownfields Law and Practice: The Cleanup and Redevelopment of Contaminated Land*, CT Chapter (Matthew Bender), *Environmental Law Practice Guide,* Connecticut Chapter (Matthew Bender). Adjunct Instructor of Environmental Law, Wesleyan University, University of Connecticut, and Rensselaer Polytechnic Institute (Hartford Graduate Center). Former Chairman, Environmental Section, National Institute of Municipal Law Officers.

**Richard L. Sherman** (appointed 2/05) Resident of Mansfield Center. Architectural designer and construction manager of earth sheltered, passive solar and energy efficient residences. Former CEQ Representative to the Route 6 Advisory Committee (during previous term on CEQ). Charter Member, Transit Alliance of Eastern CT, and Citizens for a Sensible Six. Former Organizer, the Progress and Equity Partnership. Member of CEPA Working Group, League of Conservation Voters of CT. Former President, Northeast Chapter of ACLU-CT Board of Directors. Chair, Mansfield Transportation Advisory Committee. Former President, Mansfield Commonground. Member, Mansfield Planning and Zoning Design Review Panel. Former Chair, Mansfield Democratic Town Committee. Host and producer of the radio show, "A Distant Shore" on WHUS (91.7 FM, Storrs). Former Public Affairs Director of WHUS. Stopover host, American Tour de Sol solar electric car race.

**Norman VanCor** (appointed 2/05) Resident of Harwinton. Owner of Buy Safe Home Inspection, LLC. Served in United States Marine Corps in Viet Nam. Awarded the Navy Cross, Vietnamese Cross of Gallantry, and other decorations. Former Director, Yankee Energy in sales, marketing, government relations, communications. Founding member and President Emeritus, Quinnipiac River Watershed Association. Former member, Rivers Advisory Committee. Former Chairman, Southington Conservation Commission. Former host of radio program on environmental topics. Former President, Southington Water Works. Former member, Board of Directors of Operation Fuel. Active Pheresis donor at American Red Cross with over 31 gallons of whole blood and platelet donations. Volunteer Hunter Safety Instructor for the DEP Conservation Education Program. Certified Master Gardener.

**Wesley L. Winterbottom** Resident of West Hartford. Professor and Coordinator of Environmental Science and Toxicology, Water Management and Wastewater Programs, Gateway Community College. Instructor of Environmental Issues, Eastern Connecticut State University. Fulbright China Seminars Abroad Program Scholar. Fulbright-Hayes Fellow. Registered Professional Engineer. Diplomat, American Academy of Environmental Engineers. National Science Foundation Fellow Advanced Technology Environmental Education Center, University of Northern Iowa. ANSI/GETF Certified ISO 14000 Trainer. Faculty Advisor, Mt. Rainier National Park, Rocky Mountain National Park, Western Arctic National Parklands. Board Member, Northeast Partnership for Environmental Technology Education. President, Connecticut Consortium for Enhancing Learning and Teaching. Past-Director, Gateway Community College Center for Teaching Excellence.

## Former Members Who Served During 2004

**Donal C. O'Brien, Jr.** (Chairman through 9/04) Resident of New Canaan. Original charter member of Connecticut Council on Environmental Quality, 1971. Retired partner in the law firm of Milbank, Tweed, Hadley & McCloy. Former member, CT Council on Environmental Quality (1971-1976). Former member, CT Fish and Game Commission (1971-1972). Chairman, Governor's Task Force on Hunting and Public Safety (1992-1993). Chairman Emeritus, Board of Directors, National Audubon Society. Board of Directors, Waterfowl Research Foundation. Chairman, Board of Directors, Atlantic Salmon Federation. Founder, Director, Connecticut League of Conservation Voters. Former Vice-Chairman, Board of Governors, The Nature Conservancy. Former President, International Council for Bird Preservation. Founder and Chairman Emeritus, American Bird Conservancy. Chairman Emeritus, Quebec Labrador Foundation. Former Director/Trustee, Delta Waterfowl Foundation, CT Waterfowlers Association and Theodore Gordon Flyfishers.

**Kevin M. Case** (through 2/05) Resident of Winchester. Project Manager for the National Park Service National Rivers Program North. Past President, Rivers Alliance of Connecticut. President, Winchester Land Trust. Former Executive Director, Farmington River Watershed Association. Member Farmington River Wild & Scenic Coordinating Committee. Co-chaired Instream Flow Subcommittee of the State Water Planning Council.

**Susan D. Merrow** (through 1/05) Resident and former First Selectman of East Haddam. Incorporator, 1000 Friends of Connecticut. Member, Northeast Advisory Committee, Trust for Public Land. Member, Board of Directors, Connecticut River Watershed Council. Member, Board of Directors, League of Conservation Voters. Member, Sierra Club National Political Committee. Former President, CT Conference of Municipalities. Member, Advisory Committee, Eightmile River Wild and Scenic Study Committee. Member, Advisory Committee, Silvio Conte National Fish and Wildlife Refuge. Former President, National Board of Directors, Sierra Club. Author, *One for the Earth: Journal of a Sierra Club President.* Former Executive Director, Common Cause in CT. Former Co-Chair, CT Greenways Committee.

**Ann H. Sherwood** (through 1/05) Resident of Kent. Paralegal in the law firm of John V. A. Murray, P.C. Member, Board of Managers, Appalachian Trail Conference. Connecticut Coordinator, Appalachian Trail Conference Land Trust. Member, Trails Committee, Connecticut Chapter, Appalachian Mountain Club. Registered advocate, Office of Protection and Advocacy For The Disabled. Registered activist, Americans For Our Recreation and Heritage and the Appalachian Mountain Club. Member, Philips Academy Alumni Council. Former board member and President, Connecticut Association of Paralegals, Inc. Founding board member and past President, Springdale Neighborhood Association. Former Clubwide Conservation Chairperson, Appalachian Mountain Club (1998-2000). Former member, Conservation Program Committee, Advisory Board to Board of Directors, Appalachian Mountain Club. Former Member, Advisory Board, Cornerstone Bank. Former Member, Corporation of United Way, Stamford.

## COUNCIL ON ENVIRONMENTAL QUALITY

The duties of the Council on Environmental Quality are described in Sections 22a-11 through 22a-13 of the Connecticut General Statutes. The Council is a nine-member board that works independently of the Department of Environmental Protection (except for administrative functions). The Chairman and four other members are appointed by the Governor, two members by the President Pro Tempore of the Senate and two by the Speaker of the House. The Council's primary responsibilities include:

1. Submittal to the Governor of an annual report on the status of Connecticut's environment, including progress toward goals of the statewide environmental plan, with recommendations for remedying deficiencies of state programs.

2. Review of state agencies' construction projects.

3. Investigation of citizens' complaints and allegations of violations of environmental laws.

In addition, under the Connecticut Environmental Policy Act (CEPA) and its attendant regulations, the Council on Environmental Quality reviews Environmental Impact Evaluations that state agencies develop for major projects. The Council publishes the Environmental Monitor (http://www.ct.gov/ceq/monitor.html), the official publication for state project information under CEPA.

## COUNCIL MEMBERS

**Current Members**

Thomas F. Harrison, **AVON**
*Chairman*

Earl W. Phillips, Jr., **MIDDLE HADDAM**

M. Howard Beach, **SIMSBURY**

Richard L. Sherman, **MANSFIELD CENTER**

John M. Mandyck, **WEST HARTFORD**

Norman VanCor, **HARWINTON**

Susan Mendenhall, **GALES FERRY**

Wesley Winterbottom, **WEST HARTFORD**

Karl J. Wagener
*Executive Director*

**Former members who served in most or all of 2004**

Donal C. O'Brien, Jr., **NEW CANAAN**
*Chairman through 11/04*

Susan Merrow, **EAST HADDAM**

Kevin Case, **WINCHESTER**

Ann H. Sherwood, **KENT**

## Acknowledgments

The Council appreciates the work of its Executive Director, Karl Wagener, in drafting this report for review by the Council and preparing the final version for publication, and notes the valuable contributions of intern Hilary Peak (Wilson College). The Council also appreciates the assistance of the many people in the Departments of Environmental Protection, Agriculture, Transportation, and Public Health who provided data. The Council especially thanks the many citizens, businesses, and organizations who offered information and viewpoints to the Council throughout the year.

## Memo to Readers:

We would like to hear from you. Does this report give you the information on Connecticut's environment that you need? Is something missing?

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Find up-to-date information about Council meetings, forums and reports throughout the year at www.ct.gov/ceq. Sign up for e-alerts to receive announcements of all meetings, forums, publications, etc.

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