Environmental Quality in Connecticut

Council on Environmental Quality

2007 Annual Report

STATE OF CONNECTICUT
COUNCIL ON ENVIRONMENTAL QUALITY

June 10, 2008

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 2007.

As you know from previous reports, the Council uses a set of graphs, or environmental indicators, to chart long-term trends and yearly progress.

This year's report reveals a spectrum of one-year improvements and declines. The air in 2007 was the cleanest it has been in decades, with the notable exception of sunny summer days when ground-level ozone or fine particles (or both) violated health standards. On those same hot days, some of the state's oldest and most polluting power plants were started up to meet the demand for cooling. Connecticut must intensify its efforts to dampen spikes in electricity demand on those hot, hazy days. This is a realistic goal. With Executive Order 17 – requiring state agencies to purchase energy-efficient equipment – you committed the state to a leadership role in reducing the great amount of electricity that is wasted by inefficient air conditioners, refrigerators and other appliances on hot days. If other consumers follow, better air will be the result.

The report's review of long-term trends yields a clear conclusion: Connecticut residents will fail to meet several important environmental goals, including those for land conservation and waste recycling, unless we make a more earnest effort.

The Council looks forward to working on these challenges in the coming year. As always, the Council stands ready to provide you with any additional information or assistance that you might request.

Respectfully,

Thomas F. Harrison
Chairman

79 Elm Street, Hartford, CT 06106
Phone: (860) 424-4000 Fax: (860) 424-4070
http://www.ct.gov/ceq

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Up and Down, Trends Are Clearer

A review of 2007 reveals a typical year in Connecticut's quest for healthful air, sewage-free rivers, conservation of farms, fields and forests, and a sustainable future. In other words, results were mixed. But some clear facts can be distilled.

Connecticut continues to collect dividends from its stock of pollution control regulations:

- The air throughout most of the year was the best it has been in decades (p. 7). This success was tempered, however, by a greater number of summer days when ground-level ozone and fine particles violated the standards set to protect human health (p. 6).

- The amount of nitrogen discharged into Long Island Sound – the biggest cause of low oxygen levels in the depths – showed continued headway toward short and long term reduction goals (p. 15). This progress is the result of regulations, an innovative nitrogen credit trading program, and significant investments of state and local tax dollars. The anticipated improvement in oxygen levels has not fully materialized, though one can see subtle improvements within the monitoring data.

- Thirty bald eagles nested in the state (p. 21), a number barely imaginable fifteen years ago. Success has been the result of many factors but would not have been possible without regulations that prohibited the use of the insecticide DDT and similar toxic compounds.

Campaigns that require substantial capital funds are lagging:

- To meet its goal of conserving 21% of the state's landscape by 2023, Connecticut must secure more than 11,000 acres per year. In 2005 and 2006, the combined efforts of cities, towns, nonprofit land conservation organizations and the state preserved about 6,000 acres per year, and in 2007 only about 3,000 acres (p. 8).

- Farmland preservation has been on the uptick but still is not at the pace necessary to meet the state's goal (p. 10). If the preservation goal is not reached by 2050, it likely never will be.

- About eighty miles of rivers continue to receive overflows of raw sewage when it rains, the result of cities having been built with combined sanitary and storm sewers (p. 20). Separation of the sewers will take many years, even if the state's Clean Water Fund is funded adequately and continually.

- In March 2008, the Council estimated the total capital cost of meeting Connecticut's environmental goals. Its special report, *Dreams Deferred,* puts the annual need at about 340 million dollars per year from a combination of funds.

Progress is hard to find in most Leading Environmental Indicators (pp. 25-30), which are indicators that track current activities that in turn are expected to affect tomorrow's environment. Despite ambitious goals and substantial effort, Connecticut residents keep driving more miles every year (p. 25) and are not on track to meet goals for recycling (p. 28) or greenhouse gas emissions (p. 29). Compliance with environmental regulations rarely rises above 90 percent (p. 27). Without a turnaround in these leading indicators, achievement of Connecticut's goals will become increasingly difficult.

New Routes to Progress

Some problems seem universal and intractable. Rain, for example: the flow of rainfall over the ground washes harmful quantities of pollution into Connecticut's rivers and streams. More miles of state waterways are degraded in this way than by municipal sewage and industrial discharge pipes combined. Does this make the state's clean water goals hopelessly unattainable? Perhaps not. Waters can be improved by deploying a combination of better land-development techniques, filtering of urban stormwater, and more careful use of fertilizers and other potential pollutants on land. But these modern solutions usually require regulation, enforcement, ingenuity and – especially – greater awareness of the problem by virtually everyone. None of these will advance without more work by municipalities and the Department of Environmental Protection (DEP). But, as documented in the special report *Dreams Deferred* (see above), the DEP does not have enough staff to do everything required of it.

In 2007, the Council confirmed that the DEP can be effective in helping municipal commissions protect the local environment. Over the last several years, municipal inland wetlands agencies have become more protective of wetlands, as judged by how many acres they permit to be destroyed with each permit issued (p. 11, lower graph). Over that same time, the DEP has been conducting training programs for municipal wetlands agency members and staff. The Council sought to find out if there is a measurable connection between training and more protective regulation. Though each local wetlands agency is required by statute to have at least one member or staff person complete the training, state records show that many towns do not comply with this law. The Council compared the performance of the trained towns against the untrained ones, and found that agencies with trained members or staff allowed less wetlands destruction with each permit they issued. In other words, training saves wetlands. Yet the DEP has had only two staff persons to oversee the training and performance of 170 municipal commissions.

The Council concludes that modest investments in DEP staff, aimed at assisting municipalities in their environmental protection duties, would help to get the state toward its goals. For some of those goals, nothing else will.

Temperatures Rise, Air Conditioners Hum, Connecticut Gasps

A Note on Environmental Consequences of a Warming Connecticut

The average temperature in Connecticut during 2007 was cooler than 2006 but was above average and extended a long-term warming trend.

The warming climate makes Connecticut's task considerably more difficult: summer air, oxygen in the Sound, and lobster populations are all worse when the temperature rises.

Again the Council notes the effect of inefficient air conditioners on Connecticut's environment. According to the Connecticut Siting Council, residents appear to be conserving electricity throughout most of the year as its price continues to rise. On hot summer days, however, conservation seems to go out the window (literally, with millions of leaky windows in the state). To meet the demand for electricity for air conditioning, some of the state's most polluting power plants start up, worsening the air when it is already violating standards that were set to protect residents' health. According to the most recent data available (from 2006), nearly half of the air conditioners being sold in Connecticut are not ENERGY STAR labeled, which means they needlessly consume extra electricity and cause added air pollution.

Bottom Line

Connecticut generally is advancing toward its goals of healthful air, sewage-free rivers, a bountiful Long Island Sound and a protected green landscape. Some of the goal lines, however, are receding into a distant future and will never be reached without substantially greater capital investment and operational support of the DEP.

New This Year: Arrows

Above each environmental indicator on the pages that follow, readers will find an arrow that illustrates improvement (arrowhead up) or decline (arrowhead down) in environmental conditions. There are several variations of the arrow symbols, which are explained below.

The data for 2007 show a positive change from 2006. The one-year change in the enviroment is not always consistent with the long-term trend, which is displayed on the graph.

The same as above, but the most recent year for which data are available is earlier than 2007.

The data for 2007 show a negative change from 2006. The one-year change in the enviroment is not always consistent with the long-term trend, which is displayed on the graph.

The same as above, but the most recent year for which data are available is earlier than 2007.

The data for 2007 (or the latest year available) show a very small change, positive or negative, from the previous year.

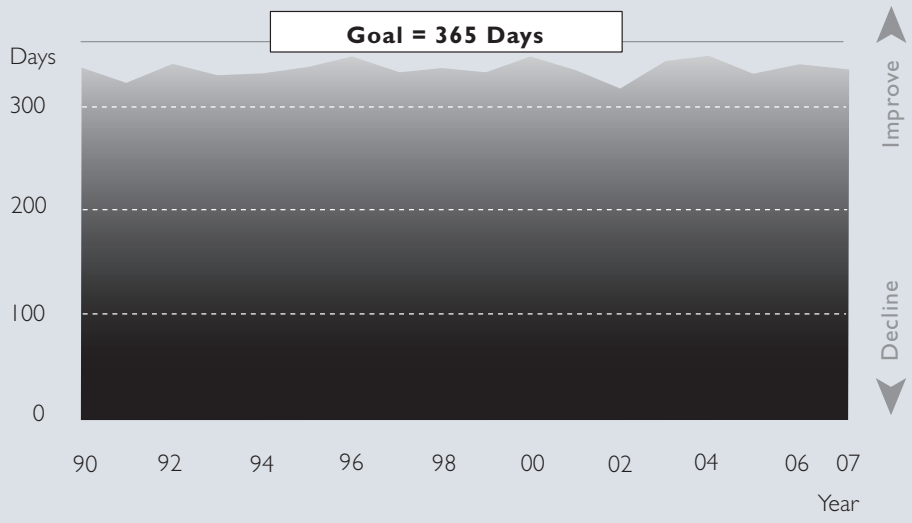
Connecticut is not on track to meet its long-term goal. This symbol is used for those indicators that, except in the most unusual circumstances, always will show some progress. ("Preserved Land" is one example.) It would be misleading to label the one-year change as "improved" if the progress is not sufficient to get the state to its goal by the established target date.

PART I: Indicators

Good Air Days

2007 Declined

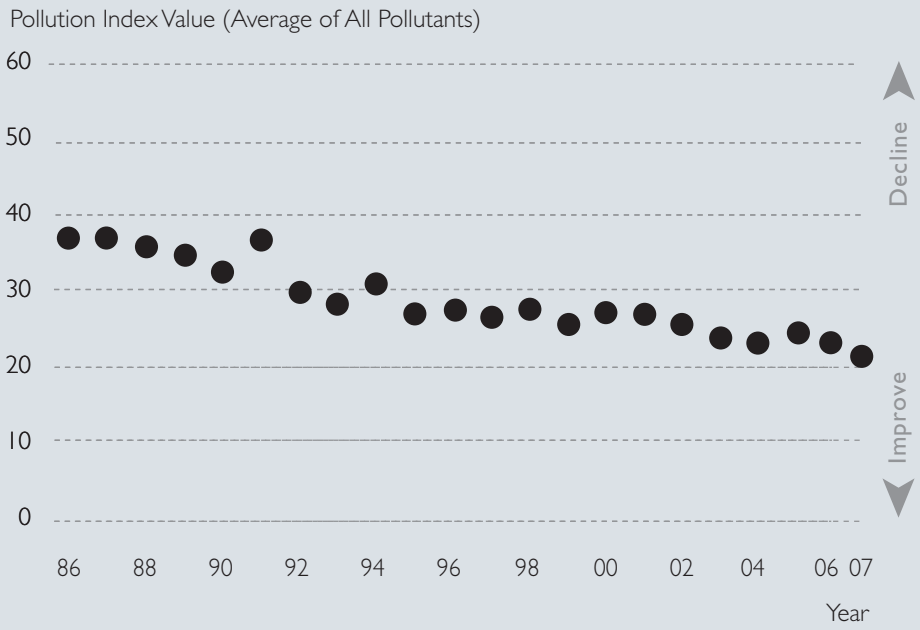
On 17 sunny summer days, levels of ground-level ozone violated the standard that protects human health. Fine particles also violated the standard on three of those days and on two winter days.



For more information about this indicator, including a change to the method used to calculate clean air days for 2002 through 2007, please see page 31

Clearing the Air

Connecticut's air in 2007 was the best in decades. Even though the summer had more bad air days (please see previous page), the air during most of the year was cleaner than usual.

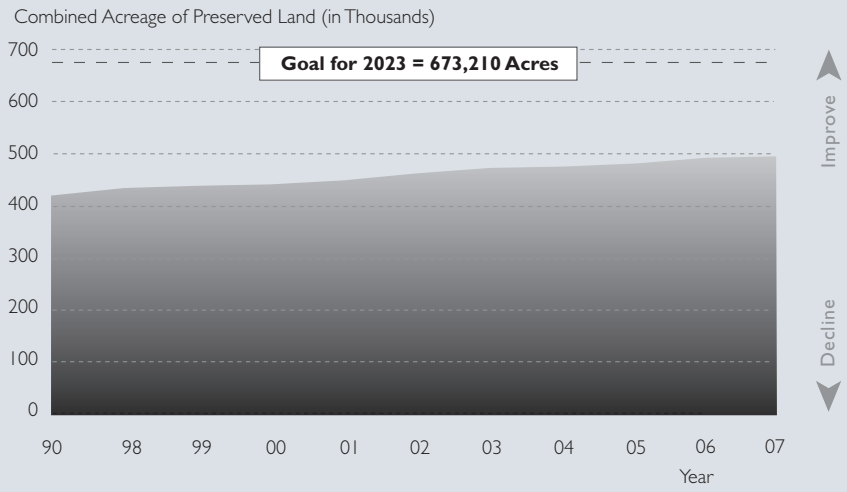


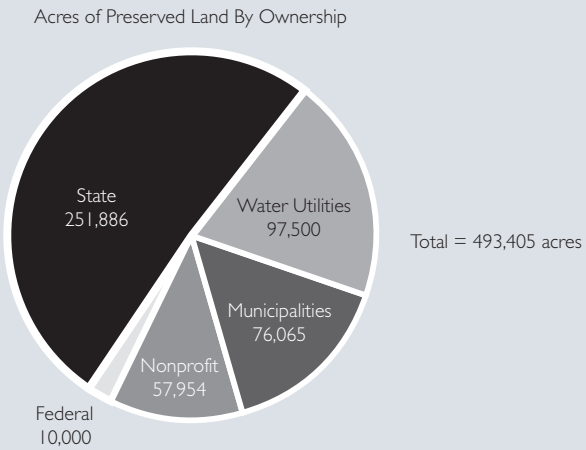
For more information about this indicator please see page 32

Preserved Land

Not on Track

It was a slow year for conservation, with fewer than 3,000 acres preserved by land-saving organizations, the state, cities and towns. To meet its goal for 2023, Connecticut must preserve more than 11,000 acres every year.



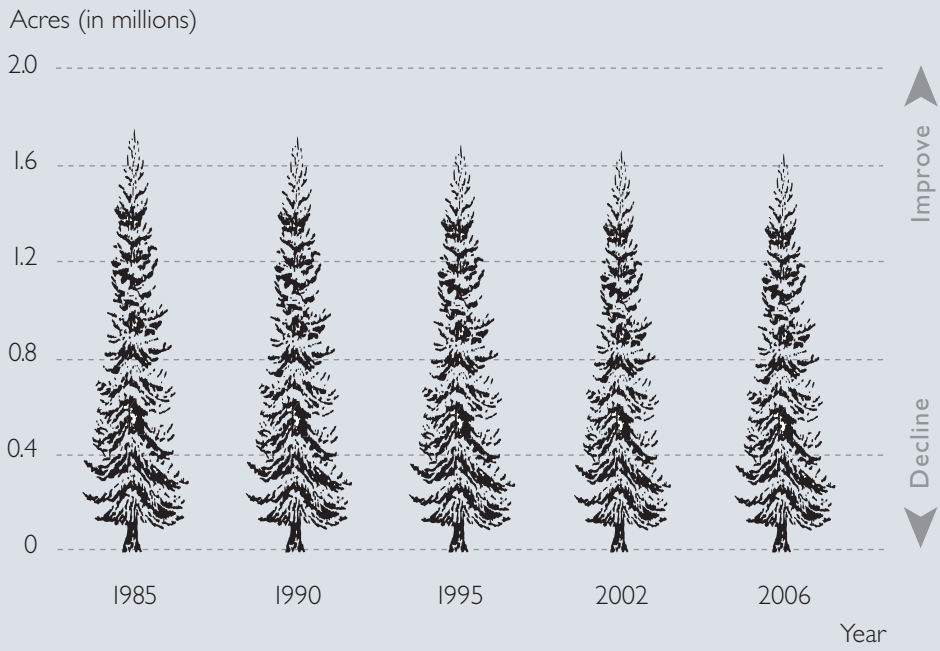


For more information about this indicator please see page 32

Forest

Latest Data Declined

After a century of growth and relative stability, Connecticut's forests have been shrinking for two decades.

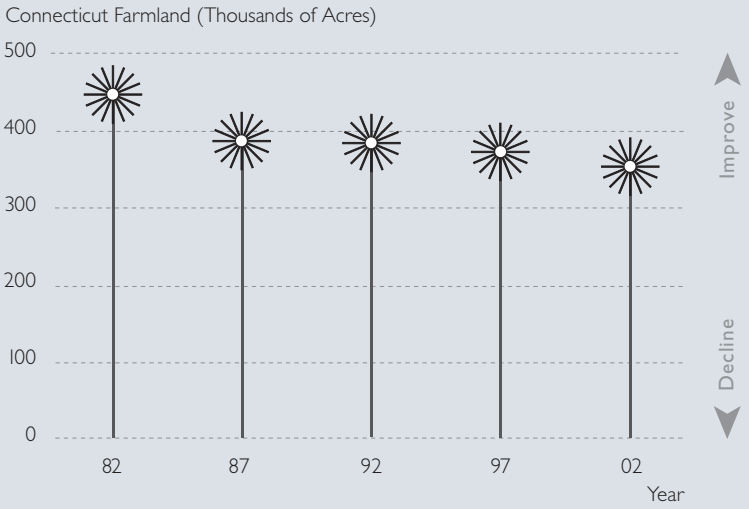


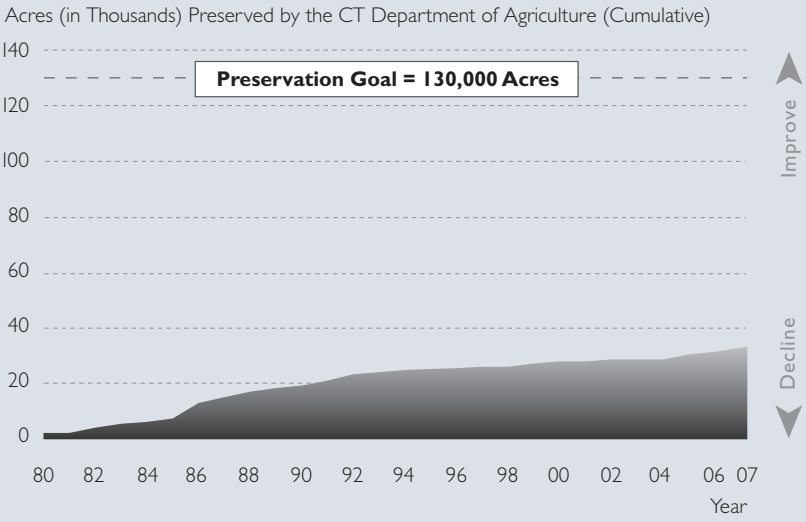
For more information about this indicator please see page 32

Farmland

Not on Track

Farmland preservation picked up in 2007, but was at half the pace needed to get Connecticut to its goal of preserving 130,000 acres.



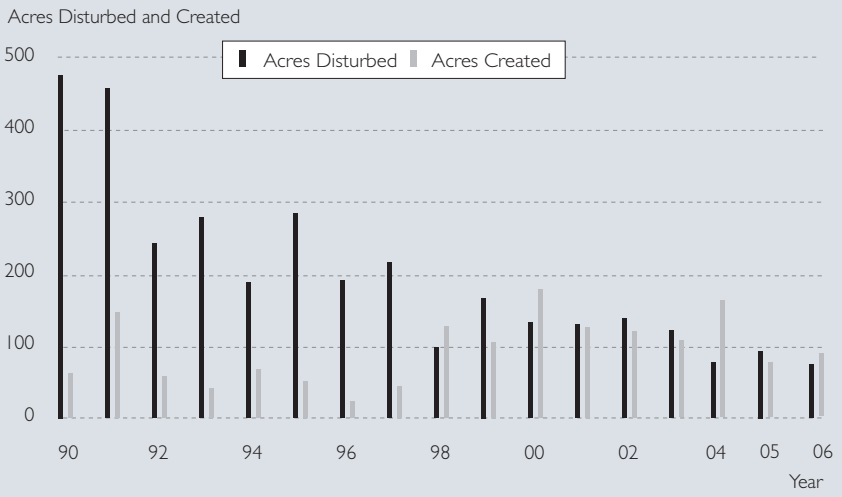


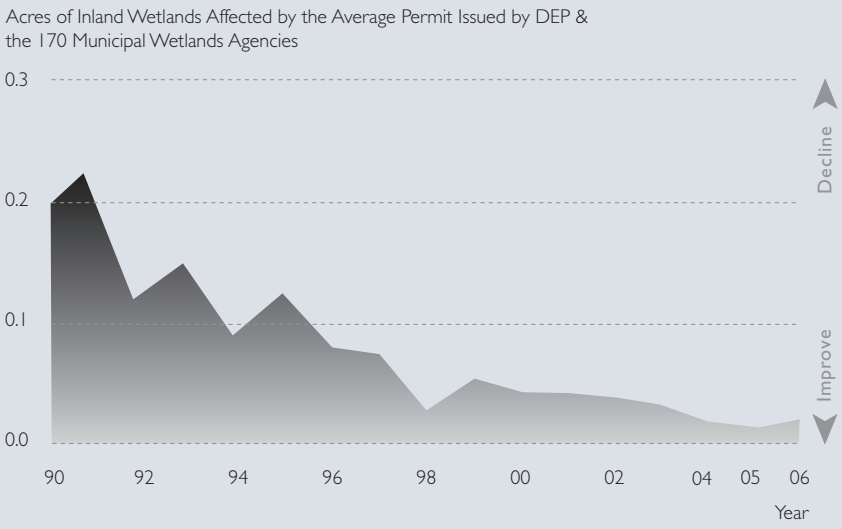
For more information about this indicator please see page 33

Inland Wetlands

No Change

Cities and towns have been permitting slightly less wetland destruction nearly every year since 2000.





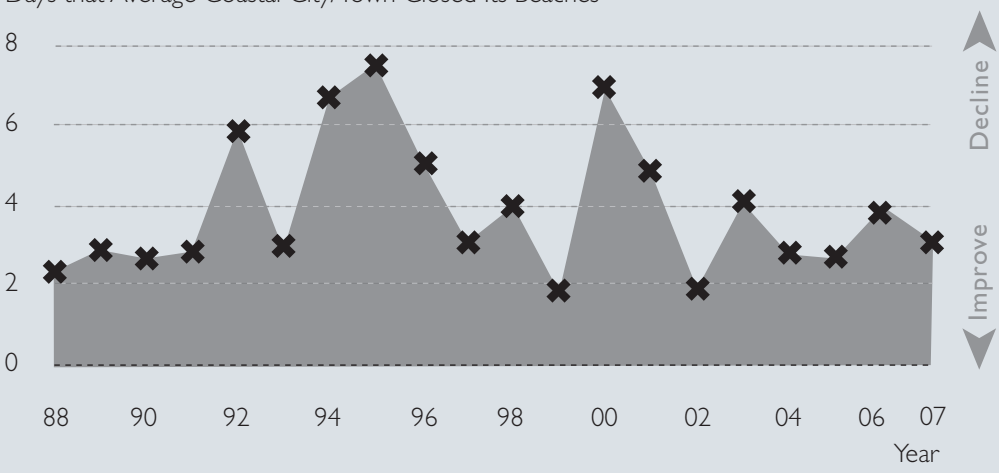
For more information about this indicator please see page 33

No Swimming at the Beach

2007 Improved

The average coastal town has had to close its beaches for three to four days in each of the past five years, usually because of pollution washed into the water by heavy rains. Most closing are in the western half of the state.

Days that Average Coastal City/Town Closed Its Beaches

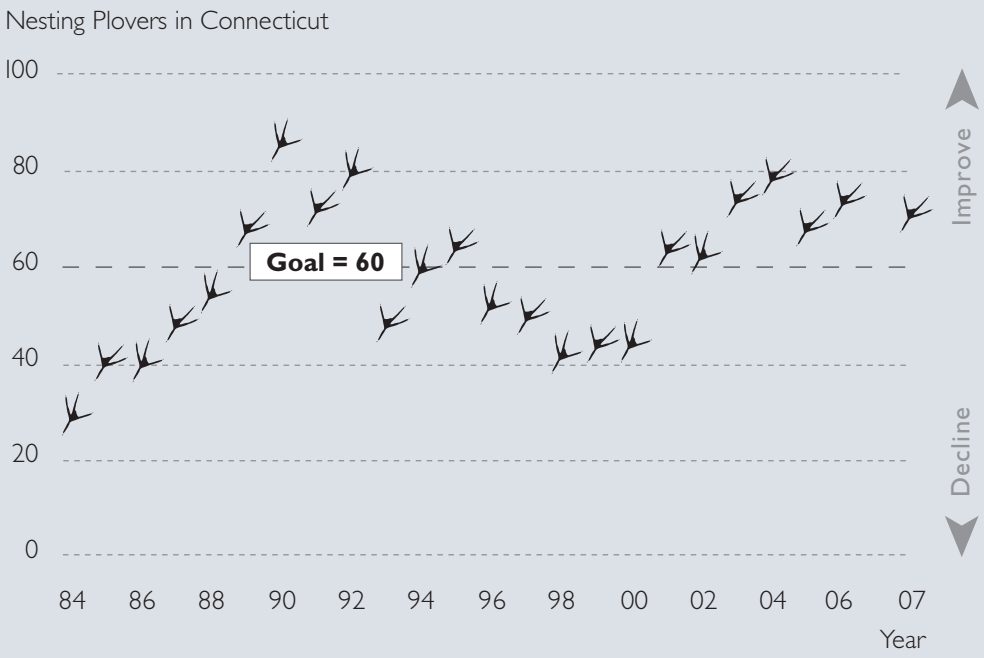


For more information about this indicator please see page 34

Piping Plovers on the Beach

No Change

Seventy-two of these small, threatened shorebirds nested on 14 coastal beaches, matching the average of the previous five years.

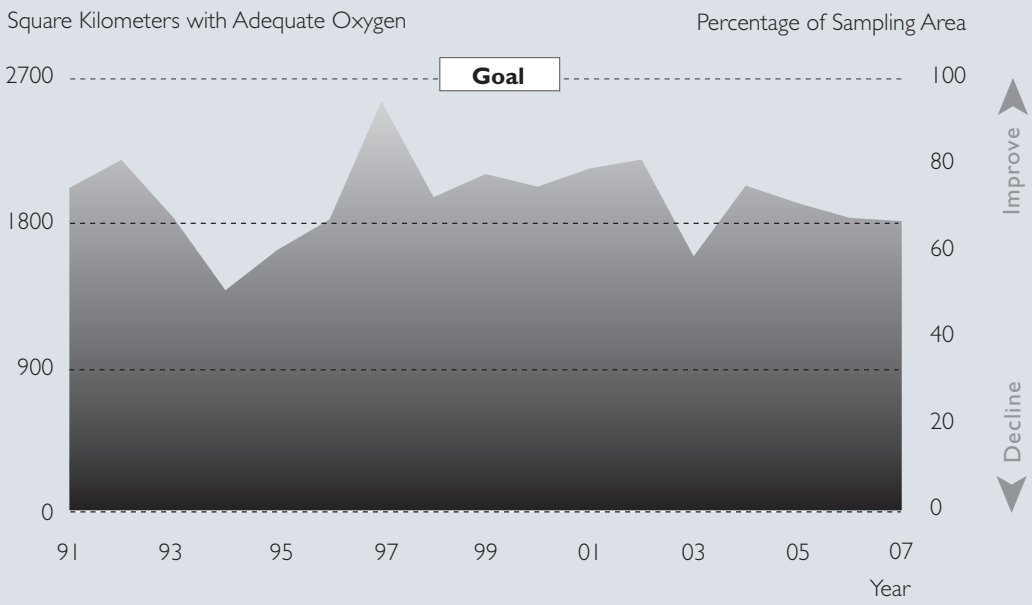


For more information about this indicator please see page 34

Oxygen in Long Island Sound

2007
Declined

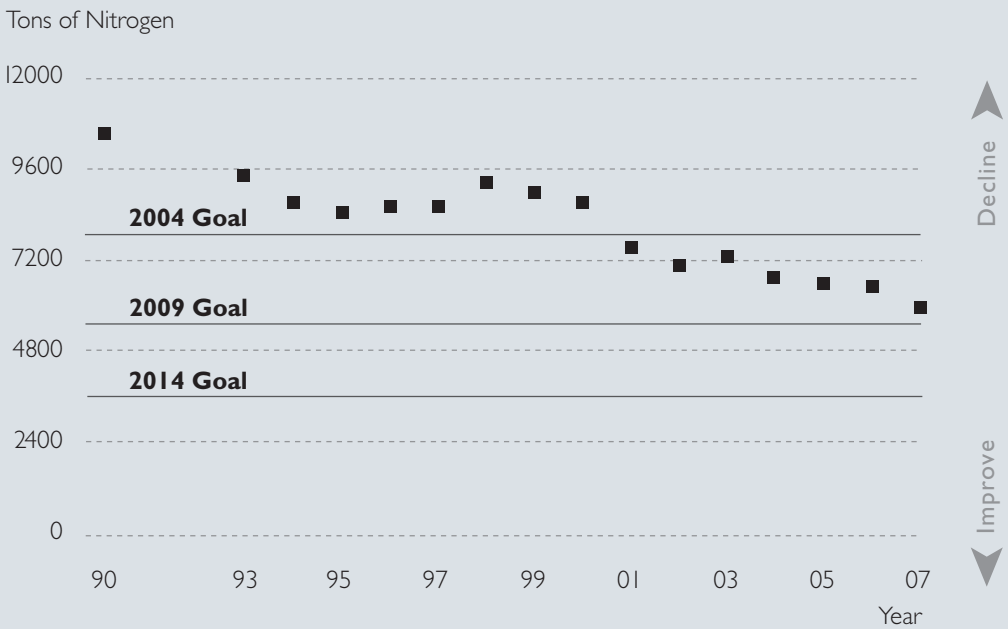
The area of western Long Island Sound affected by hypoxia (oxygen levels too low to support marine life) was slightly larger in August 2007 than in the previous summer.



For more information about this indicator please see page 34

Nitrogen in Long Island Sound

Connecticut's campaign to reduce nitrogen from sewage treatment plants and large factories has been going well.

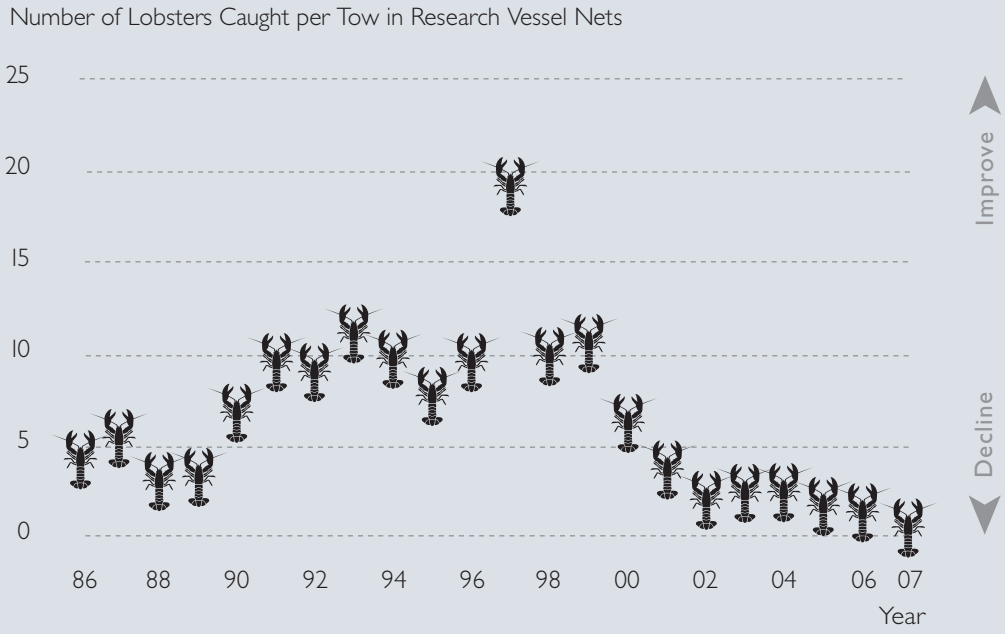


For more information about this indicator please see page 35

Lobsters

2007 Declined

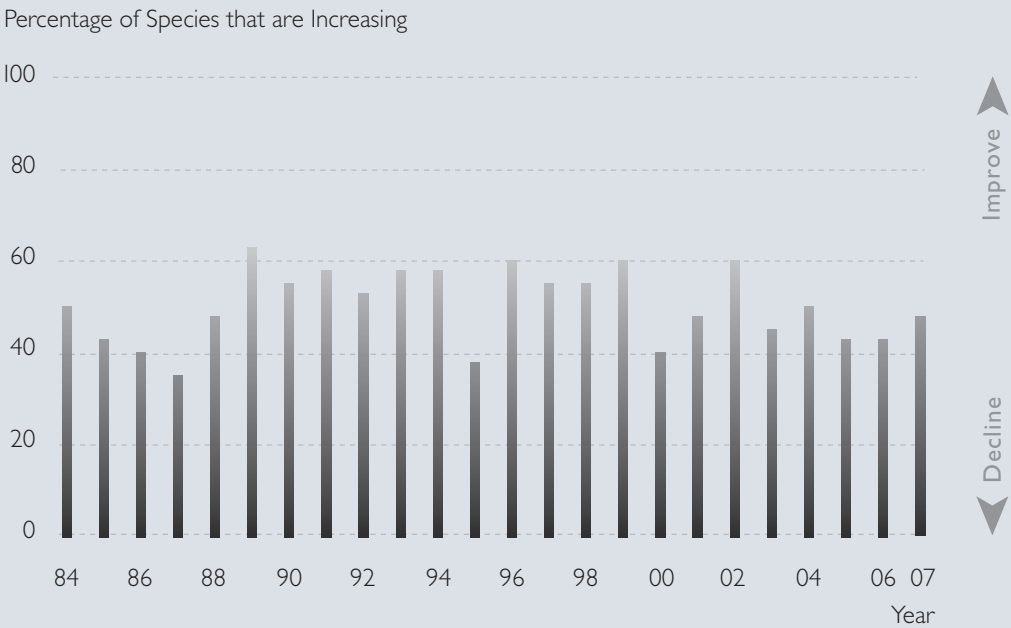
The lobster population of Long Island Sound hit another new low in 2007.



For more information about this indicator please see page 35

Seafood Sampler

Slightly fewer than half of the 40 marine species sampled in Long Island Sound were found to have growing populations in 2007.

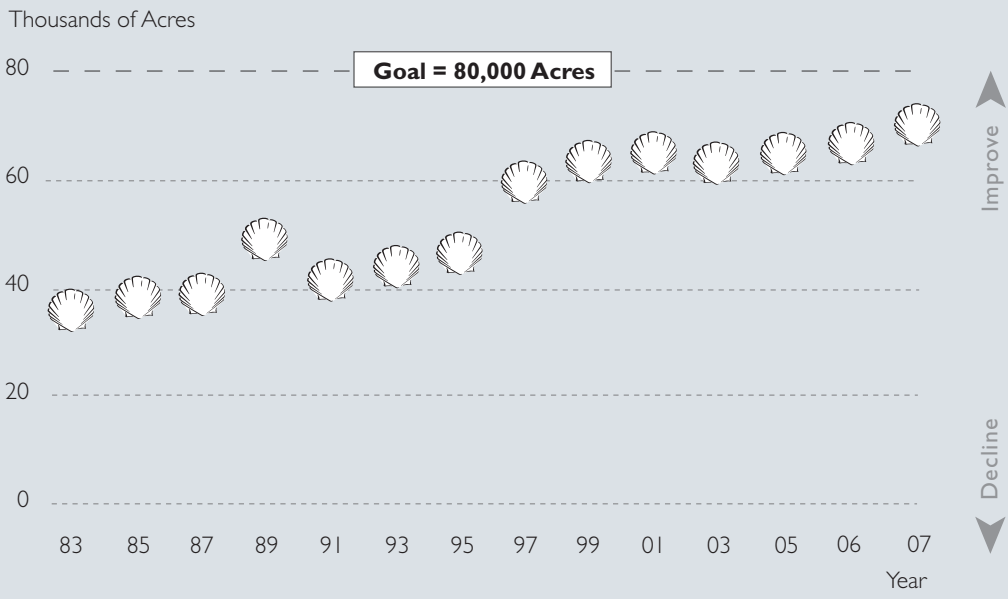


For more information about this indicator please see page 35

Clean Shellfish Beds

2007 Improved

The Town of Branford leased out several hundred acres of town-owned shellfish beds for the first time, helping to expand the total acreage available to commercial harvesters.

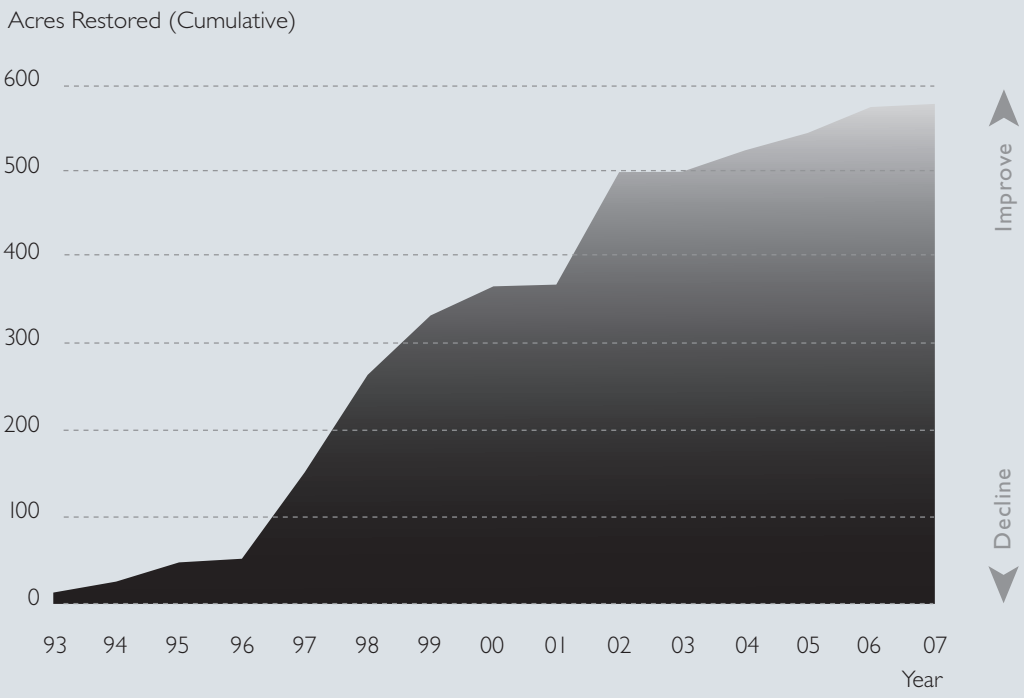


For more information about this indicator please see page 36

Reviving Tidal Wetlands

No Change

Each year, less than one acre of tidal wetlands has been lost to permitted development (not shown here), while on average more than 35 acres of degraded wetlands have been restored. Restoration slowed dramatically in 2007, however, as the relatively simple projects have been completed leaving the more complex ones to tackle.

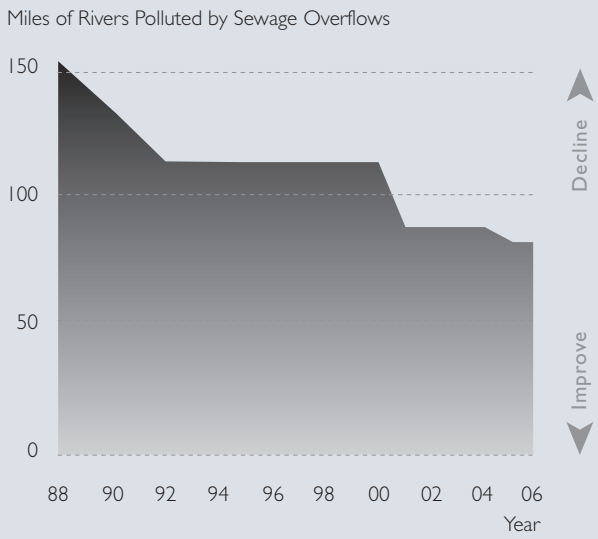


For more information about this indicator please see page 36

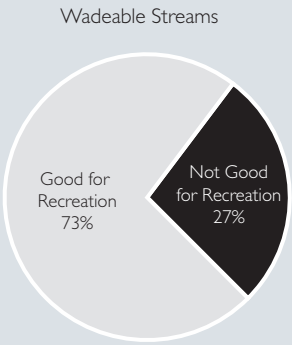
No Swimming in the River

No Change

About 80 miles of river still receive overflows of raw sewage during storms.



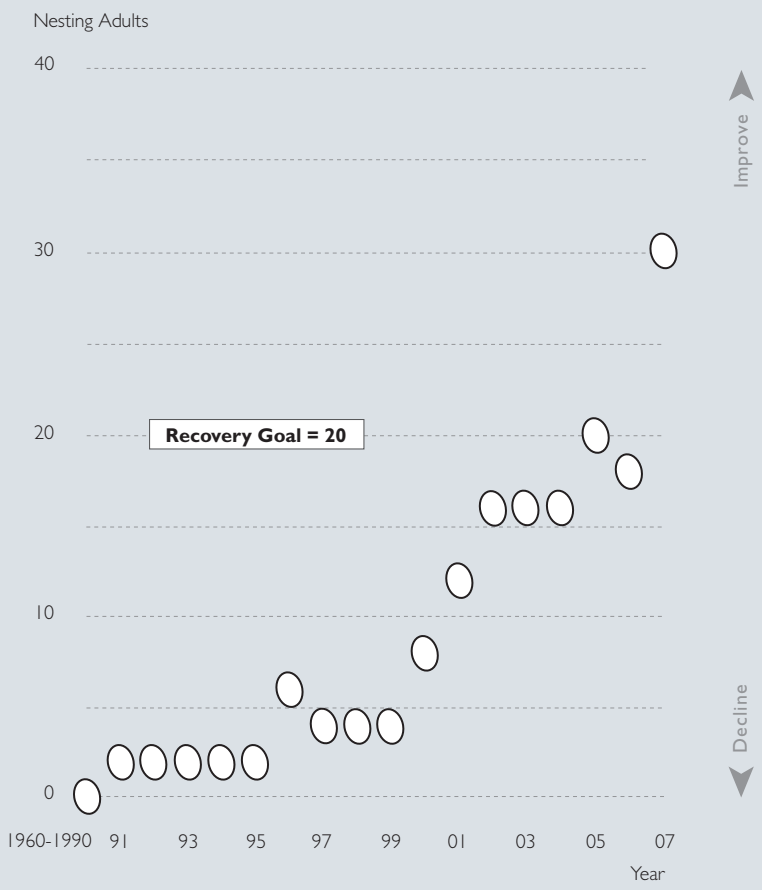
Throughout the state, about 73% of wadeable streams are clean enough for swimming, fishing and similar sports.



For more information about this indicator please see page 36

Bald Eagles

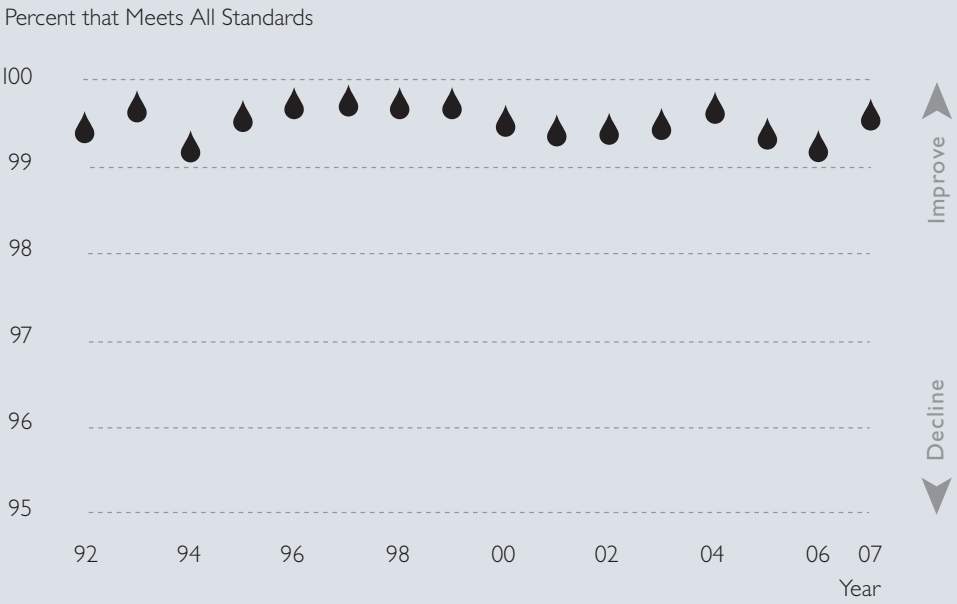
Bald Eagles have come back to Connecticut. The chemical pollutants that interfered with their reproduction have been controlled.



For more information about this indicator please see page 37

Drinking Water

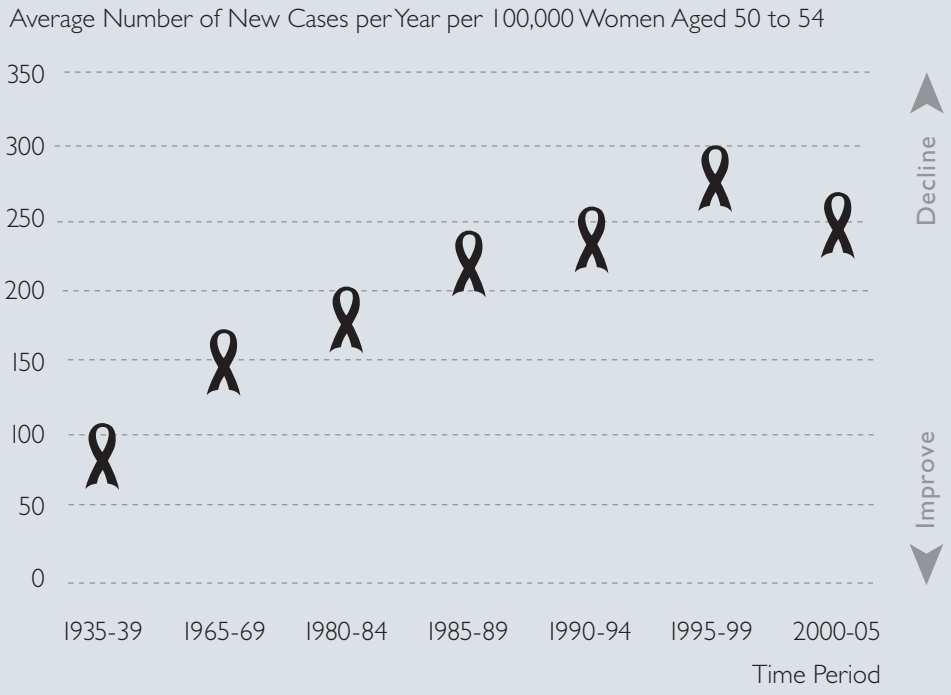
All of the large water companies delivered water that met all standards in 2007. Violations occurred only in small and a few medium-sized systems.



For more information about this indicator please see page 37

Breast Cancer in Connecticut

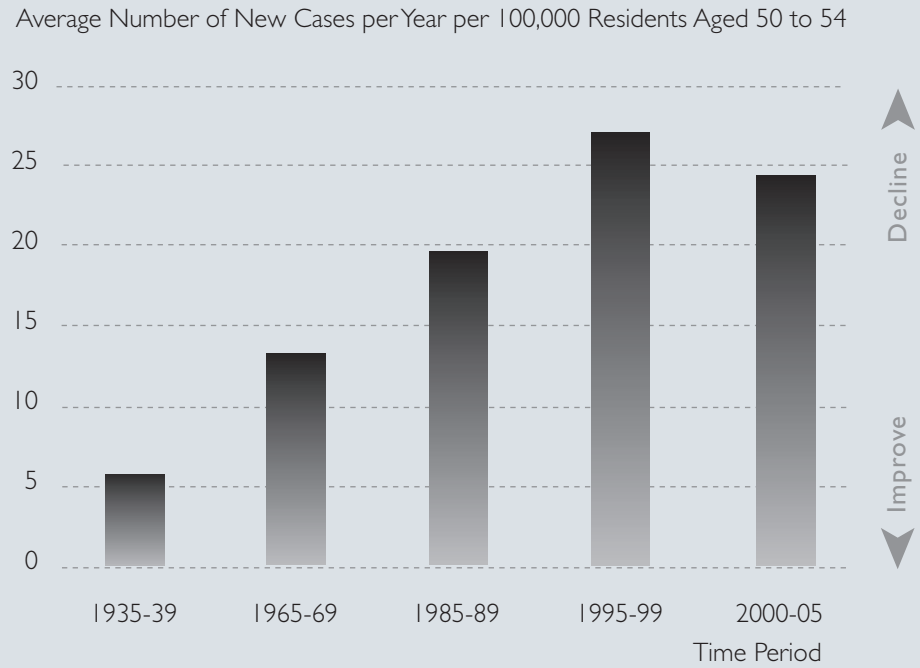
Connecticut has the third highest incidence of breast cancer among the 50 states, but has seen improvement since a peak in the late 1990s.



For more information about this indicator please see page 37

Non-Hodgkin's Lymphoma

The reasons for the steep increase in this cancer are not well understood, but many reports cite exposures to specific chemicals as potential factors.

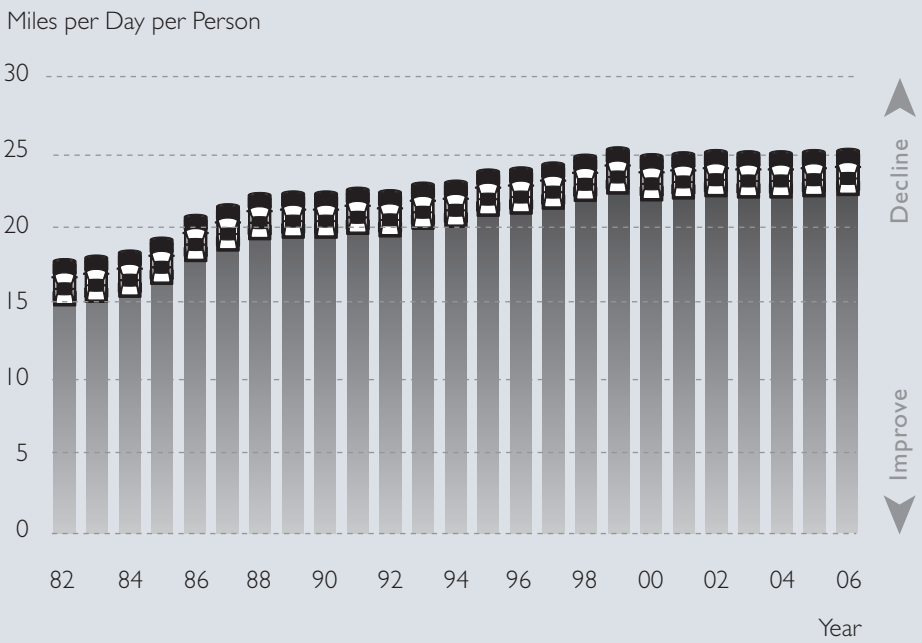


For more information about this indicator please see page 38

Driving Our Cars

Latest Data Declined

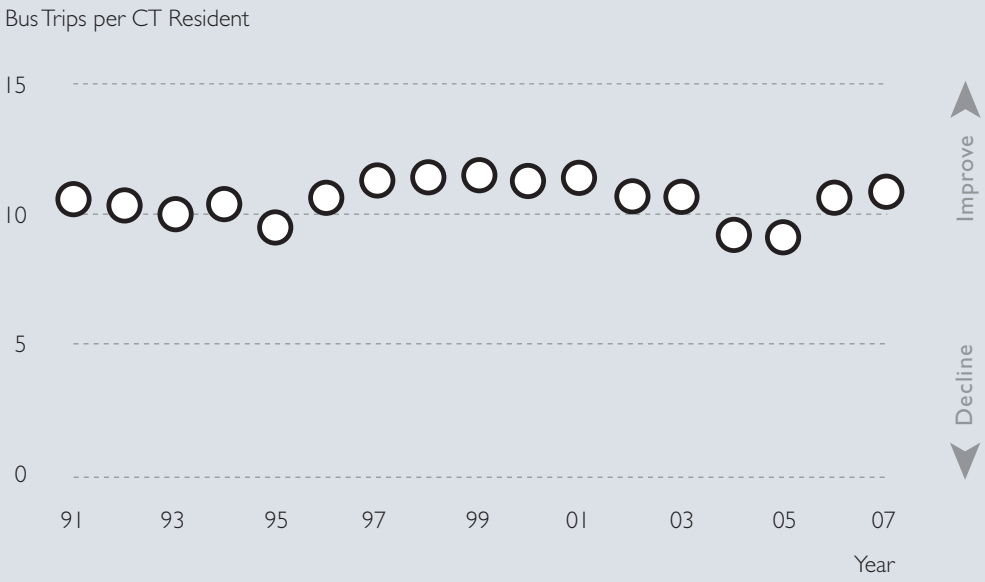
Nearly every year, the average Connecticut resident drives several more miles than he or she did in the previous year.



For more information about this indicator please see page 38

Taking the Bus

The average Connecticut resident took the bus a little more often in 2007.

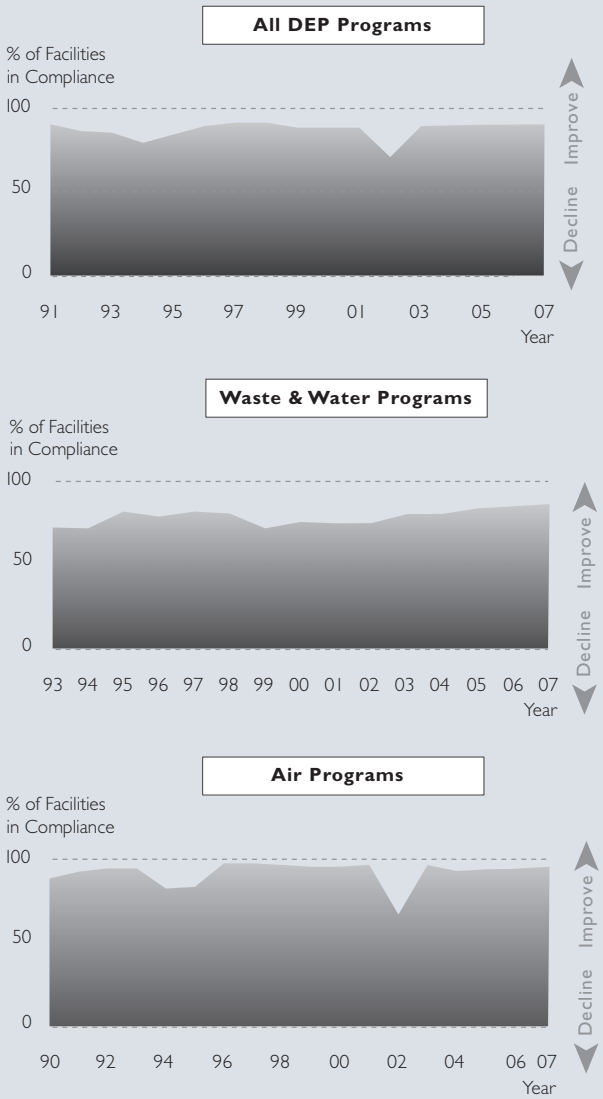


For more information about this indicator please see page 38

In Full Compliance

No Change

As usual, inspectors found about 90% of facilities in compliance with pertinent regulations. Inspections increased slightly again in 2007 after declining by more than 50% from 1997 to 2005 (not shown).

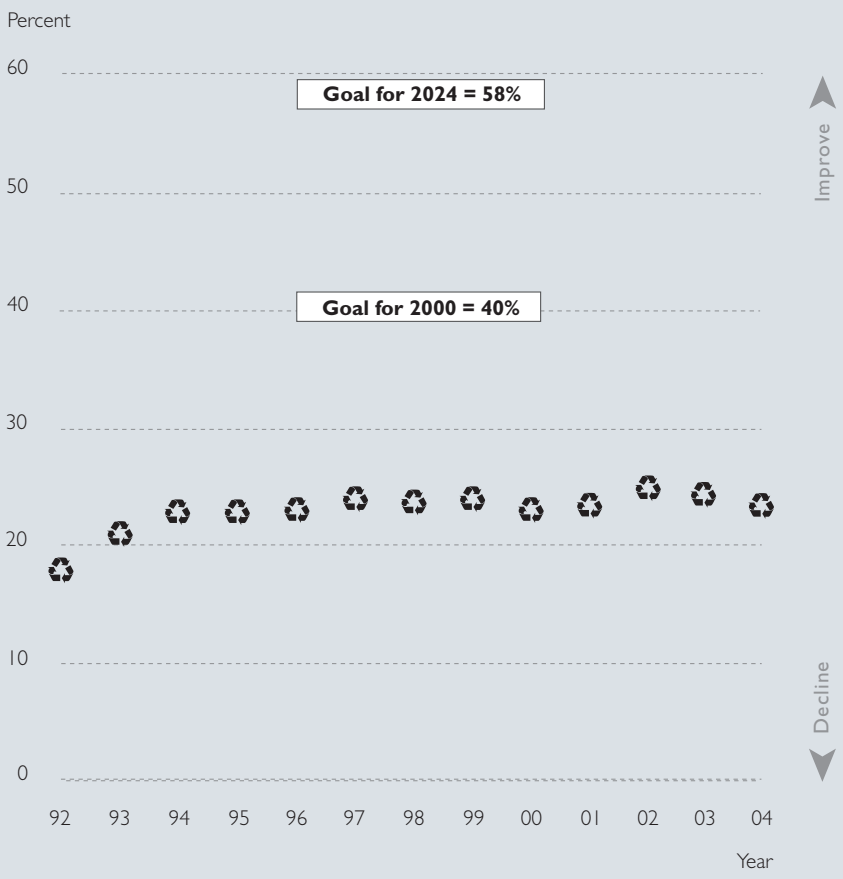


For more information about this indicator please see page 38

Recycling

Latest Data Declined

After failing to meet its goal for 2000, Connecticut set a more ambitious goal in 2006. More effort from everyone – individual residents, municipalities, schools, state agencies and the private sector – will be needed to reach the new goal.

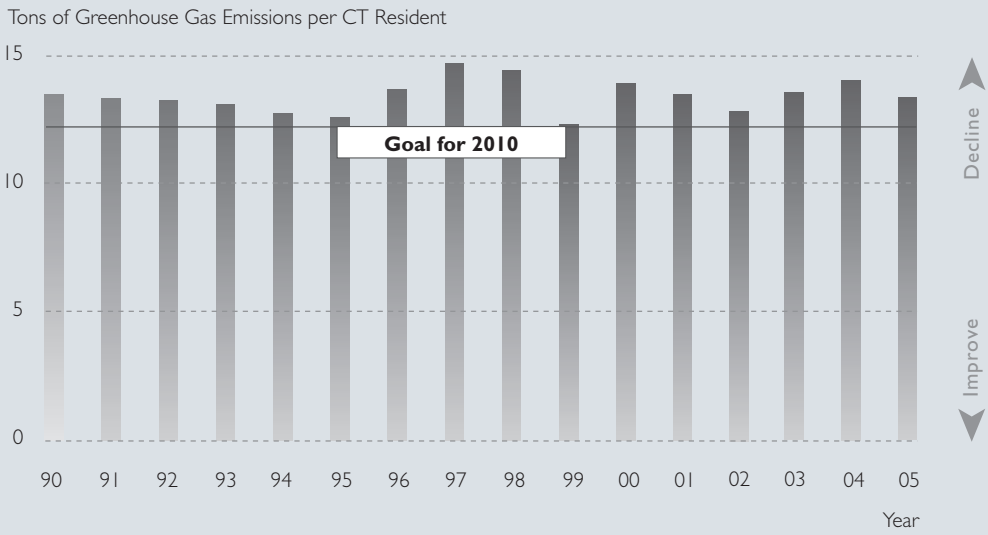


For more information about this indicator please see page 39

Climate Watch

Latest Data Improved

Connecticut residents reduced the pollutants, commonly called greenhouse gases, that trap heat in the earth's atmosphere. However, the trend of driving more miles every year (p. 25) threatens to undermine the overall effort to reach the goal.

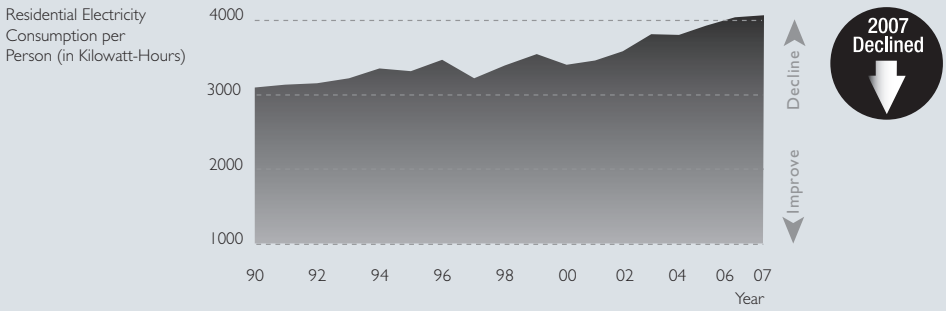


For more information about this indicator please see page 39

Electricity

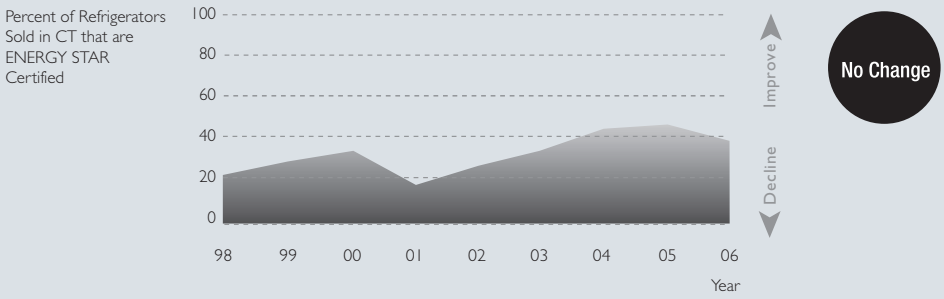
The average Connecticut resident uses more electricity every year.

Inefficiency at Home



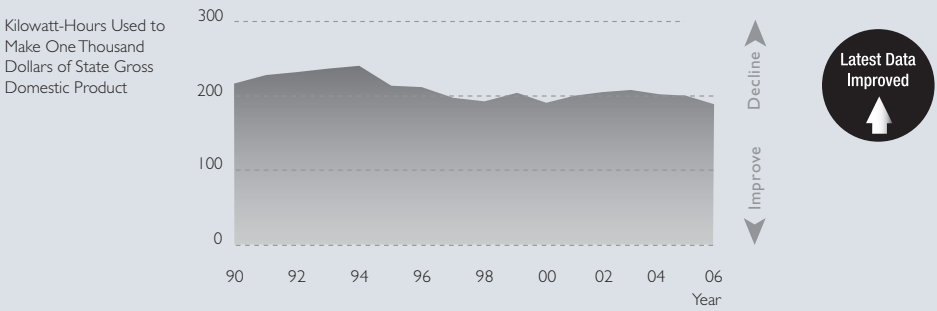
Most appliances bought in Connecticut are not the most efficient models.

Inefficiency in the Kitchen



For three years in a row, Connecticut businesses have used electricity more efficiently to produce goods and services.

Efficiency at Work



For more information about these indicators please see pages 40 - 41

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 6)

When every monitoring station in the state records satisfactory air quality for a full day, the Council counts that as a Good Air Day. "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, particles, nitrogen dioxide, and ground-level ozone. Connecticut's goal is to have air that meets health-based standards for all pollutants except particles by the year 2010.

Violations of the health-based air quality standards have been eliminated for all pollutants except ground-level ozone and fine particles.

Ozone is created during the summer when nitrogen oxides and organic compounds in the air react in the presence of sunlight. Weather is a big factor in year-to-year fluctuations. Motor vehicles remain a major source of ozone-forming pollutants despite reduction in tailpipe emissions. Much ground-level ozone originates in states to Connecticut's west. Looking at ground-level ozone data from the past six years, we see that 2005 was worse than average but that 2006, with 13 days when health standards were violated, was a little better than average. The 2007 ozone season, with 17 bad days, was average in duration but odd in some respects. No single town or city recorded more than eight bad ozone days. Most coastal communities, which during many summers have the worst air, saw fewer bad days than inland locations.

Fine particles, such as those found in smoke and haze, are 2.5 micrometers in diameter and smaller. These particles can form when gases emitted from power plants, industries and automobiles react in the air. Violations of the standard occur mostly in summer and winter, rarely in spring and fall. Connecticut must meet the new air quality goals for fine particles by 2015.

NOTE: The graph on page 6 was revised this year to reflect violations of the health-based standard for fine particles since 2002. In December 2006, the federal government tightened the daily standard for fine particles in the air. Monitoring data for 2002 through 2007 was reviewed to determine how many days would have seen "violations" of the new standard if that standard had been in effect. Between six and 16 days saw "violations" of this new standard in each of those six years. After accounting for the days that were already counted as bad because of ozone violations, these days of fine-particle violations were subtracted from the count of Good Air Days. On average, the graph now shows seven fewer Good Air Days for each year since 2002. The years prior to 2002 were not analyzed, and the graph was not changed for those years.

Clearing the Air (page 7)

Six air pollutants -- sulfur dioxide, lead, carbon monoxide, particles, nitrogen dioxide, and ground-level ozone -- are measured across the state by the DEP. At the end of every year, the Council expresses the average concentration of each pollutant on a numerical scale, where zero equals no pollution and 100 represents the "unhealthful" level of the specified pollutant. The Council then takes this annual number 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. Following several years of measurable improvement, 2005 was the first year since 1994 to see all of the pollutants (excluding lead) get worse. In 2006, all pollutants except particles showed improvement, and in 2007 all pollutants except ground-level ozone showed improvement.

Farm, Forest, Wetland

Preserved Land (page 8)

State law (C.G.S. 23-8(b)) sets a goal of conserving 21% of Connecticut's land area. The Green Plan, Connecticut's official land conservation plan, establishes 2023 as the target date. 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 (technically not part of the state's 21% goal, but nonetheless important to conservation of the landscape)

From 2000 through 2003, the pace of land preservation was sufficient to keep Connecticut on track toward its 2023 goal, but acquisition slowed in 2004 through 2007.

Forest (page 9)

Most of Connecticut's forests were cleared for agriculture and industry in the 19th century and then allowed to regenerate. From 1960 to 1980, the overall acreage of forest did not change much, even with the rapid spread of roads, housing and commercial development. According to the U.S. Forest Service, the spread of forests on abandoned farms equaled the conversion of forested land to other uses. The late 20th century brought a change, with forest acreage now declining.

This indicator shows the total acreage of forests in Connecticut that occur in patches larger than 50 acres. Property boundaries are not considered; a patch might be owned by one landowner or many. About 88 percent of the forested acres in Connecticut occur in these larger patches (i.e., those greater than 50 acres). By excluding the smaller patches we remove from consideration the many thousands of "forest" patches that are an acre or two in size. While wooded patches as small as one acre are counted by the U.S. Forest Service, these often are the trees in residents' back yards and cannot be considered fully functioning forests, and therefore are not included here. Data were produced by the Center for Land use Education and Research (CLEAR) at the University of Connecticut as part of the Connecticut's Changing Landscape Project (http://clear.uconn.edu).

NOTE: The source of forest data was changed. Beginning this year, the Center for Land use Education and Research (CLEAR) at the University of Connecticut provided data based on analysis of satellite imagery. With this report, all previous years' data has been changed to reflect CLEAR's historical data in order to make the data comparable across time. Readers' comments on this change are welcome.

Farmland (page 10)

The graph titled "Connecticut Farmland" shows the total acreage of land in Connecticut farms, as counted by the U.S. Department of Agriculture (DOA). The inventory is conducted every five years. The 2007 inventory is expected to show a loss of several thousand acres when the results become available in 2009.

To preserve land for future agricultural use, the state DOA purchases the development rights to farmland from volunteer sellers. This keeps the land in private ownership with severe restrictions on future nonagricultural development. After no farms were preserved in 2003, nine farms totaling about 1,100 acres were approved for preservation in 2004, six farms comprising 666 acres in 2005, eight farms comprising 968 acres in 2006, and 11 farms comprising 1,186 acres in 2007. Funds are mostly from state bonding and Public Act 05-228, the Community Investment Act. The latter is expected to generate up to five million dollars per year for agricultural programs including land preservation.

If the development and preservation rates of the last nine years continue, Connecticut will never meet its preservation goal. (The goal is based on the amount of land needed for food production needs, but non-food crops including potential biofuel crops could cause the goal to be raised.) Mathematical projections show the goal being reached in the late 22nd century, but by the latter part of the current century there will not be that acreage of agricultural land remaining in the state. Connecticut needs to achieve its goal of 130,000 acres preserved by 2050 or risk being too late. Preservation of 2,500 acres annually should result in success.

Inland Wetlands (page 11)

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 (when, for example, a shallow swamp is dredged to create a small pond). 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 wetlands applications received. However, the graph showing the "Area of Inland Wetlands Affected by the Average Permit Issued" indicates that wetlands agencies have also become more conservative since 1990. Municipal wetland agency members and staff have many more opportunities for state-sponsored training than they did in 1990, and research by the Council shows that training yields positive results. Many commissions have ignored the legal requirement to have at least one member or staff person complete training. More than 95 percent of the development activity in and around wetlands is regulated by municipalities with minimal oversight or supervision by the DEP.

The "no change" for 2006 (the latest data available for analysis) reflects a mix of slightly more wetland disturbance per permit and slightly less disturbance in sum.

NOTE: The data in the top graph underestimates wetlands loss. There are numerous municipalities that fail to submit reports of permit decisions to the DEP as required by law.

Sound and Shore

No Swimming at the Beach (page 12)

Connecticut's goal is to eliminate beach closing 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. Dry summers such as 2002 saw far fewer closings. Rainfall, sewage spills and boat discharges led to some beaches being closed for several days in 2006 and again in 2007, almost all in the western half of the state.

Piping Plovers on the Beach (page 13)

Piping plovers are small shorebirds that nest on sandy, vegetation-free beaches. 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, including least terns, which are also threatened in Connecticut. 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. Pairs tried five new locations in 2006 and used two of those again in 2007 along with a new site in Old Lyme.

Oxygen in Long Island Sound (page 14)

Hypoxia is a condition in the water when oxygen levels are too low to fully support desirable forms of life, including fish and lobsters. (For this indicator, hypoxia is defined as less than or equal to 3.5 mg/l of dissolved oxygen.) Hypoxia occurs when the nitrogen in pollution stimulates excessive growth of aquatic plants, which die and are consumed by oxygen-using bacteria. Connecticut's goal is to "eliminate the adverse impacts of hypoxia resulting from human activities." All of the hypoxia has occurred in the western two-thirds of the Sound. Weather greatly influences hypoxia, making year-to-year changes less important than long-term trends. 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-bearing runoff) early in the summer. A cool beginning to the summer of 2004 led to less hypoxia, and favorable weather led to another small improvement in 2005 (but see technical note, below). The first week of August 2006 saw a return of hypoxia to a larger area. The hypoxia of 2007 was not as severe (i.e., the oxygen levels did not go as low) but it lasted longer and affected a greater area.

To reduce the nitrogen inputs that cause hypoxia, Connecticut and New York adopted a comprehensive management plan in 1994, and built upon that plan with an expanded agreement in 2002. Connecticut's progress in reducing nitrogen pollution is illustrated in the nitrogen indicator (page 15).

Technical notes: The graph shows the area of Long Island Sound that had adequate oxygen levels throughout the year. The sampling area (2700 square kilometers) does not include the whole Sound (3400 square kilometers). The areas not sampled are shallow waters (less than two meters deep) near shore, which generally do not experience hypoxia; embayments; the eastern end of the Sound, which is not expected to experience hypoxia; and an area in the far western end, which probably becomes hypoxic in most years.

In 2004, the DEP redefined hypoxia to include waters with less than or equal to 3.5 mg/l of dissolved oxygen (replacing the older 3.0 mg/l standard). This year, the DEP recalculated all previous years' area data to account for the change in the standard. The areas of adequate oxygen displayed on the graph are the recalculated areas for all years.

Nitrogen in Long Island Sound (page 15)

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 3,837 tons (or less) of nitrogen 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 5,505 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 16)

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 dramatic downturn since 1999: disease, 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 an important factor in the decline of lobsters. While the lobster population appeared to stabilize in 2003, the autumn 2007 trawl yielded the lowest number in at least 20 years.

Seafood Sampler (page 17)

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 2006 and 2007, less than half of these species were as common as they were in the 1980s and 1990s. From 1984 through last year, the majority of species showed a decline. Scientists are unsure of the reasons behind the declines and fluctuations of recent years. One possible explanation for the decline of some prey species is the population growth of striped bass and other predators. There also appears to be a decline in some colder-water species as warm-water species increase.

Clean Shellfish Beds (page 18)

Connecticut met its goal of having 60,000 acres open by the year 2000, which are 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 reflected 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. In 2006, Branford began to lease out hundreds of acres of town-owned beds that had been closed. Aquaculture experts believe 80,000 acres is a realistic target.

Reviving Tidal Wetlands (page 19)

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. In 2005, about 40 acres were brought back to life (in Stratford and Old Saybrook); in 2007, just one acre. 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.

Rivers and Reservoirs

No Swimming in the River (page 20)

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. In 2005, the Jewett City project was completed, eliminating overflows of raw sewage into the Quinebaug River.

The pie chart illustrates the percentage of wadeable streams (that is, streams with perennial water flow and not too deep for a person to wade) that are estimated by the DEP to be clean enough for recreation that involves contact with the water. This estimate was derived from a sampling of streams around the state. Most streams are not monitored directly.

Bald Eagles (page 21)

Bald eagles stopped breeding in Connecticut in the 1950s. The species declined throughout the lower 48 states and was declared endangered in 1967. A variety of environmental conditions harmed the eagle, including the widespread use of certain chemicals (chlorinated hydrocarbons) that accumulated in its prey (mostly fish). When those chemicals were banned and polluted waterways were improved, the bald eagle was able to reproduce again. Young eagles were reintroduced into nearby states in the 1980s, and a pair found their way to Connecticut in 1991 and successfully raised a family in 1992. Many more pairs have since found acceptable nesting habitat on land protected by government and private landowners including utility companies. The DEP monitors the eagles with the assistance of the Bald Eagle Study Group and other volunteers.

The bald eagle is listed as endangered in Connecticut. The federal government removed the bald eagle from its list of threatened and endangered species in August 2007. The Northern States Bald Eagle Recovery Plan established a goal for Connecticut of 20 breeding birds (10 nests), which was reached for the first time in 2005. The population of bald eagles is included as an indicator because the eagle is representative of species, especially predators, that share similar habitat requirements: large areas of relatively undisturbed land near rivers or lakes where the birds can find adequate supplies of prey that are – very importantly – only minimally contaminated.

Drinking Water (page 22)

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 long-term 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. As in most years, most of the contamination problems of 2006 occurred in small systems, but a few short-term problems in larger systems caused this indicator to show a downturn for a second consecutive year. The pattern was similar in 2007 but showed improvement. The most commonly encountered contaminants included bacteria and byproducts of disinfection, with an assortment of other chemicals and radioactive substances.

Human Health

Breast Cancer in Connecticut (page 23)

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. (The council presents data on this one age group, rather than on the entire female population, to control for factors such as changes in the average age of the larger population; age 50 to 54 was selected as a representative age group and is used in each year's report.) 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 studies connecting certain chemicals and other environmental factors to breast cancer. 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. In 2000 through 2005 (the most recent years for which data are available), the rate of new cases showed improvement.

Non-Hodgkin's Lymphoma (page 24)

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. (Please see the note on the previous page, under Breast Cancer in Connecticut, about the use of the 50 to 54 age group.) 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. In 2000 through 2005 (the most recent years for which data are available), the rate of new cases showed improvement.

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 25)

Driving a car, truck or sport utility vehicle is probably the most environmentally harmful activity a Connecticut resident will engage in personally. Impacts are direct (air pollution, oil leakage, etc.) and indirect (stimulating demand for new roads). The Department of Transportation estimates the 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 private vehicle.

Taking the Bus (page 26)

Riding a bus is just one way to avoid the negative environmental consequences of driving a car. Ridership data are collected by the Department of Transportation. There was a 20% decline in per capita bus ridership from 2001 through 2005. Fares were increased in 2004 and 2005. Ridership rose about six percent in 2006, perhaps in response to high gasoline prices, and improved again slightly in 2007.

In Full Compliance (page 27)

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. (Monitoring data self-reported by permit holders are not included.) The sharp downturn in 2002 was due to a large number of minor violations in one air quality program (Stage II Vapor Recovery at gas stations). Short-term downturns might not reflect serious problems if the long-term trend is toward full compliance. Overall, compliance rates rarely have been better than 90%. The number of inspections conducted by the DEP has declined every year since 1997 with the exception of 2004, 2006 and 2007. The relationship between the number of inspections and rate of compliance is not clear. The num-

ber of inspections and the overall compliance rate rose slightly in 2006. Inspections increased again in 2007 but the compliance rate held steady. The stability of the compliance rate in the face of ever-diminishing staff resources might be regarded as a success for the DEP. However, some industrial sectors require fewer inspections than they did a decade ago because the number of active facilities has declined. Regardless of the relationship of compliance to inspections, the failure of the state to advance affirmatively toward the goal of full compliance is apparent.

Recycling (page 28)

The General Assembly established a goal of reducing and recycling 40% of Connecticut's municipal solid waste stream by the year 2000. This goal was never met, and the consequences have been enormous: hundreds of thousands of tons of waste are shipped out of state each year, putting thousands of diesel trucks on the highways for trips of many hundred miles.

In December 2006, the DEP amended the State Solid Waste Management Plan to include a goal of diverting 58% of Connecticut's municipal solid waste stream from disposal by 2024. This would be accomplished through recycling and composting. If this goal is met, Connecticut will be able to manage all of its garbage without exporting it.

Technical note: In 2002, the DEP changed the way its data are calculated. In the past, numbers were based solely on annual municipal recycling reports. They were changed to include recycling facility market reports as well as the municipal reports. This more accurate data probably accounts for the small increase in the statewide average that year. If some composting and non-reported recycling (such as bottle redemptions) were also counted, the number would be higher but still short of the goal. Because of staff reductions at the DEP, data for the years after 2004 are not available. Regardless of the fine points of the data, this indicator shows that progress appears to have halted.

Climate Watch (page 29)

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 contributing to the ongoing rise in temperature. 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 (DEP) 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.

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 29 shows the average Connecticut resident's share of greenhouse gas emissions. The goal line on the graph shows the level of 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.

There have been improvements in some emission sources since 2001, such as a reduced use of natural gas in commercial buildings, but those gains have been countered by sharp increases in fuel combustion in homes and vehicles. According to *Falling Behind*, a report published in March 2008 by the Environment Connecticut Research and Policy Center and the Clean Water Fund, home energy use increased substantially between 2001 and 2005 along with consumption of diesel fuel and gasoline.

Note: Just before this report went to press, the General Assembly adopted and Governor M. Jodi Rell signed An Act Concerning Connecticut Global Warming Solutions (Public Act 08-98), which revised the goals for greenhouse gas emission reductions. The new goals will be shown in next year's edition of *Environmental Quality in Connecticut*.

Electricity: Inefficiency At Home (page 30)

Connecticut households surpassed the commercial and industrial sectors as the greatest consumers of electricity in 2003. Residential electricity use has increased steadily since 2000, reportedly because of an increase in the typical square footage of new homes and increased use of consumer electronics and appliances, especially air conditioners.

On summer days, when residents turn on their air conditioners, electricity consumption increases substantially. On the very hottest days, Connecticut's basic power plants are unable to meet the additional demand, and older fuel burning plants are brought on line. Because they are used sporadically, many of these older plants are permitted to operate with more lax pollution control requirements. As a result, Connecticut residents generate the most air pollution on the hottest summer days when air quality is already bad.

According to the Connecticut Siting Council, many Connecticut residents have been using electricity more efficiently in response to the higher electricity prices of recent years, except during summer heat waves. The result has been a growth in peak summertime consumption – again, the time of greatest environmental impact – even as growth in year-round electricity use has been slowing.

The vast majority of the electricity consumed by Connecticut residents is generated by nuclear energy or the combustion of oil, coal or natural gas. Each has its own negative environmental consequences. Residents' demand for electricity is projected by utilities and state agencies to increase substantially in coming years, even though much of what is delivered to homes is used to power inefficient appliances.

Electricity: Inefficiency in the Kitchen (page 30)

In a typical home, the refrigerator consumes more electricity than any other appliance. (Central air conditioning uses more but is not in everyone's home). To be labeled ENERGY STAR efficient, a refrigerator must operate using at least 15% less energy than the federal standards for household appliances set forth by the U.S. Department of Energy. It also must use 40% less energy than 2001 conventional refrigerator models.

ENERGY STAR appliance sales are tracked state by state by ENERGY STAR for each quarter. In 2006 (the most recent data available) approximately 40% of refrigerators bought by Connecticut consumers were ENERGY STAR efficient. This percentage had increased from 2001 through 2005 but dropped in 2006. In the last ten years, more than 250,000 ENERGY STAR refrigerators have been sold in Connecticut.

In Connecticut, trends have been similar for other ENERGY STAR appliances including clothes washers (48%) and dishwashers (94%), though the percentages of those appliances sold in 2006 that were ENERGY STAR labeled were much greater than for refrigerators. Air conditioner trends were similar, but in 2006 only a little more than half were ENERGY STAR efficient.

Public surveys show conclusively that most people are aware of the ENERGY STAR label and what it means, so reasons other than awareness must be addressed to boost ENERGY STAR labeled products and stem the ongoing waste of electricity in homes.

The ENERGY STAR program was created in 1992 as a joint effort of the U.S. Environmental Protection Agency and the U.S. Department of Energy to identify and label energy efficient products. By consuming less electricity, ENERGY STAR products help to reduce air pollution and greenhouse gas emissions.

Electricity: Efficiency at Work (page 30)

This indicator shows trends in the efficiency with which Connecticut's economy uses electricity to make goods and services. Connecticut generally produced more goods with less electricity from 1995 to until 2000, when the trend reversed for three years, then reversed again, favorably, in 2004.

State Gross Domestic Product (GDP) represents the total amount of goods and services produced within a state in a single year. Payment to employees constitutes about 60% of the GDP. In 2006 (the most recent data available), Connecticut's GDP was $176 billion (in 2000 dollars), a 2.4% increase from the previous year, while electricity consumption decreased for the second straight year. In other words, the economy used electricity more efficiently; more efficiently, in fact, than it had in decades, demonstrating that with advances in energy efficient technology it is possible for Connecticut's economy to grow while using less electricity.

Activities of the Council on Environmental Quality in 2007

Research and Reports

In last year's annual report, the Council stated that most of Connecticut's environmental goals were within sight. "With significantly more effort," the report concluded, "Connecticut will succeed. With current effort, it will fail."

As a follow-up, the Council analyzed the capital investments that will be required to meet the state's goals for sewage-free rivers; conservation of farms, forests and beaches; and a sustainable future where materials are recycled and energy is used efficiently. The Council published its analysis as a special report, *Dreams Deferred*?, in early 2008.

The special report also analyzed trends in the staffing and operational demands of the DEP. The Council embarked on this research in part because it found, following its investigations of individual complaints, that deficiencies in the DEP's operations – from parks management to inland wetlands oversight to wastewater treatment regulation and enforcement – almost invariably could be traced to inadequate staffing. The Council found that the DEP spends no more state taxpayer dollars on day-to-day operations, after adjusting for inflation, than it did in 1972. The Council issued a set of recommendations for improving the operational capacity of the DEP and for a more detailed analysis of staffing requirements.

Reviewing State Projects

The Council is charged by statute to advise state agencies on their construction projects. Generally, the Council does this when it reviews the Environmental Impact Evaluation for a capital project, or in response to complaints such as those raised below.

The Council was surprised to receive two Environmental Impact Evaluations in 2007 for projects that would use state funds to aid commercial development on more than 100 acres of prime agricultural land, including active farms. Since 1983, state law has required all such capital projects to be reviewed and approved by the Commissioner of Agriculture prior to release of funding by the State Bond Commission, but these projects had not been reviewed. The Council discovered that the Small Town Economic Assistance Program (STEAP) is unique among state grant programs in that projects are not reviewed for agricultural impacts prior to the decision to provide state funds. The Council recommended legislation in 2008 that would make STEAP grants consistent with all other state programs.

Because of the Council's long-term concern that the state's ongoing effort to conserve open space land is moving too slowly to meet state goals, the Council spent considerable time recommending major changes to the DEP's 2007 draft of The Green Plan: Guiding Land Acquisition and Protection in Connecticut 2007-2012.

Complaints

Connecticut residents who encounter problems with state environmental programs are encouraged to bring their complaints to the Council on Environmental Quality. The Council is charged by statute to investigate these complaints and is further charged to identify deficiencies in state environmental programs and to recommend legislation for correcting them. The numerous complaints of 2007 led to much Council action, including:

- Transfers and exchanges of state land were the subject of several complaints in 2007 and prior years, but two recent corrective actions might prevent such problems in the future. In January, citizens told the Council that a controversial development proposal in Madison had been aided by the DEP's granting of an easement across state park land. The Council investigated and found that, indeed, in 2000 the DEP had granted a larger access easement to the private property in exchange for a conservation easement on a small area in the rear of the

property. The transfer did not meet the requirements of the DEP's own Land Exchange Policy which had been adopted in 1990. Commissioner of Environmental Protection Gina McCarthy responded to the Council by saying that she would update the Land Exchange Policy and elevate it to the level of a directive. At press time, this directive was nearly complete.

The General Assembly and Governor M. Jodi Rell also took action, through adoption of Public Act 07-213, to make sure that the state will not transfer land out of its ownership without public notice, public comment and, if warranted, a review of the natural resources present on the property. The new law applies to most property transfers except those specifically ordered by the General Assembly. Public notices will appear in the Environmental Monitor published by the Council.

- Inland wetlands are a perennial source of complaints. In 2007, the Council continued to follow the DEP's response to a 2005 complaint about unpermitted filling of wetlands and watercourses in Farmington. From this response, the Council learned that the DEP is not staffed adequately to fulfill its oversight role as mandated by the Inland Wetlands and Watercourses Act. Fortunately, the federal government required restoration of the Farmington property.

  The Council hears repeatedly that municipal wetlands agencies desire more assistance from the DEP. However, the DEP has only two staff people to oversee wetlands regulation across the state, and they must put a priority on training local commission members and staff. The Council learned that many municipalities ignore the law that requires them to submit notices of all decisions to the DEP. Many also ignore the statutory requirement to have at least one commission or staff member complete the DEP's wetlands training program. In 2007, a Council intern analyzed the statistical differences between the decisions made by local commissions that had trained members or staff and those that did not. Commissions with trained members or staff permitted less destruction of wetlands, on average, than those without. Despite these benefits of training, the DEP is not presently equipped to expand training and other services to municipalities. The Council has estimated that at least six staff positions are needed to oversee and assist municipalities.

- Advanced wastewater treatment plants, which are designed to receive, treat and discharge sewage from dense development where no sewers are present, have been the focus of scrutiny. After investigating complaints from citizens, the Council concluded that changes are needed in the DEP program that regulates such systems. The application fees are far too small, the program is underfunded, and the DEP has not had enough staff to review, inspect and take enforcement action against these systems.

- A large-scale composting facility proposed by the University of Connecticut in Mansfield generated complaints, and the Council invited university officials to discuss the plans at a public meeting. The university is reevaluating the siting criteria and searching for alternative locations.

- A telecommunications tower proposed in Woodstock prompted the Council to exercise its statutory authority to submit comments to the Connecticut Siting Council. The Council recommended that alternative locations be sought which would not affect the scenic value of Black Pond, which has a shoreline that is largely undeveloped and includes a state forest and public boat launch. Since that time the Council has received other complaints about towers, which continue to proliferate.

- The Council also heard concerns about uncontrolled wood smoke, pharmaceuticals in wastewater, the use of used tire particles in synthetic athletic fields and other potential pollution problems that could affect human health.

The Word From Southington

The Council periodically holds public forums in different parts of the state to learn what environmental topics are most on residents' minds. The information presented at these forums has been extremely useful to the Council.

In May 2007, the Council heard from citizens and municipal officials at the Southington Town Hall. State assistance in preserving open space and farmland topped the list of concerns. This is consistent with the results of virtually every forum held by the Council across Connecticut over the past nine years. Residents also raised sprawl as a major concern. In fact, almost all of the other concerns, from affordable housing to siltation of waterways to bicycle safety, were related to this broad concern about land use and development. Citizens raised questions about their towns' abilities to regulate inland wetlands and watercourses, a concern that also is heard at every forum. Also, the underfunding of several specific DEP programs was raised, as it often is at these forums.

The Council heard many concerns from people across the state. The Council worked to address them all, and truly appreciates the efforts people made to bring environmental problems to light. The Council looks forward to helping citizens and agencies solve new challenges in 2008.

CEQ MEMBERS

Thomas F. Harrison Resident of Avon. Retired partner of the Hartford-based law firm of Day Pitney LLP. Chairman, Avon Board of Finance. Board of Directors, Connecticut League of Conservation Voters Education Fund. Executive Committee and Past Chairman, Environmental Law Section, CT Bar Association. Board of Directors and Former Chair, CT Chapter, Air & Waste Management Association. Former member of Board of Directors, National Audubon Society/Connecticut. Environmental Professionals Organization of CT. 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 & Zoning Compliance Officer / Planning Analyst, 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, 1999 to 2004. Member, CT Developers Council. Member, Government Affairs Committee, Simsbury Chamber of Commerce. In 2004, completed a Masters Degree in Environmental Law at Vermont Law School.

Bruce R. Fernandez (Appointed 12/07) Resident of Farmington. Technical and Marketing Executive and Entrepreneur. Former President and CEO of insurance software and energy efficiency companies, including AMS Rating Group, Savage Rating Services, and BTU's Inc. Served in United States Army Corps of Engineers as small unit commander; served in Viet Nam and ten years in Army Reserves.

John M. Mandyck Resident of West Hartford. Vice-President of Government and International Relations, Carrier Corporation. Directs public policy and environmental sustainability activities on domestic and international levels. Former Director of Government Relations for the Greater Syracuse Chamber of Commerce. International Advisor to the China Green Building Council.

Susan B. Mendenhall (Served through 11/07) Resident and Mayor (through 11/07) of Ledyard, former Four-Term Town Councilor. 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 and Utility 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 (15 years), CBIA Environmental Policies Council and past 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). Past 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 Sherman Resident of Chaplin. 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. Member of Peoples Action for Clean Energy (PACE) and Northeast Sustainable Energy Association (NESEA). Former 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 d'Sol solar electric car race.

Norman VanCor Resident of Harwinton. Owner of Buy Safe Home Inspection, LLC, and Mizzentop Antiquities. Served in United States Marine Corp in Viet Nam. Awarded the Navy Cross, Vietnamese Cross of Gallantry and other decorations. One of first ten inductees to CT Veterans Hall of Fame. 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 34 gallons of whole blood and platelet donations. Former Volunteer Hunter Safety Instructor for the DEP Conservation Education Program. Certified Master Gardener.

Barbara C. Wagner Resident of Glastonbury and Minority Leader of Glastonbury Town Council. Attorney with law office in Glastonbury, specializing in commercial and residential real estate. Co-Founder and Board Member of Town Center Initiative, addressing walkability issues in Glastonbury's center. Board of Trustees, Diamond Lake Land Trust. Former member, State Open Space and Watershed Land Acquisition Board.

Wesley L. Winterbottom Resident of West Hartford. Professor of Science and Coordinator of Environmental Programs, Gateway Community College. Instructor of Environmental Issues, Eastern Connecticut State University. Fulbright China Seminars Abroad Program Scholar. Fulbright-Hayes Fellow. Registered Connecticut 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. Rainer National Park, Rocky Mountain National Park, Western Arctic National Parklands. Board Member, Northeast Partnership for Environmental Technology Education. Past President, Connecticut Consortium for Enhancing Learning and Teaching. Past Director, Gateway Community College Center for Teaching Excellence. Certified FEMA Trainer – Awareness Level – Homeland Security.

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

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Earl W. Phillips, Jr.
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Chaplin

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Harwinton

Barbara C. Wagner
Glastonbury

Wesley Winterbottom
West Hartford

Karl J. Wagener
Executive Director

Acknowledgments

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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? Do you have suggestions for improving the environmental indicators?

Mail:
79 Elm Street, Hartford, CT 06106

Phone: 860-424-4000
(messages can be left 24 hours a day)

Fax: 860-424-4070

E-mail: karl.wagener@ct.gov

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