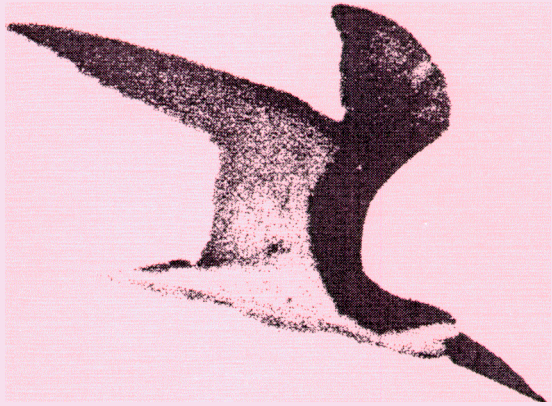
Environmental Quality in Connecticut



THE 1998 ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY

On the Cover

When six pairs of Black Skimmers (Rhynchops niger) moved to West Haven in 1998, they were the first skimmers ever to nest and raise families in Connecticut. Some skimmers might have nested on the Massachusetts coast in colonial times but, like many species, they fell victim to human disturbance of their habitat, and the species retreated to more southern states. Connecticut can take pride in the successful habitat protection and water quality projects that made nesting possible (seepage 19). This impressive bird now inhabits suitable coastlines from southern Chile to Long Island Sound.

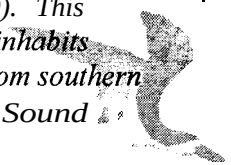


Table of Contents

PART I Progress Reports

A. The New Race for Open Space 1
B. Connecticut: Light Years Ahead? 4
C. Compliance or Defiance? 7
D. How Safe Are Connecticut's Woods? 9

PART II The Emerging Agenda 11

PART III Indicators of Environmental Trends 15

PART IV 1998 Activities of the CEQ 43

Request for Comments 47

PART I
Progress Reports

Echo Farm

The New Race for Open Space

On September 19, 1998, the Department of Environmental Protection (DEP) made history. For the first time, with money in hand, the DEP participated in a public real estate auction. The successful purchase? Echo Farm: a 300-acre gem on the Salmon River in East Haddam. The benefits? Great vistas of the river and cove, and maintenance of a green buffer that will continue to protect the river's outstanding water quality. Within two months of the auction, the DEP closed on this property, concluding a transaction that previously could have taken a year or more.

In November, the DEP was able to meet a deadline to purchase an abandoned railroad in Cheshire and Southington. Stretching 9.5 miles, this parcel is a critical link in the Farmington Canal Greenway, which one day will reach from New Haven to Massachusetts.

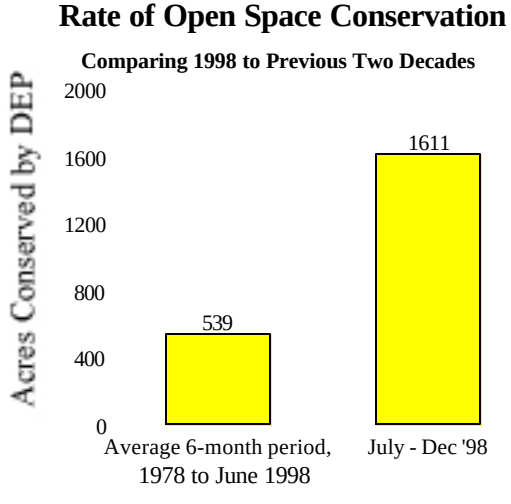
It was the breakthrough open space legislation of 1998 that enabled the DEP to purchase these properties and more like them. After reviewing the recommendations of his Blue Ribbon Task Force on Open Space, Governor Rowland proposed a goal of preserving 21% of the state as open space by the early 21st century. This figure includes state, municipal, federal, and private open space lands, as well as preserved agricultural land and some water utility lands (see page 32). The General Assembly followed through by adopting the recommendations, committing funds, and untangling considerable red tape.

In the last six months of 1998, the DEP conserved land at three times the normal rate.

No More Land on 'Layaway'

View of Salmon River Cove from Echo Farm in East Haddam

Until July 1998, the DEP had to obtain approval from the Bond Commission for every parcel it intended to purchase. Only then could it move forward with the transaction. At times the process was comparable to putting an item on 'layaway' at a store, then having to forfeit it because the bill could not be paid in time or at all. The entire process could take months or years, and deals fell through because sellers -- who had already settled on a price and waited months for the state to close -- became impatient with the bureaucracy and withdrew their land. Some landowners would not even consider selling to the state because of the inherent delays. Since July, capital funds approved by the General Assembly are released to the DEP twice a year, and *in bulk*. Now the Department can negotiate with money available.



Speakers at the Task Force's public hearings said that towns and land trusts would help the state attain its open space goal, but needed matching resources. A first installment of $5 million was allocated for a matching grants program, and a Review Board was created to assist the DEP in distribution of the funds. The first round of grants ($4.9 million), protecting more than 2800 acres in 18 cities and towns, was awarded in early 1999.

Still #1

The Council held two public forums in 1998, where citizens could say what they thought the state's environmental priorities should be (see p. 13). Prior to the 1998 legislation, citizens cited open space protection as their biggest concern. After the legislation passed, the number one concern was the *continuation* of open space efforts.

% Action for 1999 %

1. The DEP should complete its comprehensive plan for open space conservation.

"Connecticut's Green Plan,"which will guide the DEP's land purchases, was mandated by P.A. 97-227 but still is in draft form. The Plan should be succinct and easy to understand and should be followed by an attractive publication that informs the public of the progress of the new, improved open space program.

2. The DEP should develop data management capabilities for tracking progress toward the goal of "21% for the 21st century."

Evaluation of the open space program will be impossible if the DEP does not obtain adequate data collection and record keeping capabilities. This data bank must include a record of *all* open space acreage acquired (and sold) by municipalities, land trusts, water utilities, and similar land-holding organizations.

3. The General Assembly should streamline the Department of Agriculture's Farmland Preservation Program.

When the General Assembly streamlined the DEP's land acquisition program by approving lump-sum funding, it untangled a lot of red tape. As people at the CEQ's public forums voiced many times, the Department of Agriculture's program of acquiring development rights to agricultural properties suffers from the same procedural delays that once slowed the open space program. The next step is to streamline the agricultural program so it may achieve the levels of success that it warrants.

4. Tell your friends to buy a greenways license plate.

This new marker plate was unveiled by Governor Rowland and the Connecticut Greenways Council in January 1999. Available in the spring, revenue from this plate will support greenway projects throughout the state.

Connecticut: Light Years Ahead?

"Connecticut has adopted the strongest environmental protection provisions of any state energy deregulation law."

-- Union of Concerned Scientists

In restructuring Connecticut's electric utility market, the General Assembly and Governor Rowland adopted the most important environmental legislation of the decade. The new law includes the following measures, all of which the Council recommended:

- Ten years from now, at least six percent of electricity sold in Connecticut will be derived from **renewable** sources and **fuel cells** (but not counting new hydroelectric, or water-powered, plants).

- Customers will be charged 0.3 cents per kilowatt-hour to fund **energy efficiency improvements**, as they are now. A smaller but significant fund will be used to help develop **renewable energy businesses** in Connecticut.

- The General Assembly tied future electric sales to specific **air pollution emission levels** that will take effect if a sufficient number of other northeastern states adopt similar provisions. (Connecticut acting alone is a market too small to influence combustion policies in distant states.) Also, the United States Environmental Protection Agency acted on petitions from Connecticut and other states, and issued more restrictive emission limitations that should help to reduce the pollution blowing into Connecticut from upwind power plants.

The effect of the deregulation law was immediate. Investors have proposed more than a dozen new gas-fueled power plants. Some of these plants have been designed to consume several million gallons of water per day, which their

investors proposed to buy from water utilities. Some of the proposals involve transfer of water between watersheds, a development which has called attention to Connecticut's deficiencies in water allocation policy. Meanwhile, other aspects of the new law which require the existing utilities to sell generating assets have thrown into question the fate of thousands of acres of undeveloped land that the utilities have held for decades. The Council is pleased to report that the Connecticut Siting Council has discouraged thus far the use of potable water for cooling, while the Department of Public Utility Control has not forced the sale of undeveloped land. In the first few months since the law was signed, it appears that Connecticut has benefited from a sense of common purpose among decision makers.

% Action for 1999 %

1. The General Assembly should do more to help make Connecticut the Fuel Cell State where skilled workers in modern factories manufacture these clean sources of electricity.

Specifically, the State of Connecticut should power some of its high-profile buildings with fuel cells, exempt fuel cells from siting regulations, authorize state agencies to pay a price preference for "Green Power," and award double "credit" toward renewable energy requirements to fuel cells that consume methane from landfills. Fuel cells, which produce electricity with minimal emissions, are a huge growth industry with two of the world's five major manufacturers based in Connecticut.

2. The Department of Public Utility Control (DPUC) should maintain its broad vision of public interests, so that utilities are not required to sell undeveloped land.

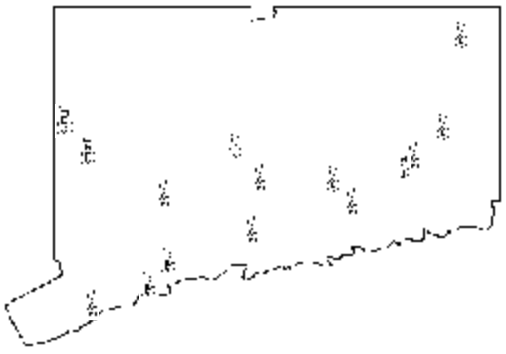
An unintended consequence of P.A. 98-28 is that a utility could conceivably be required to sell much of its undeveloped land. Many of the parcels are waterfront lands that are critical open spaces in their communities. The DPUC's approval of Northeast Utilities' plan to retain some land and transfer conservation interests to the DEP should serve as a guiding precedent.

3. The Connecticut Siting Council should continue to scrutinize the effect of its decisions on water resources.

Since restructuring, one new plant was approved to use "dry cooling," and two were approved to use river or Long Island Sound water.

4. The General Assembly should require the Siting Council to develop a comprehensive siting policy if the probability of over-building rises.

Citizens have asked if there is a plan for siting new power plants, and the answer is "no." In fact, P.A. 98-28 abolished the old system whereby companies had to demonstrate a need for new generating facilities before receiving permission to build. One *potential* result is the construction of excess generating capacity, which means more communities than necessary would bear the impacts of new plants. Connecticut's air, water, and land resources would be consumed and polluted more than would be required to meet statewide electric needs. The Siting Council should monitor capacity carefully.



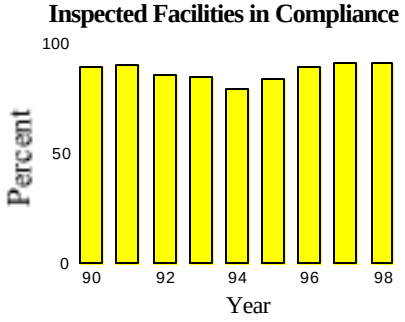
The Immediate Effect of Deregulation

The map shows approximate locations of the 15 new electric generating plants that have been proposed since Connecticut's electric generating industry was deregulated. These locations, proposed by investors, coincide with the availability of transmission lines and natural gas supplies. If all 15 were built, they could generate 8530 megawatts of electricity, which is 35% more than can be generated by all 47 of Connecticut's existing power plants combined. It is doubtful that all 15 will be built, but it is possible that more will be built than are needed to meet Connecticut's needs.

Copies of the 1997 interim report "Connecticut: Light Years Ahead?" are still available from the CEQ office.

Compliance or Defiance?

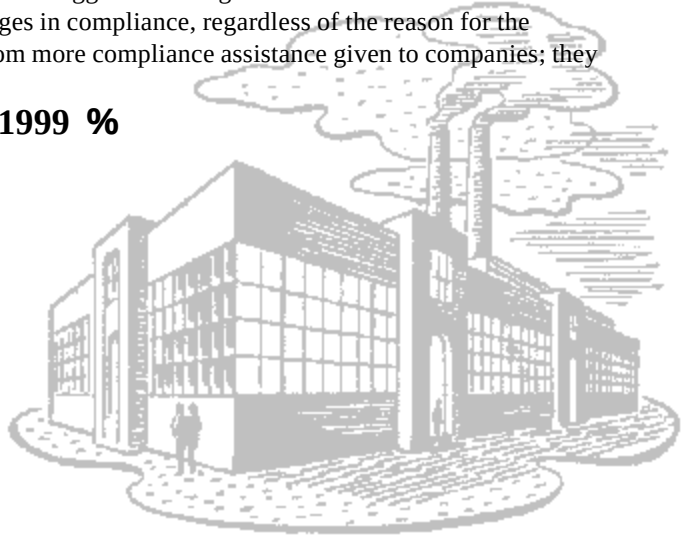
How Do We Know If People Are Complying With Connecticut's Environmental Laws?



Connecticut's environmental laws and standards have become considerably more restrictive during the last 30 years. The good air we breathe on most days and the great fishing in our rivers are evidence of substantial compliance with those laws. Most sources of pollution emit far less waste than they used to, and many companies have cut back their emissions much more than the law requires. However, violations still occur and can impede Connecticut's progress toward the goal of healthful air and clean water, or increase the risk of an accidental spill.

With this report, the Council includes new indicators that will report how well people are complying with environmental laws (see page 41). The Council -- and everyone in Connecticut -- can now follow the progress of this key ingredient of environmental improvement. The biggest advantage of an indicator that focuses on compliance rather than enforcement is in the way it captures all changes in compliance, regardless of the reason for the change. Improvements might result from stronger enforcement or from more compliance assistance given to companies; they are all counted equally.

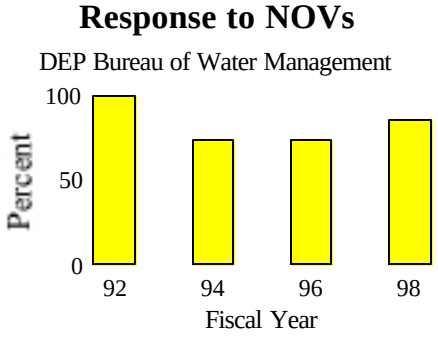
% Action for 1999 %



1. Connecticut's goal should be to have all regulated facilities in full compliance.

2. The DEP and General Assembly should take steps to ensure that 100% of people who receive Notices of Violation (NOV) or warning notices respond in 30 days:

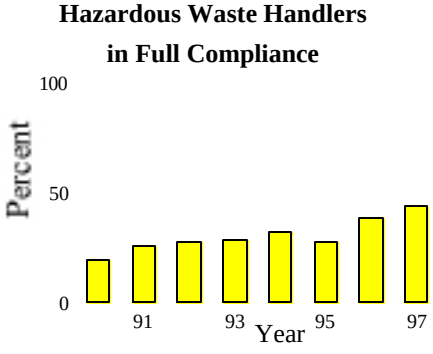
Specifically: a) NOVs should go to organization officers, not just compliance personnel, with clear notice that a response is mandatory within 30 days, b) the General Assembly should amend the statutes to require a financial penalty for failure to respond to an NOV or warning notice, and c) if someone still fails to respond, the DEP should re-inspect the facility immediately. If any violations are found, the DEP should issue an order (or proceed with other enforcement tools) with significant penalties.



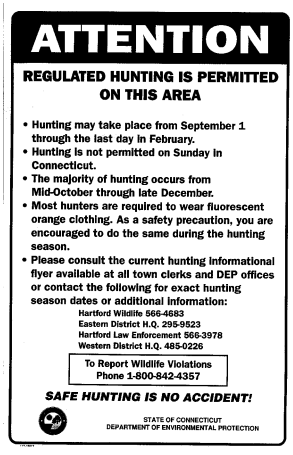
Copies of the report, "Compliance or Defiance?," are available from the CEQ office.

3. The DEP should develop a department-wide data management system with inspection data as a core element. This system will:

a) record all inspection reports, with data on compliance and noncompliance, in a format suited to statistical analysis, b) make it easy for any citizen to obtain inspection reports for any facility in his or her community, c) allow for instant compliance analysis of Discharge Monitoring Reports filed by permit holders, and d) incorporate a statistical method for merging new forms of data -- such as Continuous Emission Monitoring which transmits compliance information instantly and electronically to the DEP -- with traditional inspection data to obtain overall compliance rates.



How Safe Are Connecticut's Woods?



In 1993, The Governor's Task Force on Hunting and Public Safety, coordinated by CEQ staff, issued 42 recommendations. More than half of these -- pertaining mostly to educational programs -- have been adopted administratively by the DEP. Many of the ones requiring legislative action have failed, apparently due largely to the lack of any constituency at the Capitol that advocates a safer hunting environment. The Council, in the absence of any other party, will continue to monitor and report on legislative progress in making the woods and fields safer.

Developments

In 1998, the legislature passed a law prohibiting the possession of loaded firearms while intoxicated, which was a step forward in realizing one of the Task Force's recommendations: ban hunting while under the influence of alcohol. (However, it still may be legal for someone to hunt with a bow while drunk, or hunt with guns while having alcohol in one's possession.) Also, the DEP made some major administrative improvements in their methods of monitoring and reporting hunting incidents.

During the fall hunting season, a tragic incident took the life of DEP Conservation Officer James Spignesi. Officer Spignesi was the first Connecticut Conservation Officer killed in the line of duty. Since 1992, three other people have been slain while enjoying Connecticut's outdoors.

% Action for 1999 %

1. Change the standard of liability for victims of shooting accidents, removing any requirement to establish intent or negligence.

Any person using a firearm must have the duty to undertake all necessary safety precautions. A standard of strict liability would help to keep hunters supremely cautious, even if it means passing up more shots.

2. Increase fines and other sanctions for violations relating to public safety.

Any person — whether a licensed hunter or not — who endangers the life of another person by using a firearm in the outdoors should be charged with a felony. It should not matter if the victim dies or is injured, or even if there is a victim.

3. Increase the Conservation Officer force by 24 officers and two (2) supervisors.

The DEP has four fewer Conservation Officer positions than it did in 1993. The chance of a violation being spotted by a Conservation Officer is currently very low, given the huge territory for which each officer is responsible.

4. Connecticut should enter into the "Interstate Compact for License Suspension."

Connecticut should be participating in reciprocal agreements with other states so that a person who violates the law in one state will have his or her license suspended in all states which are parties to the agreement.

PART II
The Emerging Agenda

Smart Growth vs. Business as Usual

The persistent problem of sprawl is on its way toward being the country's foremost environmental concern. Sprawl is much more than an environmental issue -- it affects virtually all aspects of the day-to-day lives of Connecticut citizens, urban and suburban alike. A handful of other states, most notably Maryland, is demonstrating a successful role for state government in stimulating desirable, non-sprawling development as an alternative to business-as-usual sprawl. In 1998, the Connecticut General Assembly put a few new "Smart Growth" tools into the hands of municipalities that choose to use them. The state has a large role to play (documented in earlier CEQ reports). "Smart Growth" is almost certain to move up on the public agenda as more residents lose their tolerance for congestion, excessive pavement, and spreading retail development.

Public Health Issues

In an era where it seems every substance and activity is regulated, significant regulatory gaps still put Connecticut residents in the path of harmful substances. As one example, the fish in virtually every lake and river in Connecticut are contaminated with **mercury** from air pollution, and as a result the state has advised residents (especially children and pregnant women) to restrict consumption of fresh water fish.

Another example is the unexpected places people are likely to encounter **pesticides**, such as schools and public buildings, where the people applying the pesticides are not necessarily trained or licensed. Knowledge of the effects of pesticides on humans is evolving constantly, and probably ranks as one of the least understood phenomena in environmental regulation.

How is it that people are permitted to drill **wells** for their new houses into aquifers that are known to be contaminated? The General Assembly adopted an important tool to help prevent this problem (P.A. 98-140), but a regulatory gap still exists.

Environmental Literacy

National data show that environmental problems are poorly understood by the American public. The Council intends to commission a survey to find out if Connecticut residents are better prepared, a possible result of years of effort by the DEP and nonprofit organizations. (Please see sidebar about Connecticut's highly effective Envirothon program.)

People's Concerns

The Council held public forums in New Haven and Litchfield in 1998. Municipal officials, representatives of conservation and agricultural organizations, and interested individuals told the Council what they saw as the urgent environmental priorities in those regions. Many of the more than two dozen speakers represented organizations with many thousand members. The table on the following page indicates that Connecticut residents continue to be concerned about the ongoing loss of undeveloped and agricultural land. In some parts of the state, the urgency of the problem has been fueled by an unintended consequence of utility deregulation, namely the potential sale of very large parcels of undeveloped land owned by electric companies. However, as Part One of this report indicates, substantial actions have been proposed or taken to conserve land and minimize the impact of deregulation. These actions will require continual reaffirmation and commitment in order to succeed, but at least the path to success is clear.

Connecticut Envirothon: The Natural Challenge!

High school students do not necessarily gain much knowledge of the world in which they live, but those who participate in the Envirothon are experts. As a year-long environmental education program, Envirothon encourages teams of students to delve into five environmental science topics: Forestry, Wildlife, Aquatics, and Soils, plus a Current Issue. In a late spring competition, more than 40 teams from across the state are tested in the field on the five issues. The winning team earns the chance to represent Connecticut in the National Envirothon. Since 1992, the Connecticut team has placed in the top five every year, and twice won the national championship.

Connecticut Envirothon is administered by the state's Soil and Water Conservation Districts, and supported by a growing network of nonprofits; state, local, and federal agencies; private corporations; and dedicated volunteers. (The CEQ's Environmental Analyst serves as Vice-Chair of the Steering Committee.)

The Council views Envirothon as an outstanding model for the learning of environmental science, which must be applied more widely. The Council applauds the Steering Committee's efforts to expand the program to include *all* high schools in Connecticut.

What the Council Heard

Topics Addressed at CEQ Public Forums in New Haven and Litchfield

	% of Speakers *
Continue open space efforts	36%
Increase funding for DEP (parks, forests, wildlife, inland water resources)	32%
Farmland Preservation (Purchase of Development Rights)	27%
Siting of new power plants**	23%
Sprawl (includes property tax and other land use issues)	14%
Environmental Education (standards, Envirothon)	14%
Pesticides and Health	14%
Incentives for utilities to conserve land**	9%
Need for a water allocation policy**	9%
Water Quality (nonpoint pollution, erosion control, stormwater management)	9%
Alternate road and bridge designs	9%

** some speakers addressed more than one topic*

*** many of the comments relating to these issues were prompted by the 1998 electric utility deregulation law*

People also spoke about greenways (need for wildlife corridors and use of existing railbeds), Forest Practices Act (need for balanced regulations), support for the Connecticut Association of Conservation Districts, wetlands, the tax burden caused by open space in some communities, and air quality. These results are very consistent with public comments received in previous years in New London and Fairfield Counties.

PART III
Indicators of Environmental Trends

"Is the environment getting better?"

This is the question most frequently asked of the CEQ. To help answer it without bias, the Council established a set of environmental indicators which display progress (or lack of it) in 26 important areas.

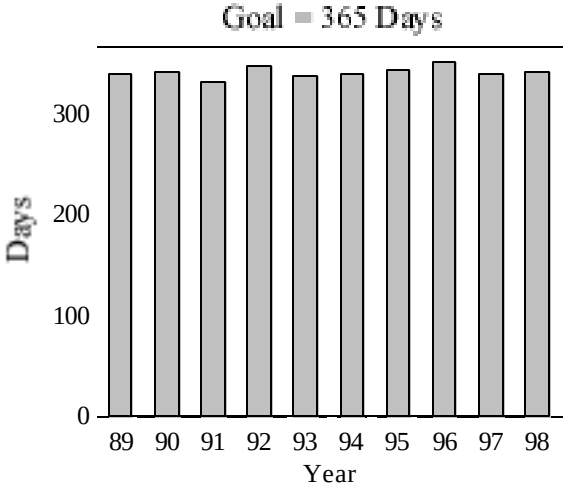
These indicators are bottom-line statements of the actual condition of our air, water, land, and wildlife. The focus is on results, rather than on government programs, budgets, enforcement action, or new laws. When reviewing any indicator, the reader should note that the subtitle appearing under the title describes exactly what is being measured.

Where possible, each graph illustrates progress toward a specific goal or objective of the Environment 2000 Plan. Where that plan is not relevant, the Council uses goals from other state planning documents.

The overall story told by these indicators is one of slow but steady progress. A few indicators — including beach closings, winter flounder, sewage overflows, and forests — do not show substantial improvement over recent years and will receive additional attention from the CEQ in the months ahead. However, even a quick review of the pages that follow will reveal that most aspects of our air, water, and wildlife have improved measurably in the last ten years.

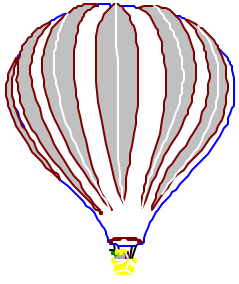
Good Air Days

Number of days that every monitoring station recorded satisfactory air quality



Background

"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 health-based standards 365 days a year by the year 1999 (2007 in Fairfield County).

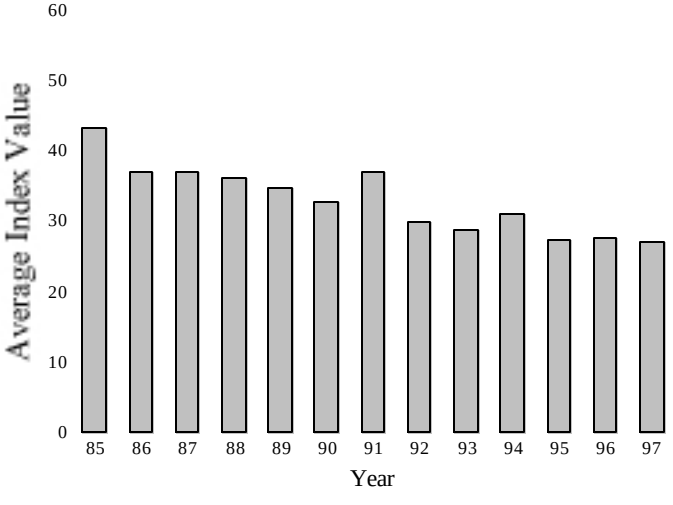


Trends

Violations of the health-based ambient air quality standards have been eliminated for all pollutants except ground-level ozone. (Ground-level ozone is created when nitrogen oxides and volatile organic compounds react in the presence of sunlight.) In 1998, the federal government changed the standard to reflect the injury that ozone causes to people at low concentrations. This change will make it more difficult for Connecticut to reach its goal. (The graph above is drawn as if the new standard had been in effect in previous years.) Motor vehicles remain a major source of ozone-forming emissions despite improvements in tailpipe standards. Minor fluctuations over the last five years are the result of weather conditions. Much ground-level ozone originates in states to Connnecticut's west (see next page).

Average Air Pollution Levels

Six major pollutants



Background

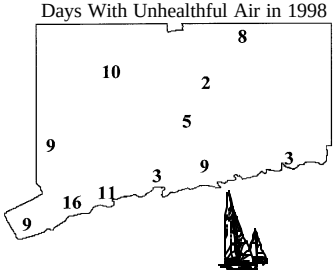
Six air pollutants -- carbon monoxide, ground-level ozone, lead, particulates, nitrogen oxides, and sulfur dioxide -- are measured across the state by the DEP. At the end of every year, the average level of each pollutant is expressed on a numerical scale, where 100 would equal the health standard for the pollutant in question. This somewhat complicated indicator shows the average level of the six pollutants.

Trends

Most of the drop in total pollutants since 1987 is due to reductions in carbon monoxide, sulfur dioxide, and particulate emissions. Levels of lead in the air have dropped so low that in 1997 they were not measured.

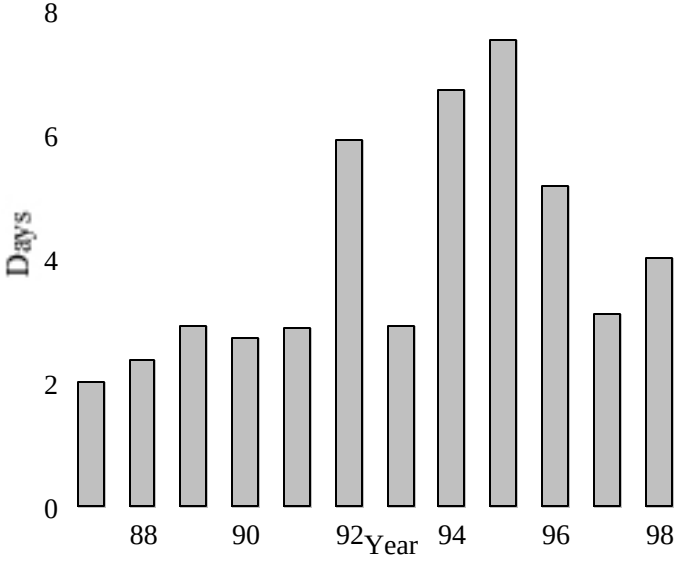
The Effect of Prevailing Winds on Connecticut's Air

Nearly 100 percent of the ground-level ozone in Greenwich results from pollution in other states, according to estimates by air quality analysts. In Hartford, perhaps 50 percent is from other states. Because of southwesterly winds in the summer, residents of western Connecticut breathe unhealthful air more often than most other residents.



Beach Closings

Average number of days coastal municipalities closed one or more of their beaches



Background

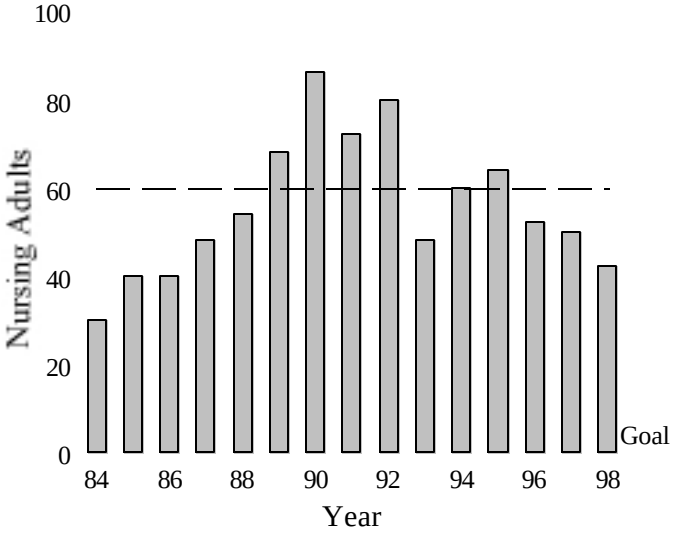
Connecticut's goal is to eliminate beach closings caused by discharges of untreated or poorly treated sewage, the most common cause of elevated bacteria levels. After rain storms, overflows from combined sanitary and storm sewers are presumed to contaminate the water, prompting some towns to close beaches automatically as a precaution.

Trends

Yearly variations are a product of rainfall patterns and incidents such as sewer-line ruptures. In 1997, the relatively dry summer led to significantly fewer closings than in previous years. Nearly half of our coastal communities had no closings at all.

Piping Plover

Number of adults nesting in Connecticut



Background

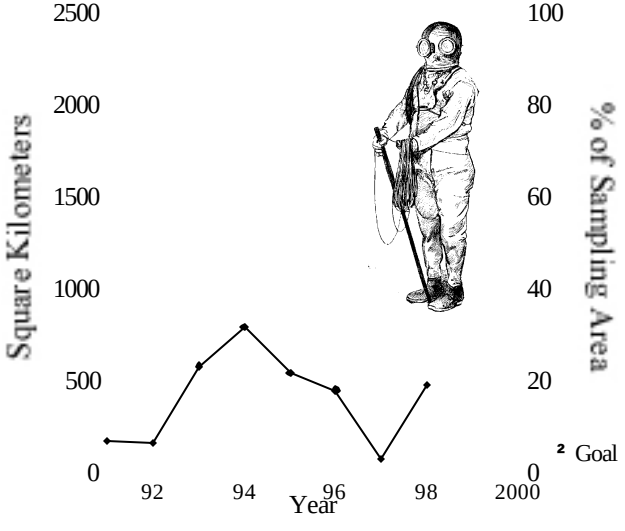
Piping plovers are thrush-sized shorebirds that nest on beaches, often with least terns. Nests are frequently destroyed by human intrusion, storm tides, and predators. Nesting adults are counted and in most cases protected every spring by the DEP and volunteers working with The Nature Conservancy. The piping plover's status is "threatened". The protections afforded these plovers benefit other nesting species, including the black skimmer.

Trends

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. Predators took a heavy toll in 1993. In 1996, adverse weather delayed breeding, and predators destroyed many nests before hatching could occur. The 1998 decrease might be attributable to the birds' mobility: the population has been increasing *regionally*, suggesting that some of Connecticut's plovers might have moved.

The Sound in Summer

Square kilometers (and percent) that hypoxia affects each year



Background

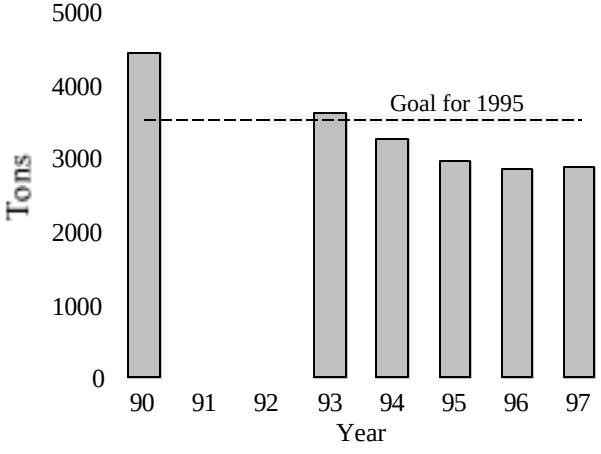
Hypoxia is the condition in the water when oxygen levels are too low to support desirable forms of life. (For this indicator, hypoxia is defined as less than or equal to 3 mg/l of dissolved oxygen.) Hypoxia occurs when nitrogen stimulates excessive growth of aquatic plants, which die and are consumed 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.

Trends

More years of data are required to assess true trends. Year-to-year fluctuations mainly reflect weather patterns. All of the hypoxia has occurred in the western two-thirds of the Sound. Connecticut and New York adopted a comprehensive management plan in 1994. The significant improvement in 1997 was caused by a mild winter and a relatively cool summer, resulting in fairly uniform water temperatures.

Nitrogen

Tons discharged into Long Island Sound from Connecticut's coastal sewage treatment plants and large industrial facilities

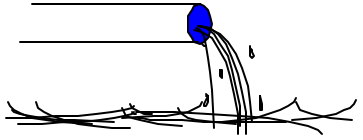


Background

Connecticut's 18 coastal sewage treatment plants from Greenwich to Branford, along with the three largest industrial nitrogen dischargers, contribute 10% of the nitrogen enrichment going to Long Island Sound. (See description of hypoxia on previous page.) Connecticut had an initial goal in 1990 of "no net increase" or keeping nitrogen discharges at or below 1990 levels. The mid-term goal to reduce nitrogen discharges from these sources by 20% by 1995 was achieved in 1994.

Trends

Connecticut's "no net increase" policy and investments in nitrogen-removal technology have been successful. The improvement in nitrogen discharge was achieved by installing nitrogen removal technology at several sewage treatment plants. In 1999, Connecticut, New York, and the federal Environmental Protection Agency will begin a 15-year reduction plan that will reduce nitrogen loads from human sources by nearly 60% from 1990 levels.

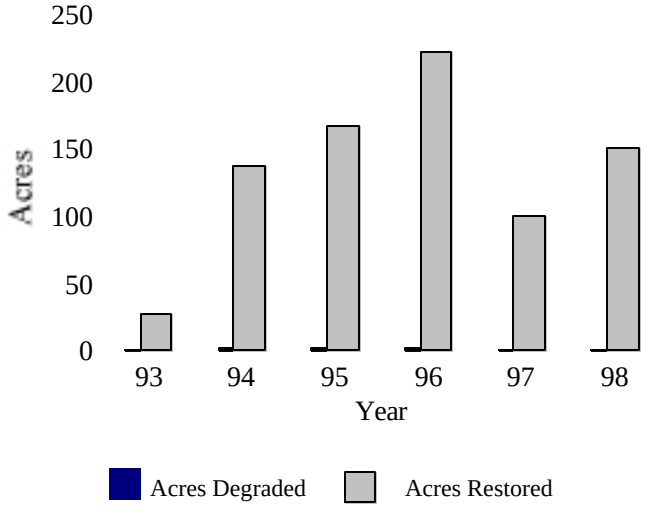


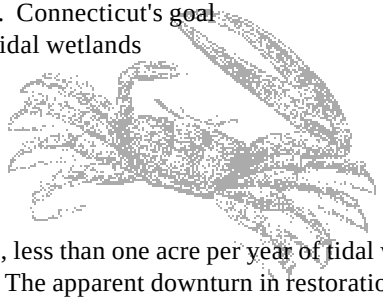
Tidal Wetlands Conservation

Acres degraded and restored

Background

Degraded acreage is the area permitted for development activity by the DEP. *Restoration* includes work performed by the state as well as by landowners required by the DEP to restore wetlands as conditions of their permits. Improvements might or might not add to the state's total wetlands acreage, depending on the land's classification as wetlands or non-wetlands prior to restoration. 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.



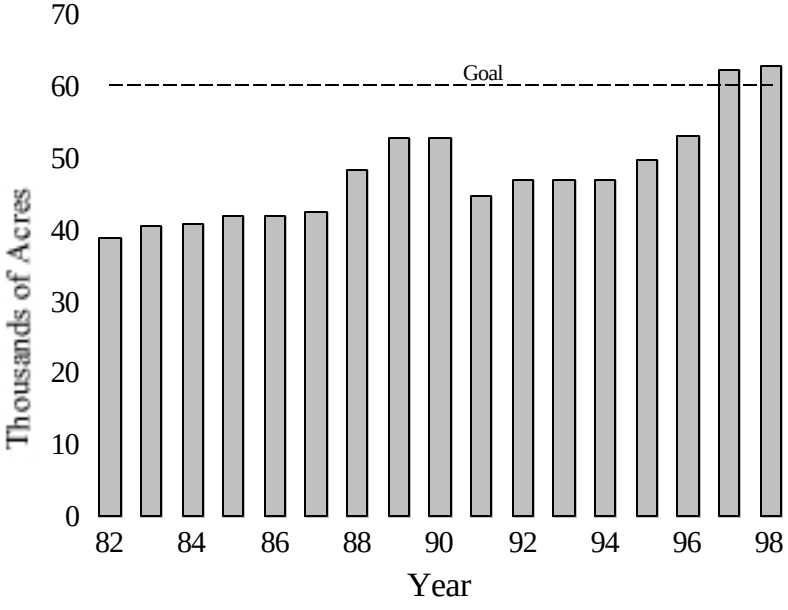


Trends

With the exception of 1995, less than one acre per year of tidal wetlands was lost to permitted development, and many degraded acres were restored. The apparent downturn in restoration in 1997 was the result of a focus on some extensive, slower-moving projects.

Shellfish Beds

Acres open for commercial harvesting



Background

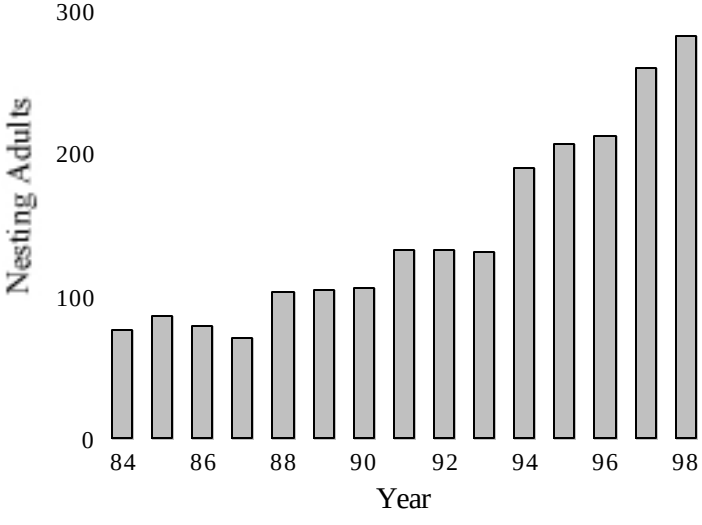
Connecticut's goal is to have 60,000 acres open by the year 2000, which is far fewer acres than were open a hundred years ago. The primary impediments to opening more acres are the presence of sewage discharges and the need to conduct frequent monitoring to satisfy federal health-assurance requirements. Beds are counted as open when they are clean enough and monitored sufficiently.

Trends

The dramatic increase in 1997 is attributed largely to the increase in the commercial value of Connecticut's harvest over the past decade, 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, even as many of the oysters were killed by disease.

Osprey

Number of adults nesting in Connecticut

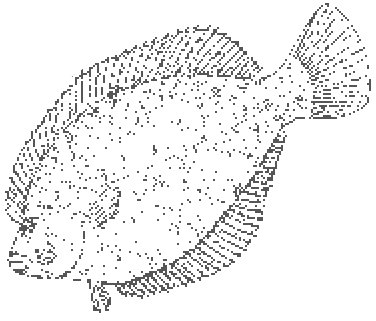


Background

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. The osprey's status in Connecticut is "special concern". Nesting adults are counted each year by the DEP.

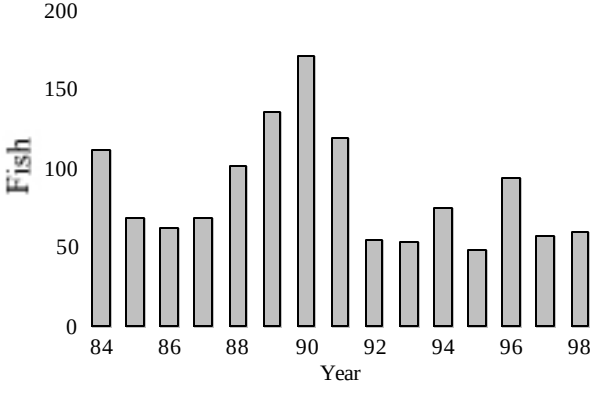
Trends

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 are responsible for 1998 having 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 in Old Lyme considered to be the stronghold of Connecticut's osprey population.



Winter Flounder

Average number caught (per tow) in nets of research vessel



Background

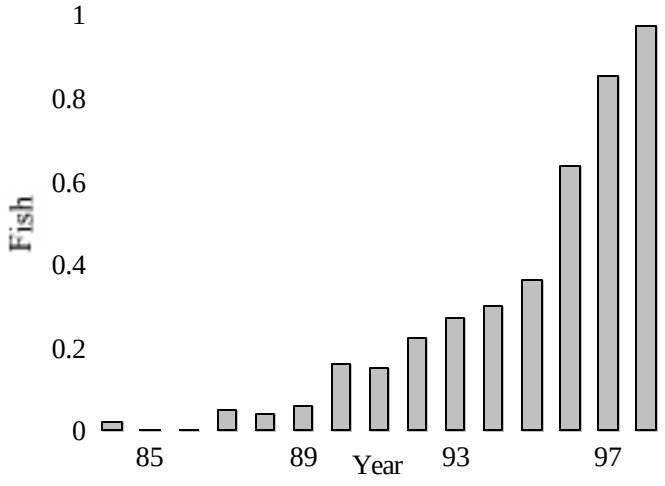
The DEP samples marine fish populations every April, May, and June by towing nets from a research vessel. Winter flounder was selected as an indicator species because it is commercially important, is counted regularly, and does not migrate far beyond Connecticut's shores.

Trends

The downturn in winter flounder populations in the 1990s is attributed by the DEP to increases in harvest, caused in part by harvest restrictions on other species. Some year-to-year variation can be caused by weather changes. The flounder population held steady at relatively low levels in 1998. Scientists are uncertain of the cause of the continued low levels, but suspect that the high commercial harvest of Long Island Sound fish in federal waters outside of the Sound is affecting the population.

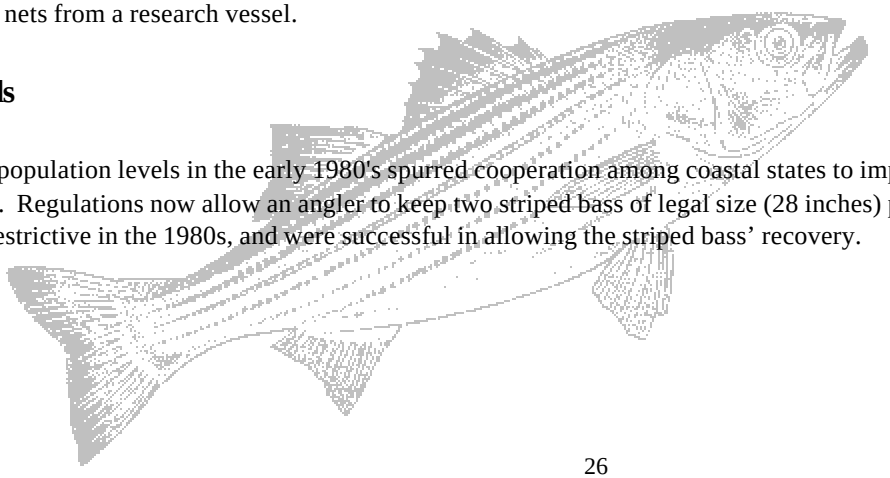
Striped Bass

Average number caught (per tow) in nets of research vessel



Background

The striped bass is a predatory fish that migrates along the eastern shore of North America and enters major rivers to spawn. It is an important game fish. Much of what happens to the striped bass population is beyond Connecticut's control, but this state cooperates in regulating harvest. The DEP samples fish populations every April, May, and June by towing nets from a research vessel.



Trends

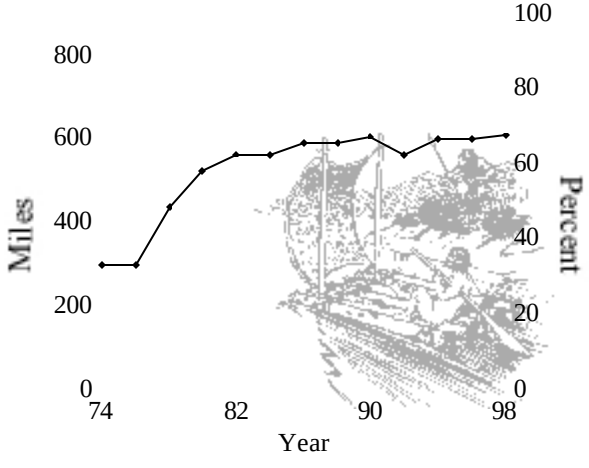
Low population levels in the early 1980's spurred cooperation among coastal states to impose conservative restrictions on fishing. Regulations now allow an angler to keep two striped bass of legal size (28 inches) per day. Regulations were even more restrictive in the 1980s, and were successful in allowing the striped bass' recovery.

Rivers

Miles classified as suitable for both swimming and supporting aquatic life

Background

Of the state's 5800 miles of river and stream, about 900 miles are defined as "major" and are considered in this indicator. It has been revised in an important way: in previous years, rivers were counted if they were both swimmable *and fishable*. However, since 1996 Connecticut residents have been advised to limit their consumption of fresh water fish (see page 11), so no river in the state is technically "fishable," even if it sustains large populations of trout, bass, and other aquatic life.



Miles of Connecticut rivers in which the fish are *not* contaminated with mercury:

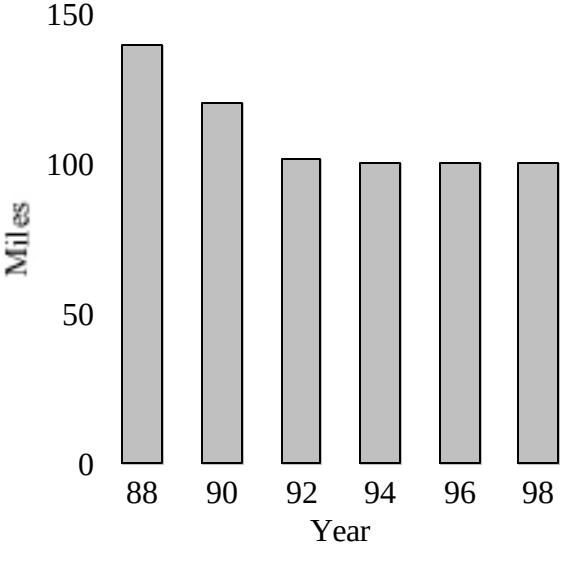
0

Trends

Progress began with the passage of the state's clean water law in 1967, and accelerated in the 1970s when federal grants for sewage treatment plants were available. Connecticut established its own Clean Water Fund in 1986, which has enabled some treatment plants to be upgraded and some combined sewer systems to be separated (see next indicator). The 1992 downturn was a change in definitions, not actual water quality. Subsequent improvements occurred on the French, Shetucket, Farmington, Willimantic Rivers and, most recently, the Naugatuck River.

Sewage Overflows

Miles of river affected by "combined sewer overflows"



Background

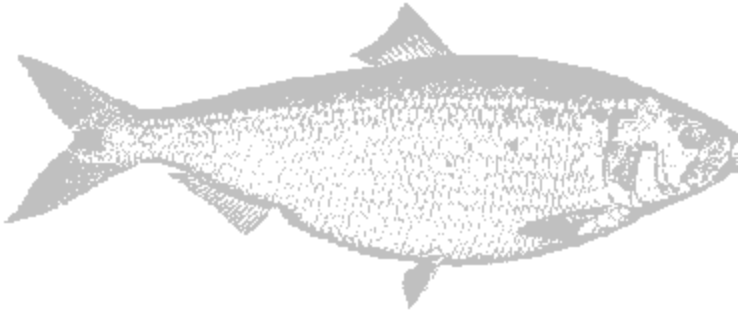
In fourteen Connecticut cities and towns, some sanitary sewers were built in combination with storm sewers. During storms, these systems carry more water than their treatment facilities can handle, and a combination of storm water and untreated sewage overflows directly to the rivers. The number of days when raw sewage actually is in the rivers varies with the weather and can be quite low in some years. Several systems have been separated, and Connecticut's goal is to eliminate combined sewer systems.

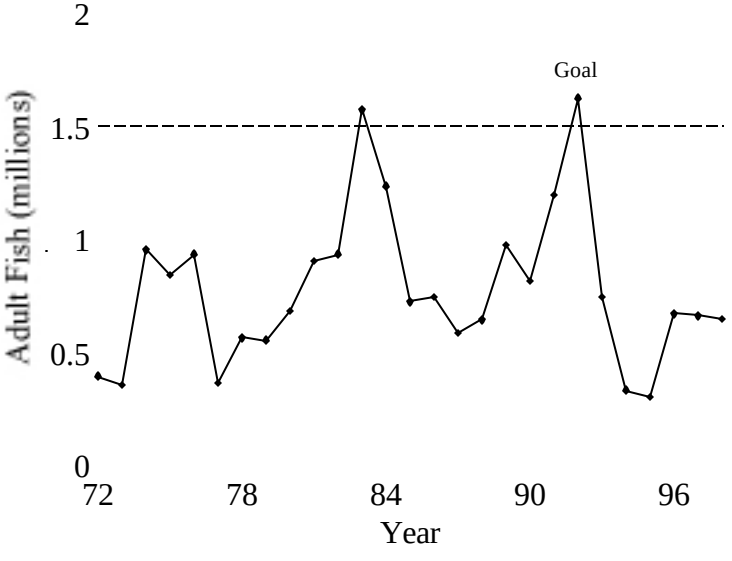
Trends

Several of the combined sewer systems have been wholly or partly separated since 1990, reducing the impact of untreated sewage on rivers.

Shad

Number returning to the Connecticut River





Background

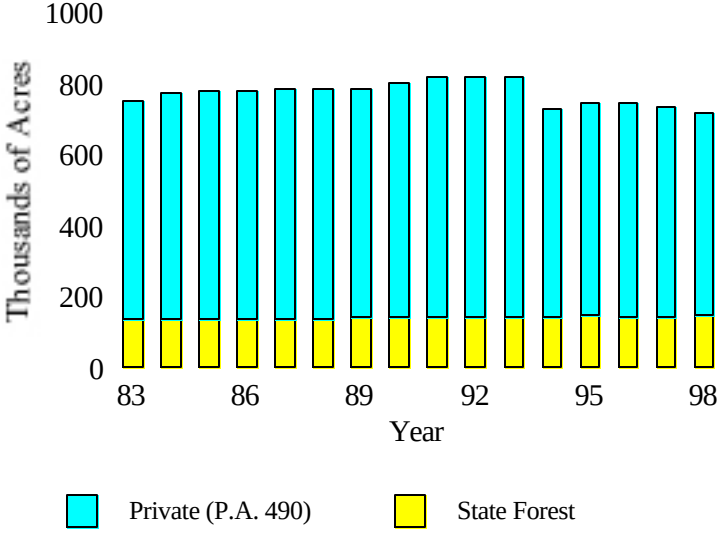
The shad is an anadromous fish: born in fresh water, it lives in the ocean and returns to fresh water to spawn. Shad numbers used to be limited by dams that blocked access to spawning areas, but most major potential spawning areas in the Connecticut River and its tributaries have been made accessible with fish ladders and other improvements.

Trends

The decline of shad in recent years was observed over most of its range (East Coast rivers). Scientists are uncertain of the cause.

Forest

Combined acreage of 1) privately-owned forest that is enrolled in Connecticut's preferential tax-rate program (P.A. 490) and 2) state forest



Background

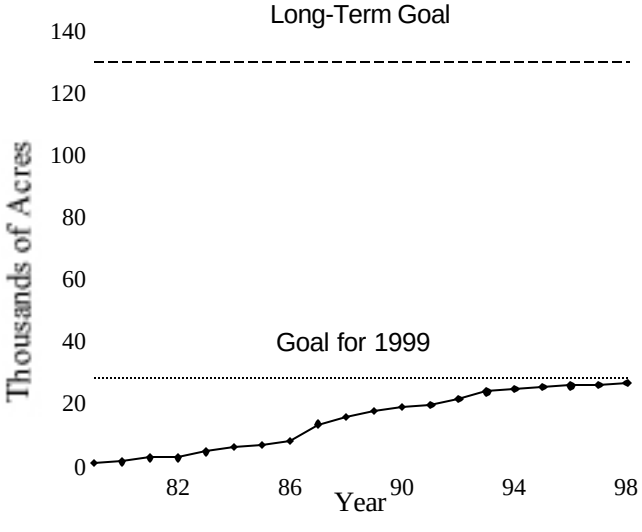
Connecticut's goal is to conserve forests for multiple use, which can only be accomplished on parcels of sufficient size. Much forest is owned in small parcels which often have limited value for wildlife, wood production, and other uses. To be eligible for P.A. 490, a landowner must own 25 or more acres of forest. Landowners enroll for ten years. Though imperfect, this indicator shows trends in the state's most healthy and beneficial forests, which are those in large tracts.

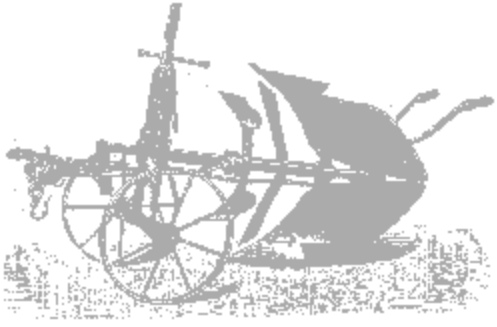
Trends

The apparent upward trend in forest acreage during the 1980s is 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 an important cause of this indicator's negative turn since 1994.

Farmland

Acreage of agricultural land preserved by the Department of Agriculture





Background

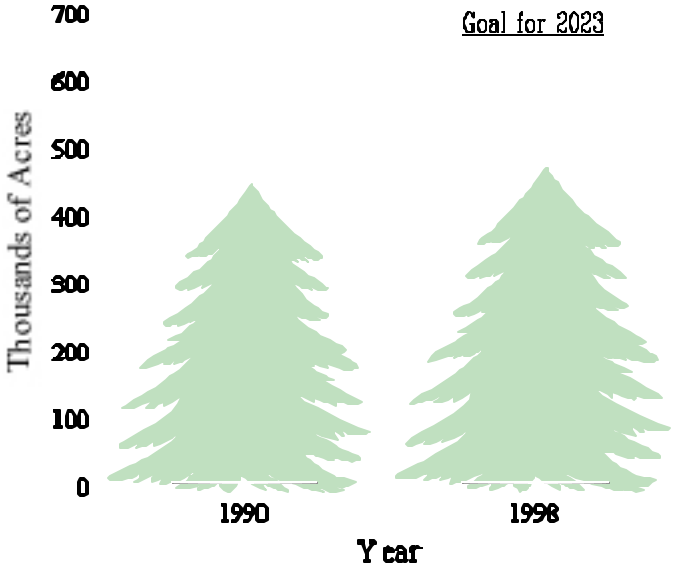
The graph at left illustrates cumulative totals. Land is preserved when the Department purchases the development rights to farmland (from volunteer sellers only), which keeps the land in private ownership with strict restrictions on future nonagricultural development.

Trends

The state's progress toward its goal has slowed. Two farms were approved for preservation by the Bond Commission in 1998.

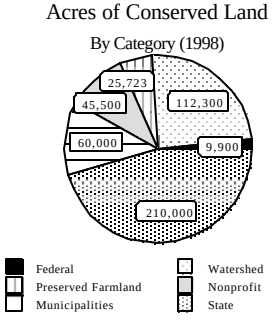
Land For Life

Combined acreage of six categories of preserved land



Background

In January 1998, Governor John Rowland declared a goal of conserving 21% of Connecticut's land area by 2023. The tree graph shows the combined acreage of the six types of land that are included in this 21% goal. Current acreage of each land type is shown in the pie chart. The types of land are: federal, farmland preserved by the state Department of Agriculture, estimated municipal open space, Class I and II watershed lands owned by water utilities, estimated nonprofit lands (land trusts, The Nature Conservancy, etc.), and state-owned forests, parks, and wildlife management areas.

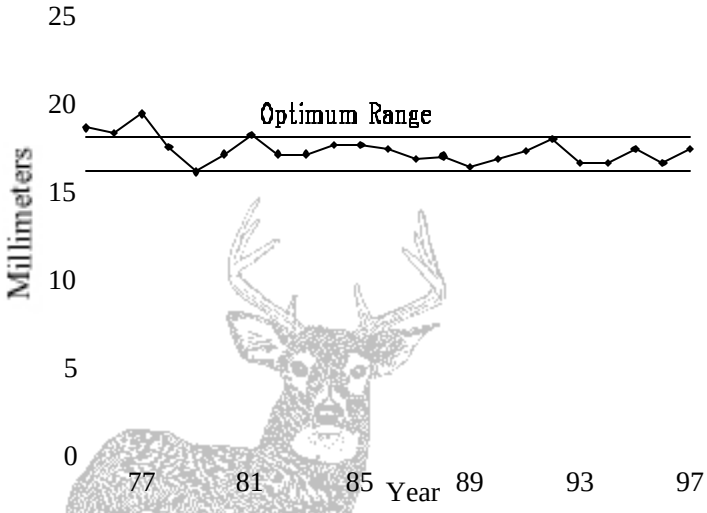


Trends

Modest areas of land were preserved in the early 1990s. After Governor Rowland and the General Assembly improved the open space statutes and committed substantial funds in 1998, the DEP acquired nearly three times the typical number of acres over a six-month period (see page 2).

White-Tailed Deer

Average diameter of antlers on yearling deer
(one to two years old)



Background

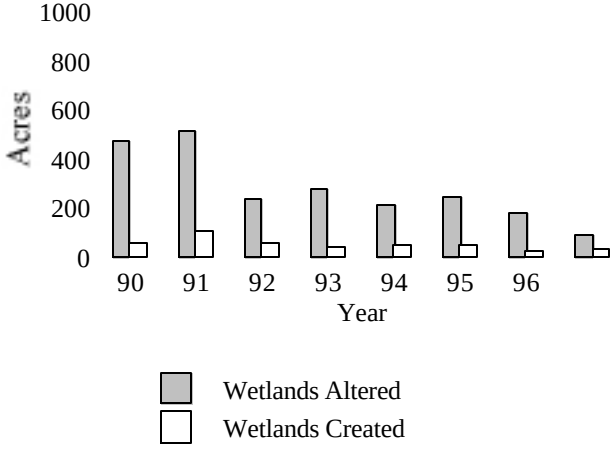
Healthy, robust young deer have thicker antlers than those which receive less nourishment. Antler beam data reflect the relative health of the deer herd as well as the condition of their habitat. Since deer share woodland and edge habitats with many wildlife species, this indicator is doubly useful. Connecticut's goal is to maintain a statewide average of at least 16-18 millimeters, and to let the average in no region of the state fall below 16 millimeters.

Trends

Connecticut's deer population appears to stay within the targeted range. Minor fluctuations in herd health from year to year probably reflect fluctuations in food availability and winter conditions. The herd remained in good health in 1998.

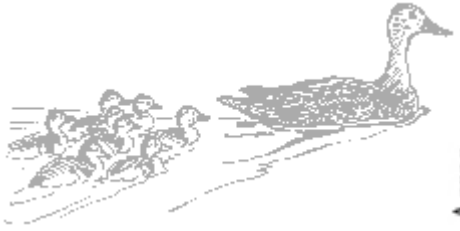
Inland Wetlands Loss

Acres altered each year by development activity permitted by the DEP and 169 municipal wetlands agencies



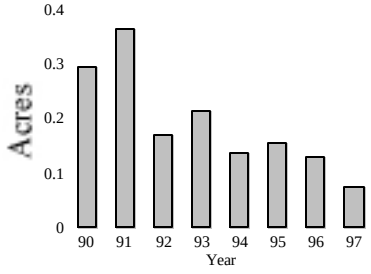
Background

The graph shows the acres altered and the number of those acres replaced by human-made wetlands. "Altered" 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 (for example, from shallow marsh 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 wetland loss; inland wetlands are estimated to cover about 450,000 acres, or about 15% of Connecticut's surface.



Trends

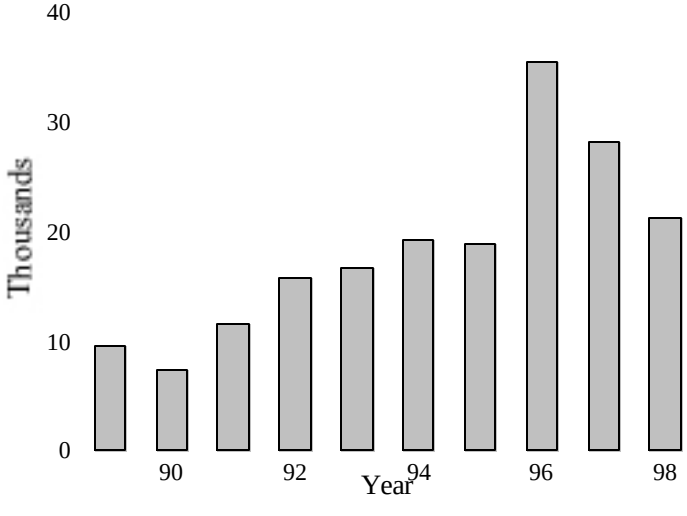
Some of the ups and downs in wetlands loss since 1990 are directly related to changes in the number of applications received. However, the graph at right indicates that wetlands agencies also have become more conservative.



Average area of inland wetlands affected by each permit issued by the DEP and the 169 municipal wetlands agencies.

Wood Duck

Estimated number of adults nesting
in Connecticut



Background

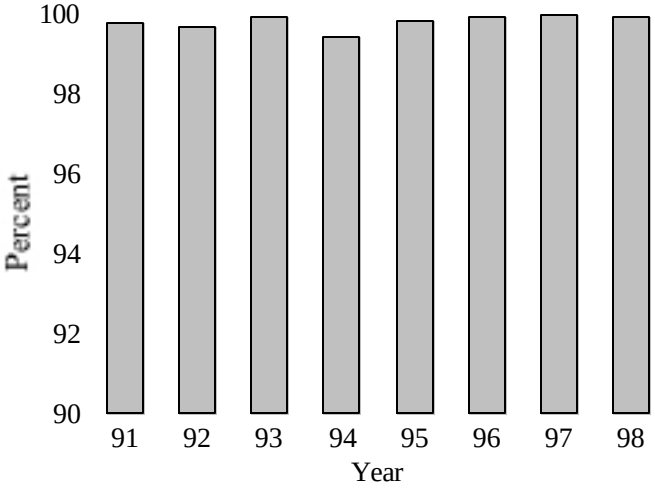
Wood ducks are medium-sized waterfowl that nest in hollow trees and human-made boxes near fresh water throughout eastern North America, including inland Connecticut. They require relative seclusion, unpolluted inland wetland habitat, and protection from over-hunting (which almost caused the bird's extinction earlier this century). Many other species share these habitat requirements. Population estimates are made annually by the DEP.

Trends

Recent increases in wood duck numbers are due to favorable weather conditions and the placement of nesting boxes near ponds and wetlands. Many Connecticut citizens have assisted in this effort. Although the 1998 numbers appear to show a downturn, it is likely that a concentration of ducks at one of the sampling plots led to estimates that were too high in 1996 and 1997.

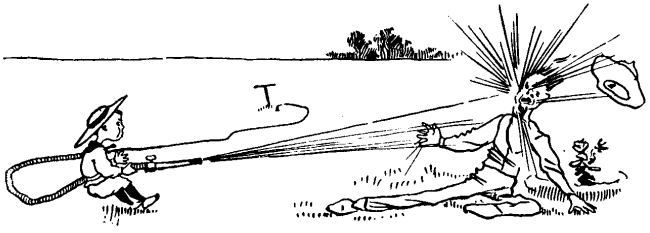
Drinking Water

Percentage of public water being delivered that meets all standards



Background

Every public water utility reports water quality monthly to the Department of Public Health. This indicator shows the percentage of monthly reports that show full compliance, after weighting the reports to account for the number of people each utility serves.

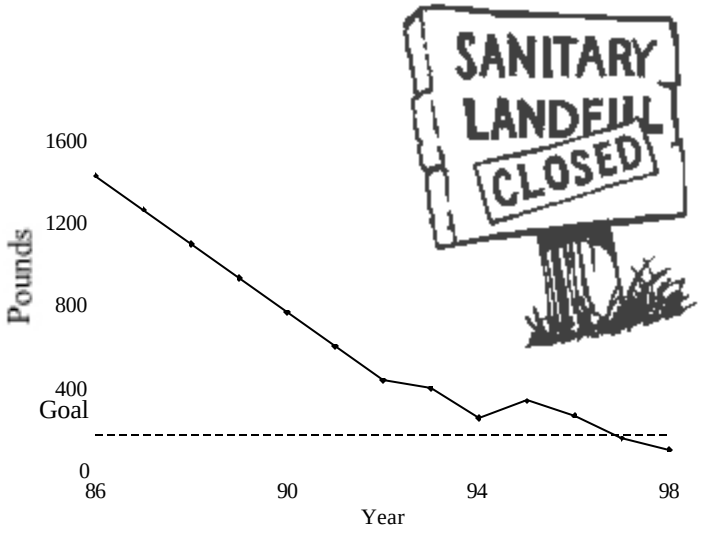


Trends

Though problems persist, they occur most frequently with small systems serving relatively few households. This indicator would show more fluctuations if the larger systems failed to deliver good water, since it takes into account the number of people served by each system.

Garbage Burial

Average resident's share of municipal solid waste buried in landfills within Connecticut



Background

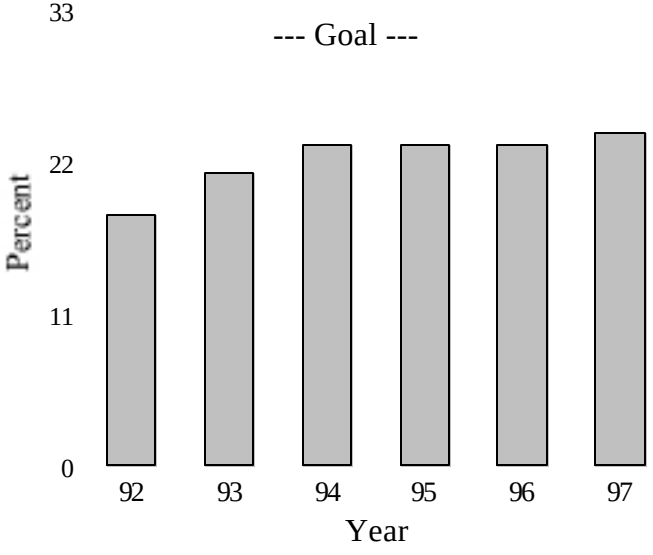
Disposal of municipal solid waste by burial in landfills is the least desirable management option; it ranks behind recycling, source reduction, and resource recovery (i.e., incineration for energy recovery). This indicator charts progress toward the goal of reducing reliance on landfills, which has been the goal of state solid waste policy since the 1970s. Connecticut's plan calls for reducing the average resident's landfill contribution to about 170 pounds per year.

Trends

Since 1986, six resource recovery plants have begun operation, collection of recyclables has improved to account for 24% of municipal waste, and some consumers have altered buying habits. These factors allowed dozens of landfills to close as they became full or as federal regulations prohibited their continued operation.

Recycling

Percentage of municipal solid waste collected for recycling



Background

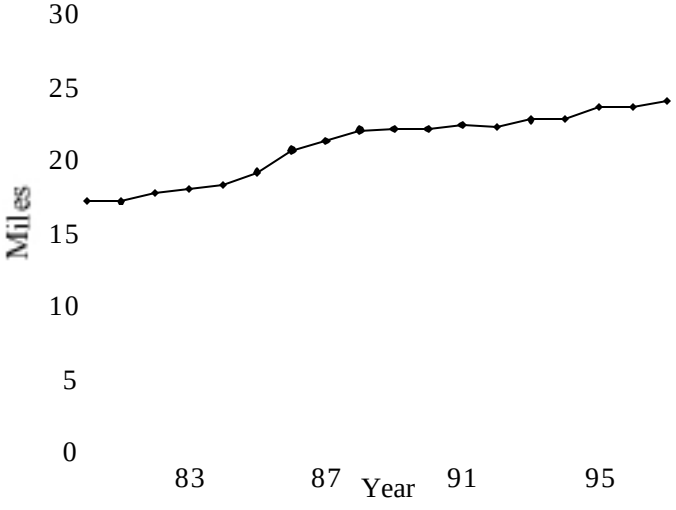
The General Assembly established a goal of reducing *and* recycling 40% of Connecticut's municipal solid waste stream by the year 2000; the DEP has calculated that this would require 33% of the waste to be recycled (with the other 7% disappearing through waste *reduction*).

Trends

The statewide average held steady in 1995 and 1996, and some municipalities exceeded 25%. Market demand for some recyclables increased drastically in 1994, but went down the following year. More stable markets are expected as manufacturers continue to invest in factories that use recycled materials. Violations of recycling laws were discovered in 1997; more publicity and enforcement could result in progress in 1998 and 1999.

Driving Our Cars

Number of miles that the average Connecticut resident drives a vehicle every day

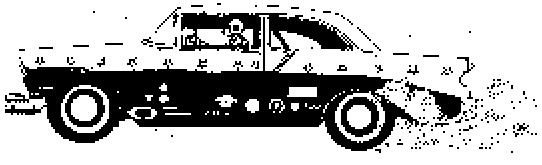


Background

Driving a car is probably the most environmentally damaging activity a Connecticut resident will engage in. Trucks and the increasingly-popular sport utility vehicle 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.

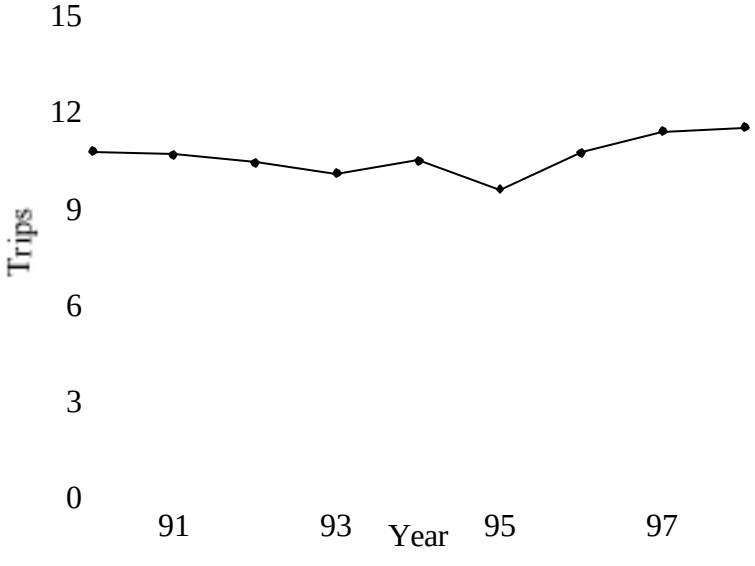
Trends

Each year, the average Connecticut resident drives more miles than he or she did the previous year. The reasons are complex, and include the fact that most new development is accessible only by car.



Taking the Bus

Number of local bus trips taken by the average Connecticut resident

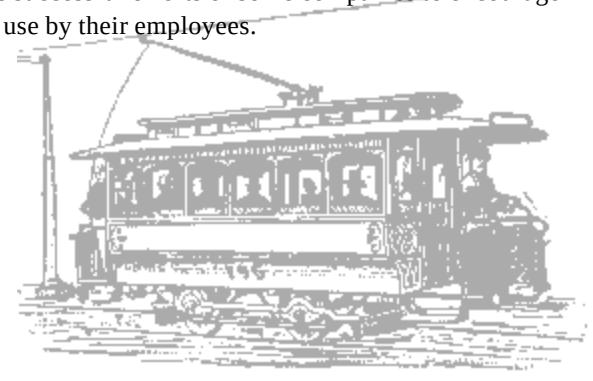


Background

Riding a bus is just one alternative to driving a car. Ridership data are collected by the DOT.

Trends

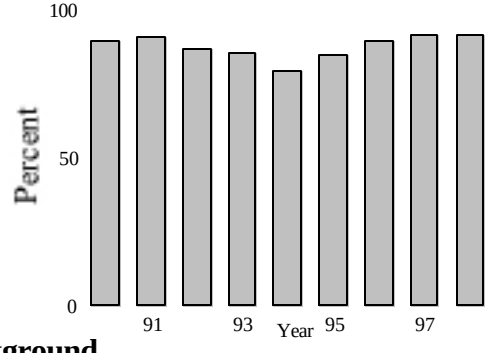
Bus ridership continued to increase in 1998. Reasons for this progress probably include improvements in bus routing and the successful efforts of some companies to encourage transit use by their employees.



Compliance

Percentage of facilities found to be in compliance with environmental laws

All DEP Programs



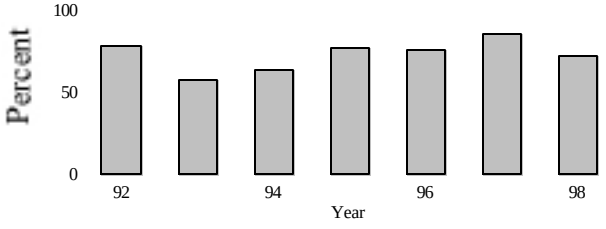
Background

This new 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.

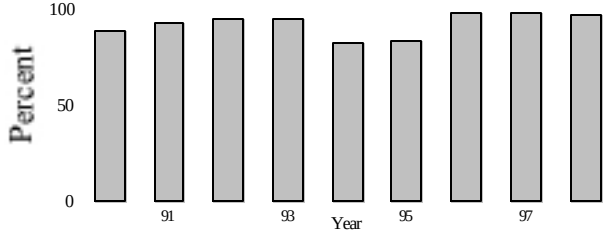
Trends

Improved compliance in waste programs appears to have balanced a downturn in water programs. Please see pages 7-8 for more discussion.

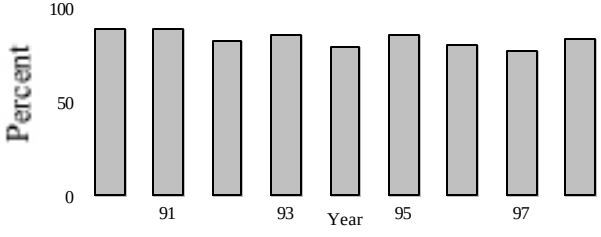
DEP Water Bureau



DEP Air Bureau



DEP Waste Bureau



PART IV
1998 Activities of the Council on Environmental Quality

Research and Communication

Veteran readers of CEQ reports will recall when the annual report used to be the Council's primary outlet for its policy research. Since 1996, however, the Council has released the products of its research in interim reports. Each interim report is published in long and short versions. The annual report now includes summaries of these interim reports.

In October, the Council published "Compliance or Defiance: How Do We Know If People Are Obeying Connecticut's Environmental Laws?" This interim report is summarized briefly in Part One of this report.

Prior to publication of each interim report, a draft version is circulated to representative agencies and organizations known to have an interest in the report's topic. These organizations, which include businesses and non-profit organizations, are invited to comment at public meetings on the Council's conclusions and recommendations while these are still in draft form.

The Council has begun work on its next interim reports, which will identify several gaps in the state's environmental laws and programs, with emphasis on ones which are intended to protect human health. The Council also plans to measure the public's understanding of environmental problems and their solutions.

Since 1995, the Council had been assisting the Connecticut Greenways Council with basic administrative functions. As a result of new appropriations for greenways, the DEP was able to assume those duties late in 1997. However, the CEQ remains involved with greenways, and in 1998 it continued to supervise the publication of "*links*," the statewide newsletter for greenway activity. The newsletter was funded by a federal grant and published in partnership with the Connecticut Forest and Park Association.

Meeting With the Public

The Council continues to rely greatly on the informed public to help identify possible deficiencies in state environmental policy as well as corrective actions. At meetings, the Council heard from representatives of the Yale School of Forestry and Environmental Studies' Urban Resources Initiative, Environment and Human Health, Inc., Mansfield Common Sense, Connecticut Fund for the Environment, Connecticut Bar Association's Environmental Law Section, Connecticut Business and Industry Association, Long Island Soundkeeper, Connecticut Siting Council, and Department of Environmental Protection.

In January, the Council held a meeting at Yale University — its first public meeting in New Haven County — and invited the public to speak. Municipal officials, representatives of conservation groups, and interested individuals told the Council what they saw as the biggest environmental problems in that region.

The meeting in New Haven was the third in what the Council intends to be a regular series of public forums around the state. (It followed a very successful initial forum in Darien in December 1996 and one in Norwich in 1997.) The Council's fourth forum was in Litchfield in October, 1998, where the Council again received outstanding testimony from the public. Comments from the Litchfield and New Haven forums are summarized in Part Two of this report.

Solving Problems

The Council received and helped solve complaints on a variety of complicated problems in 1998. This is one of the Council's most important statutory obligations. Alert citizens helped to identify unresolved problems ranging from erosion and related damage on state lands, to unresolved violations at a state-owned landfill, to policies on trading of state park lands.

The Council stands ready to work with Governor Rowland, the General Assembly, other agencies, and fellow citizens in meeting environmental challenges that confront Connecticut.

C.E.Q. MEMBERS

Donal C. O'Brien, Jr. (Chairman) Resident of New Canaan. Original charter member of CEQ, 197 1. 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, Board of Directors, National Audubon Society. Board of Directors, Waterfowl Research Foundation and American Bird Conservancy. Chairman, Atlantic Salmon Federation. Former Vice-Chairman, Board of Governors, The Nature Conservancy. Former President, International Council for Bird Preservation and former Chairman of American Bird Conservancy. Former Director/Trustee, Delta Waterfowl Foundation, CT Waterfowlers Association and Theodore Gordon Flyfishers.

Daniel J. Alfieri. Resident of Hebron. Environmental Engineering Specialist with General Dynamics Corporation. Former Member, Hebron Board of Education. Past Chair, Hebron Republican Town Committee, and Hebron Public Safety Commission. Member, Institute of Hazardous Materials Management.

Marian R. Chertow. Resident of New Haven. Director, Industrial Environmental Management Program, Yale School of Forestry and Environmental Studies. Director, Environmental Reform: the Next Generation Project, Yale Center for Environmental Law and Policy. Editorial Board, *The Journal of Industrial Ecology* and *BioCycle* Magazine. Board of Directors, Technology for CT, Inc., Tax-Exempt Proceeds Fund, Shubert Theater, National Urban Fellows, Inc. Advisory Board, Alliance for Environmental Innovation.

Thomas F. Harrison. Resident of Avon. Partner in the Hartford based law firm of Day, Berry & Howard. Member, Avon Board of Finance. Executive Committee and Chairman, Environmental Law Section, CT Bar Association. Board of Directors, CT Chapter, Air & Waste Management Association. Advisory Council on the Environment, Greater Hartford Chamber of Commerce. Environmental Professionals Organization of CT. Small Business Compliance Advisory Panel, CT Department of Environmental Protection. CT Environmental Forum. Editor, *Environmental Watch Update.* Contributing Editor, *Environmental Compliance & Litigation Strategy*. Former Member, Avon Inland Wetlands Commission.

Susan D. Merrow. Resident and First Selectman of East Haddam. Former President, CT Conference of Municipalities. 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.

Richard A. Miller. Resident of West Simsbury. Manager, Environmental Regulatory Affairs, Northeast Utilities. Adjunct Faculty, Rensselaer at Hartford (Environmental Law, Regulation and Management courses). Past Member, Remediation Standards Advisory Committee, Environmental Permitting Task Force, CT Environmental Industry Initiative,

Water Quality Standards Advisory Committee, Land Use Regulations Advisory Committee/Aquifer Protection Task Force, State Emergency Response Commission. Member, Simsbury Conservation and Inland Wetlands Commission, Simsbury Land Conservation Trust. Past Director, CBIA's Environmental Policies Council. Member, CT Bar Association's Environmental Section.

Earl W. Phillips, Jr. Resident of Middle Haddam. Partner with the law firm of Robinson & Cole LLP. Commissioner of Environmental Protection's E2000 Advisory Board. Executive Committee, Environmental Section of the CT Bar Association. Executive Steering Committee, Environmental Policies Council of the CT Business and Industry Association and Chairman, Hazardous Waste Section. Adjunct Instructor of Environmental Law, Wesleyan University and Rensselaer Polytechnic Institute (Hartford Graduate Center).

Richard A. Sherman (until 4/98). Resident of Mansfield Center. Architectural designer and construction manager of earth sheltered, passive solar and energy efficient residences. CEQ Representative to the Route 6 Advisory Committee. Charter Member, Transit Alliance of Eastern CT, and Citizens for a Sensible Six. Former Organizer, the Progress and Equity Partnership. Chair, Mansfield Transportation Advisory Committee. President, Mansfield Commonground. Member, Mansfield Planning and Zoning Design Review Panel. Chair, Mansfield Democratic Town Committee. Host and producer of the radio show, "A Distant Shore" on WHUS (9 1.7 FM, Storm). Public Affairs Director of WHUS. Stopover host, American Tour d'Sol solar electric car race.

Cecil Ursprung (since 4/98). Resident of West Hartford. President and Chief Executive Officer, Reflexite Corporation. Charter Member, Washtenaw County (MI) Parks and Recreation Commission. Former Board Member and Chair, Ann Arbor Transportation Authority. Former Business Director, Ecology Center of Ann Arbor. Former Director, Ann Arbor-Ypsilanti Urban Area Transportation Commission. Former Member, Transportation and Land Use Subcommittee, Southeast Michigan Council of Governments. Former Board Member, New Britain YMCA. Member, Scholarship Development Group, Talcott Mountain Science Center and Academy.

Wesley L. Winterbottom. Resident of West Hartford. Professor and Coordinator of Environmental Toxicology Programs; Director, Center for Teaching Excellence, Gateway Community Technical College. Registered Professional Engineer; Diplomate American Academy of Environmental Engineers; Advisory Board Member, The Sound High School, Ward College of Technology (University of Hartford), New England Board of Higher Education; Advanced Environmental Technology National Science Fellow, Univ. of Northern Iowa; National Science Foundation Faculty Advisor, Mt. Rainier National Park. ANSI/GETF Certified IS0 14000 Trainer; President, CT Consortium for Enhancing Learning and Teaching; Former Administrative Supervisor, CT DEP. Member, West Hartford Conservation Commission. Director, New Haven Board of Education Summer-Tech Program.

Acknowledgments

The Council appreciates the work of its staff — Karl Wagener (Executive Director) and Melissa Ryan (Environmental Analyst) — in drafting this report for review by the Council and preparing the final version for publication. Interns provide valuable assistance, and the Council notes the special contributions of Steve Wattles and Ryan Burch (Trinity College), and Kevin Wood (Central Connecticut State University). The Council also appreciates the assistance of the many people in the Departments of Environmental Protection, Agriculture, Transportation, and Public Health who provided data. Special thanks to Paul Fusco for the use of his plover drawings, and to Mara Eckerling for her drawings of Echo Farm. The Council especially thanks the many citizens, businesses, and organizations that offered information and viewpoints to the Council throughout the year.

The Council also extends its gratitude to the many people who responded to last year's report. Several readers suggested ways to improve the environmental indicators. They cannot be acknowledged here by name, but they all will find that most of their suggestions have been included (or will be soon).

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?

Mail: 79 Elm Street, Hartford, CT 06106

Phone: 860-424-4000 (Staffed 8:30 to 4:30; messages can be left 24 hours a day)

Fax: 860-424-4070

E-mail: karl.wagener@po.state.ct.us