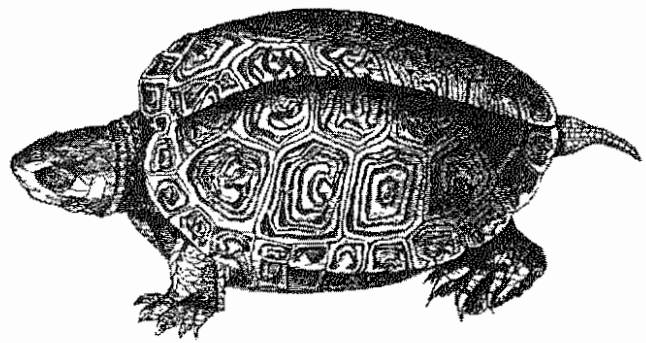
Environmental Quality in Connecticut



THE 1997 ANNUAL REPORT OF THE COUNCIL ON ENVIRONMENTAL QUALITY

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

April 15, 1998

The Honorable John G Rowland
Governor of Connecticut
State Capitol
Hartford, CT 06106

Dear Governor Rowland

I am pleased to submit the annual report of the Council on Environmental Quality for calendar year 1997

In Part One, the Council revisits the recommendations it made last year to improve state land conservation and management The changes we have seen in one year are remarkable In particular, the vision and leadership exhibited in your recent initiatives for State Parks and open space will make an enormous difference to the future of Connecticut's landscape and everyone living in it

In Part Two, the Council has strengthened its successful use of Environmental Indicators as the preferred way to report changes in our air, water, land, and wildlife These indicators are bottom-line statements on the actual condition of Connecticut One new indicator is included to show progress toward the new goal of conserving 21 percent of the landscape for the 21st century

The Council has expanded its practice of holding public forums in different regions of the state, to learn what environmental issues are of greatest concern Results of two such forums are in Part Three

As always, the Council stands ready to assist you or provide any additional information you may want

Respectfully,

Donal C O'Brien, Jr
Chairman

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Phone (860) 424-4000 • Fax (860) 424-4070

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On The Cover Northern Diamondback Terrapins *(Malaclemys terrapin terrapin)* are the only marine turtles that spend their whole lives along Connecticut's shore

1918

Terrapin stew is a popular delicacy in tony restaurants "Exhaustion of the [terrapin] fishery is inevitable, unless some legislative provision be made for its preservation " *(Turtles of New England, 1919)*

1998

The terrapin's popularity has faded, and it came under protective regulation in 1992 Terrapins are breeding again in previously damaged tidal marshes that have been restored to natural conditions

Part I

New Progress Report on Connecticut's Management of Land

"Conserving land is Connecticut's perennial challenge" So began last year's report The Council identified several long-term deficiencies in our conservation of land resources, and raised seven questions to define the specific problems. The year 1997 saw progress so significant and remarkable that the Council is repeating those seven questions and reporting on the year's achievements.

Where will Connecticut place?

Only one industrial state in the region has no comprehensive plan for land conservation, has no realistic target date, does little marketing of its conservation work, and has never designed or authorized a substantial acquisition program Connecticut"
-- 1996 CEQ Report

THE NEW RACE FOR OPEN SPACE

In 1997 and early 1998, Connecticut became the tortoise state poised to overtake the hares Governor Rowland, the General Assembly, and the public took three big steps toward making this state a leader

A Formal Goal. Public Act 97-227 established a formal goal for the first time the state shall hold as open space at least 10 percent of Connecticut's land area (It holds about 6 7% now) The law also instructed the Department of Environmental Protection (DEP) to develop a long-needed comprehensive plan for open space

Study and Analysis. Governor Rowland appointed a Blue-Ribbon Task Force on Open Space to outline the basic elements of a plan In only three months, this group of 15 legislators, business leaders, agency officials, and leaders of conservation and real estate organizations

prescribed a package of recommendations to help Connecticut conserve land. More than 500 people attended the Task Force's three public hearings and delivered a consistent message: Get us to the 10% goal in one generation! Municipalities and land trusts said they would help but required some resources from the state.

Action! Governor Rowland received the Task Force's report and proposed an unprecedented state commitment to open space. The foundation of the proposal is to achieve an *overall* goal for open space (not just state-owned open space) of *21 percent early in the 21st century*. This would include state, municipal, and private open space, as well as preserved agricultural land and most land owned by water utilities, even though these latter types of land are not traditionally labeled as open space. He proposed a five-year first phase that would cost $107 million for state acquisitions and $59 million for partnership grants to towns and nonprofit organizations. The Task Force and the Governor also proposed statutory improvements to the acquisition process.

Recommendation

The General Assembly should implement fully the proposal of the Governor and the recommendations of the Open Space Task Force. This urgent matter is the Council's strongest recommendation for action in 1998.

What forces will reverse their long-term decline?

"In one of the year's most positive developments, the new Friends of Connecticut State Parks, Inc has documented the physical condition of many of the parks This all-volunteer group is working with the DEP to develop a realistic long-term ***capital improvement plan*** *"*

-- 1996 CEQ Report

GREAT STATE PARKS

The anticipated **capital improvement plan** was unveiled in the summer of 1997, and Governor Rowland responded with a proposal for returning the parks to respectability by 2010. This plan also envisions reopening the half dozen parks that were closed earlier this decade for budgetary reasons. The Council recommends full implementation of the "2010 Plan," at an estimated cost of $110 million. This is three dollars per resident per year, a modest but critical and highly visible investment in tourism and quality of life

How can forest management on state lands yield more benefits for cities and towns?

Forestry is one of the few measurable profit centers in state government The General Assembly should dedicate forestry revenue to grants for community trees and greenways

-- 1996 CEQ Report

FORESTRY AND COMMUNITIES

In its 1996 report, the Council called attention to the $800,000 that is returned to the general fund every year from forest management (including commercial harvesting) on state lands The Council's recommendation for dedicating any new harvest-related revenue to cities and towns was not adopted However, three recent developments have caused the Council to put this recommendation on hold:

-- Last fiscal year, Governor Rowland and the General Assembly appropriated funds for the DEP to hire four new foresters, the first in ten years. Acreage undergoing management has been doubled to about 2400 acres per year (about 2 percent of the state's holdings).

-- The Governor's Task Force on Open Space estimated that 50,000 more acres are needed to complete the network of State Forests. Most of this new acreage will add to or fill gaps in the 30 existing State Forests, which now cover about 140,000 acres. These new acres will return revenue to the state eventually, but in the near term the DEP will need to assess how much staff and equipment it will need to make the new forests productive parts of the system. Returning some forestry revenue to cities and towns still makes sense for the long term, but during the period of rapid growth it may turn out that the DEP will need the revenue itself to manage the expanding system. The Council recommends that the DEP develop a long-term strategy by 1999 for managing the expanded State Forest system.

-- The DEP is using federal dollars for a modest program of grants to cities for pocket parks and greenways, though only for one year.

GREENWAYS

Greenways are corridors of open space that link towns, cities, and rural areas to parks and to each other They usually follow linear features of the landscape, such as rivers or abandoned railroad beds, and often give people a chance to get from one place to another without having to drive Greenways have the potential to transform the whole experience of living in Connecticut

How can we improve the remarkable success of Greenways?

CONNECTICUT GREENWAYS

In 1997, greenways finally emerged from an embryonic concept to a permanent and influential force on Connecticut's landscape. Some highlights of the year include:

— The Connecticut National Guard reclaimed miles of the Hop River State Park Trail and the Air Line State Park Trail, two abandoned railbeds These could soon be ready for use as part of the Charter Oak Greenway, which will extend from Hartford to Rhode Island Towns along the southern portion of the Air Line received federal funds and began reclamation efforts there.

— The Connecticut Greenways Council, established by statute in 1995, is working as the platform for partnerships envisioned by its creators. It launched a newsletter in partnership with the Connecticut Forest and Park Association For the first time, the General Assembly appropriated funds to the DEP to work on greenways.

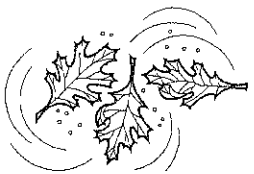
— More than a dozen towns, cities, and nonprofit organizations received grants from the DEP under several federally-funded programs (in partnership with the National Park Service and the Environmental Protection Agency).

BETTER COMMUNITIES

Taxes, Traffic, and Land Use

How does the property tax distort land-use planning by municipalities?

"As described in previous CEQ reports, the property tax exerts many negative influences on Connecticut's environment."
-- 1996 CEQ Report



Portions of the state are caught in a cycle of sprawling development which leads to more traffic which leads to road expansion and, with faster travel, to more trip-generating development, more traffic, and so on. Most of the new development is accessible only by automobile and requires construction of new infrastructure, and is commonly called "sprawl." The effects of sprawling development on air, land, and water generally exceed those of "smart growth," or development that occurs where transit, sewers, and other infrastructure exist already. Sprawl continues even at a time when, nationwide, people are rediscovering the high quality of living that comes with well-designed communities where adults and children alike can walk and bike.

Sometimes it is the property tax that induces growing towns to sprawl, often to the detriment of more established cities and towns as well as the environment. Growing towns perceive a need to constantly increase tax revenue to keep up with expanding demands for services. With tax revenue as a dominant consideration, many municipalities find themselves zoning to attract or accommodate large, regionally-scaled retail and office buildings. Zoning frequently places this development along major roads and the edges of towns even when the activity would be better suited to city or town centers.

RECOMMENDATION

The General Assembly should alter those aspects of the property tax structure that undermine municipalities' attempts at good planning. Two possible first steps include 1) establishing regional tax rates and revenue sharing for commercial development over a certain size (determined by the region in question), or 2) creating a statewide property tax rate for large commercial development (but collected regionally). Measures of this type would reduce the influence of the property tax in commercial siting decisions, and thereby increase the influence of good planning.

BROWNFIELDS

Does the state operate the efficient programs required to help cities, towns, and investors clean up and develop contaminated properties?

"What in 1985 was a program plagued with a swelling backlog is now a smooth-running service that delegates most site clean-ups to the private sector and has virtually no backlog The Council can only conclude that this one-time bureaucratic logjam has been broken, and looks forward to an evaluation of the actual environmental results in a few years "

-- 1996 CEQ Report

Many companies and communities are burdened with "brownfields," which are contaminated and unproductive parcels of land Any impediments to redeveloping these lands help to push new ventures outward from city and town centers to "greenfields" where the environmental impact of development is likely to be greater Five years ago, redevelopment was hindered by the bureaucratic backlog in the DEP's approval of clean-up plans The Council has been reporting for several years on the progress of the General Assembly and DEP in fixing this problem It is fixed

Last year's report documented the handling of properties under Connecticut's property transfer law, which is the law governing the investigation, reporting, and clean-up of commercial properties being bought and sold It is clear that no backlog exists for contaminated property reports submitted since 1995 Private-sector Licensed Environmental Professionals handle nearly two-thirds of the sites reported (158 out of 244) More than 30 sites are being addressed after they were submitted **voluntarily** by companies and municipalities, as allowed by a 1995 law

While the bureaucracy has been fixed, hundreds of old industrial and commercial sites still lay idle Substantial state funds have been used in cities to clean up priority sites ripe for commercial development Dozens of prominent sites, however, including many on rivers and harbors, would be best suited to parks and greenways if they could be cleaned up

RECOMMENDATION

The General Assembly should adopt the DEP's legislative proposal to allow use of urban site remediation funds for community improvement projects.

SAFETY IN THE WOODS

Have we done all we can to make the hunting season safe?

Following the fatal shooting of a jogger by a hunter in 1992, a Task Force on Hunting and Public Safety was convened to review relevant laws and policies The Task Force, coordinated in part by CEQ staff, issued 42 recommendations More than half of these -- pertaining mostly to educational programs -- have been adopted administratively by the DEP Most of the recommendations requiring legislative action have failed This failure is apparently due largely to the lack of any constituency at the Capitol advocating a safer hunting environment The Council on Environmental Quality, in the absence of any other party, will continue to monitor and report on legislative progress in making the woods and fields more safe

Two important laws were adopted in 1997 a requirement that all archery hunters pass a conservation education course, and a requirement that convicted violators pass a remedial course before they can obtain another license The DEP has proposed one related bill for 1998, which would provide for cooperation with other states in revoking a hunter's license in all cooperating states when it is revoked in one of the states

In addition, the Council urges the General Assembly to adopt the following

— Increase appropriations, by increasing license fees if necessary, to increase the number of conservation officers

— Prohibit hunting while under the influence of alcohol

CONNECTICUT: LIGHT YEARS AHEAD?

Utility Deregulation, the Environment, and Economic Expansion

The Council documented the environmental threats and economic opportunities posed by deregulation of the retail electricity market in a November 1997 interim report with the above title The Council concluded that Connecticut will have a remarkable chance to expand the state's economy and shrink electric bills by boosting renewable energy businesses, fuel cells, and demand-side management These benefits will materialize if the General Assembly makes decisions that specifically encourage efficient, non-pollutmg energy businesses, some of which are based in Connecticut

Perils to Avoid

Midwestern power plants that burn coal might have more markets open to them under deregulation, even if Connecticut's own needs are met with more natural gas and renewable resources The Council supports the ongoing efforts of the DEP and Attorney General to pursue regional and federal solutions that protect Connecticut and other downwind states

Most climatologists believe that **global climate change** will result from the ongoing buildup of carbon dioxide (CO_2) and other "greenhouse gases" (called thus because they trap the earth's heat in the atmosphere like the glass panes of a greenhouse) There is no longer any doubt that international agreements will place pressure on utilities to reduce CO_2 emissions, even if it is on a quasi-voluntary basis It would be an expensive mistake for Connecticut to lock itself into a system built on more fossil fuel consumption only to be faced in a few years with a requirement to reduce CO_2

To meet **air quality standards**, Connecticut still needs to find ways to *reduce* emissions of hydrocarbons and nitrogen oxides More combustion in Connecticut, even of the relatively-clean natural gas, will result in more air pollution

Interested readers should request a copy of "Connecticut Light Years Ahead?" from the CEQ office for complete information on the Council's conclusions and recommendations

Typical U.S. Utility Vs. Fuel Cell Emissions (in pounds/megawatt-hr)

	Utility	Fuel Cell
Nitrogen Oxides (NOx)	7.65	0.016
Carbon Monoxide	0.34	0.023
Reactive Organic Gases	0.34	0.0004
Sulfur Oxides (SOx)	16.1	0
Particulates (PM10)	0.46	0

Source: ONSI Corporation, 1995

Opportunities

Fuel cells are a source of electricity far more advanced and better suited to a densely-populated state than traditional sources that rely on combustion. Remarkably, Connecticut is home to two of the handful of fuel cell manufacturers. Still in its infancy, the fuel cell industry is expected to create tens of thousands of high-quality jobs — somewhere. Connecticut *could* be the fuel cell state.

Demand-side management implemented since 1987 has helped Connecticut customers save so much electricity that the need for a medium-sized coal-fired power plant has been averted. As a result, hundreds of millions of dollars have remained in Connecticut's economy instead of being wasted on inefficient consumption. However, Connecticut's proud record of conservation might crumble if the General Assembly does not take specific steps to keep demand-side measures in place.

Recommendations in Brief

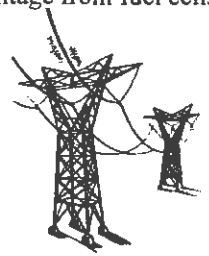
1. Set goals for efficiency and air quality improvements, and for making this the Fuel Cell State.

2. Institute a Systems Benefit Charge of at least three mills per kilowatt hour to pay for demand-side management and development of advanced technologies.

3. Adopt a requirement that companies selling electricity in Connecticut derive a specified percentage from fuel cells or renewable resources, and provide relevant information to customers.

4. Exempt fuel cells from Connecticut Siting Council regulations.

5. State agencies should be authorized to pay a premium for "green power."



Part II

Indicators of Environmental Trends

A Status Report

These indicators are bottom-line statements of the actual condition of our air, water, land, and wildlife.

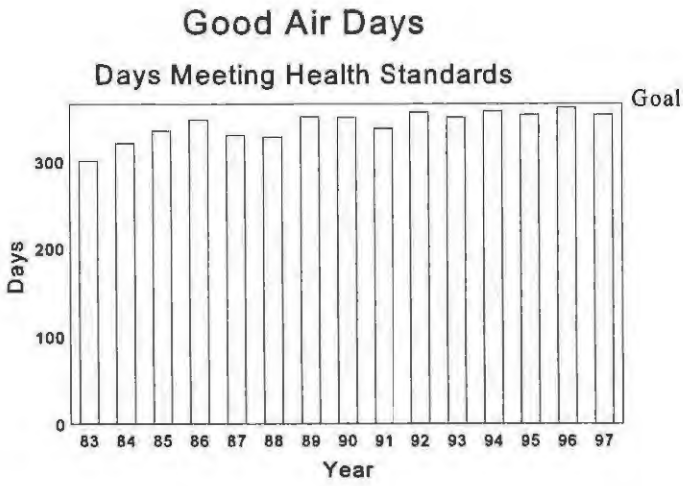
These indicators are bottom-line statements of the actual condition of our air, water, land, and wildlife. The focus is on results, rather than on government programs, budgets, enforcement action, or new laws. Each indicator includes a graph, a description of the indicator (the actual thing being measured or counted), some background and a discussion of recent trends.

Where possible, each graph illustrates progress (or lack of it) 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.

AIR

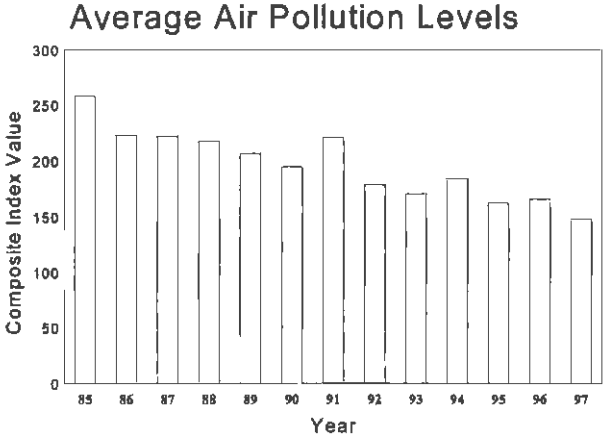
Indicator: Number of days each year that every monitoring station in the state recorded satisfactory air quality.

Background: "Satisfactory air quality" is defined here as air that meets or is better than 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 (or, in Fairfield County, by 2007).



Recent Trends: Connecticut's air has shown continuous improvement. Violations of the health-based ambient air quality standards have been virtually 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.) Motor vehicles remain a major source of ozone-forming emissions despite great improvements in tailpipe standards. Connecticut is taking many steps to reduce emissions from the transportation sector to comply with the 1990 Federal Clean Air Act. Minor fluctuations over the last five years are the result of weather conditions.

Indicator: Average level of air pollution (six major pollutants combined).

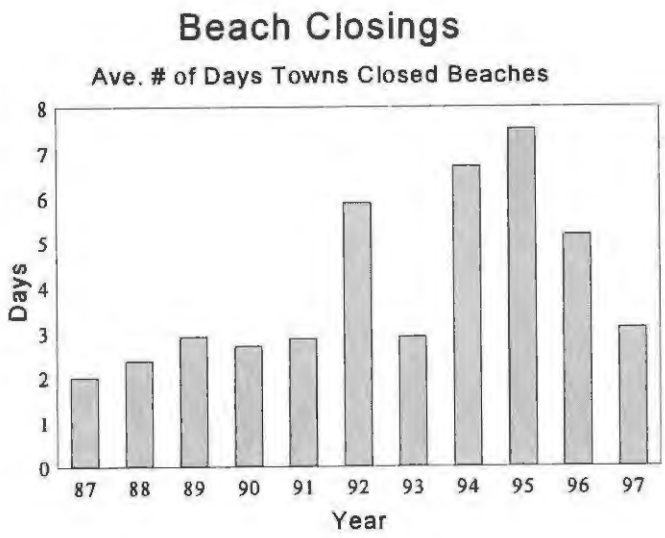


This indicator has been criticized on technical grounds by some interested readers. It might be eliminated from next year's report. More feedback is welcome.

Background: Six air pollutants -- carbon monoxide, ground-level ozone, lead, particulates, nitrogen oxides, and sulfur dioxide -- are measured by the DEP. The level of each pollutant is expressed on a numerical scale (Pollutant Standards Index or PSI) that takes into account the levels at which each pollutant, by itself, is considered unhealthful. In this somewhat complicated indicator, the average levels of all six pollutants are added together. It shows general long-term trends.

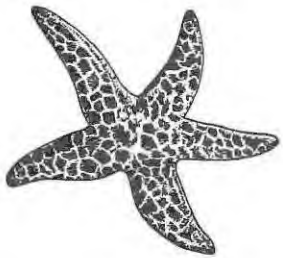
Recent Trends: Most of the drop in total pollutants since 1987 is due to reductions in carbon monoxide, sulfur dioxide, and particulate emissions. Levels of lead in the air have dropped so low that in 1997 they were not included.

SOUND AND SHORE

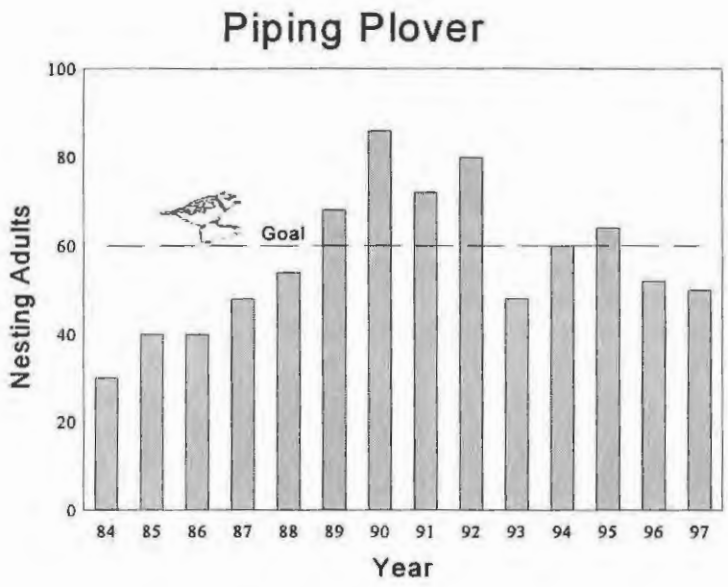


Indicator: Average number of days coastal municipalities closed one or more of their beaches.

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.



Recent 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. (Note: Graph does not include one beach in Greenwich that has been closed for most of the recent seasons due to non-point pollution.)



Indicator: Number of piping plovers nesting in Connecticut.

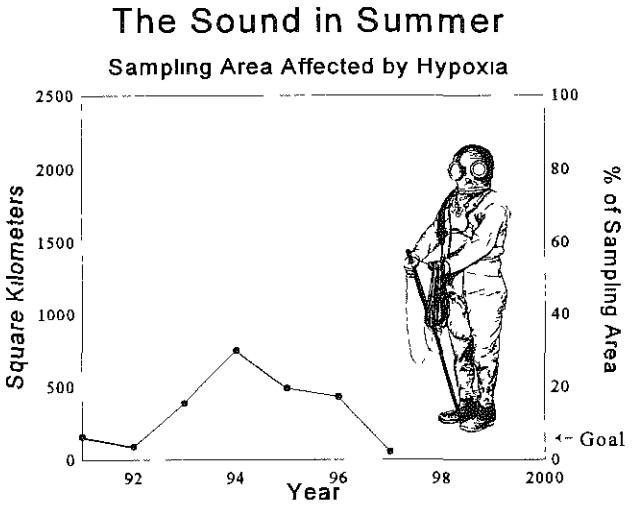
Background: Piping plovers are thrush-sized shorebirds that nest on beaches, often with least terns. Nests are frequently destroyed by human intrusion, storm tides, and predators. Nesting adults are counted (and in some cases, protected) every spring by the DEP and volunteers working with The Nature Conservancy. The piping plover's status is "threatened".

Recent 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. Rats and vandals reduced nesting success in 1995. In 1996, adverse weather delayed breeding, and predators destroyed many nests before hatching could occur. While slightly fewer adults returned in 1997, nesting success improved, which could result in more returning adults in future years.

Indicator: Square miles (and percent) of the Sound that hypoxia affects each year

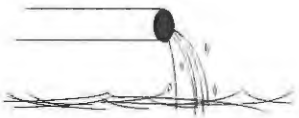
Background: Hypoxia is the condition in the water when oxygen levels are too low to support desirable forms of life (For this indicator, hypoxia is defined as less than or equal to 3 mg/l of dissolved oxygen) Hypoxia occurs when nitrogen stimulates excessive growth of aquatic plants, which die and are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

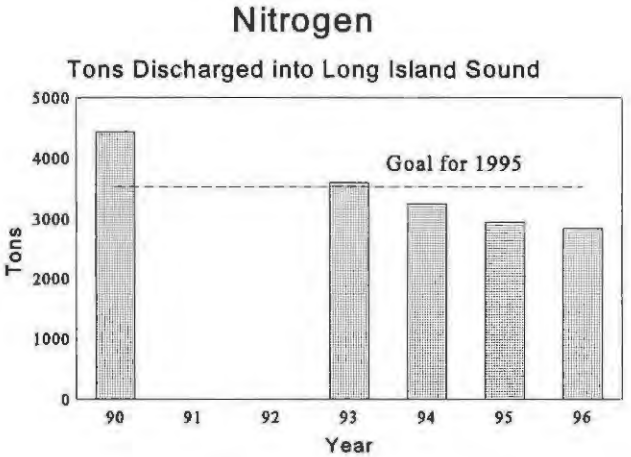
Recent Trends: More years of data are required to assess true trends Year-to-year fluctuations mainly reflect weather patterns All of the hypoxia has occurred in the western two-thirds of the Sound Connecticut and New York adopted a comprehensive management plan in 1994 The significant decrease in 1997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



Indicator: Tons of nitrogen 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 by 1994. A long-term goal will be based on the scientific modeling now underway.

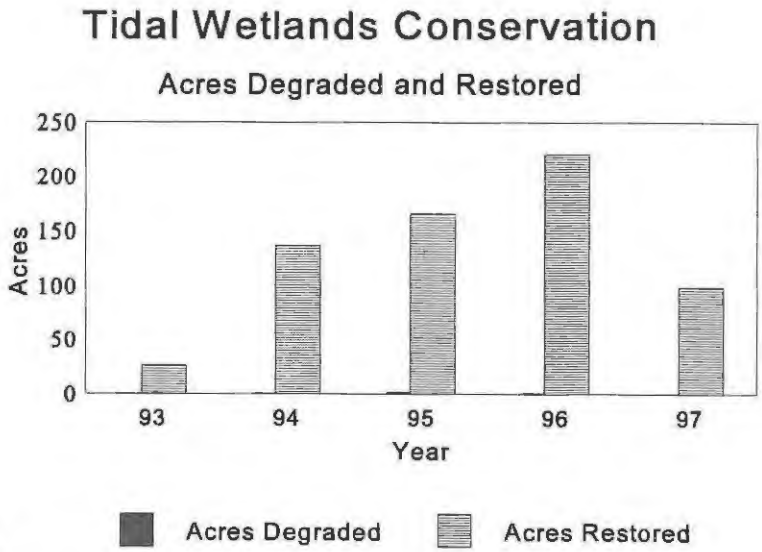




Recent Trends: Connecticut's "no net increase" policy and investments in nitrogen-removal technology have been successful. The improvement in nitrogen discharge can be attributed to an increase in the number of sewage treatment plants retrofitted for nitrogen removal. Connecticut, New York, and the federal Environmental Protection Agency will be implementing a new long-term (15-year) reduction plan.

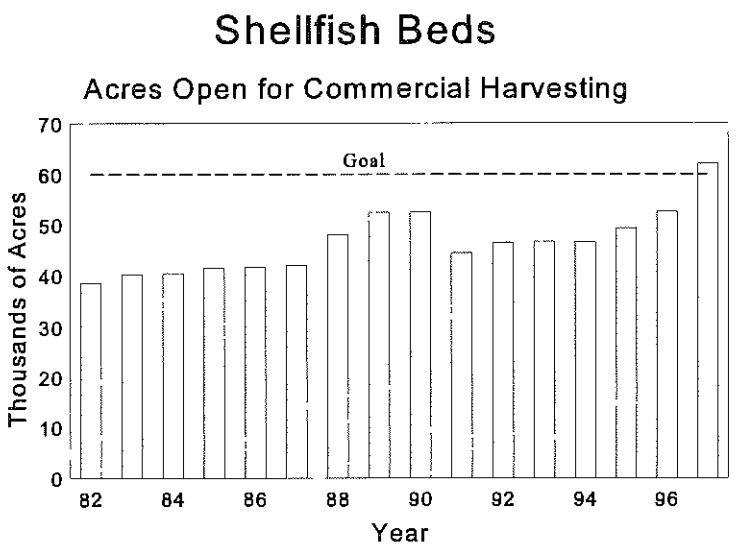
Indicator: Acres of tidal wetlands degraded and acres restored.

Background: Degraded acreage is the area permitted for development activity by the DEP. Restoration includes activity 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.



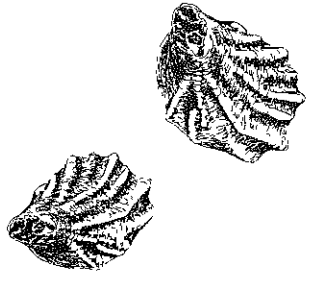
Recent Trends: Data are available from only the past five years. With the exception of 1995, less than one acre per year of tidal wetlands was lost to permitted development, and many degraded acres were restored. The apparent increase in degradation in 1995 is a statistical recording of damage that actually occurred more than 20 years ago. The apparent downturn in restoration in 1997 is the result of a current focus on some extensive, slower-moving projects.

Indicator: Acres of commercial shellfish beds that are clean enough and monitored sufficiently to allow them to be open for harvesting

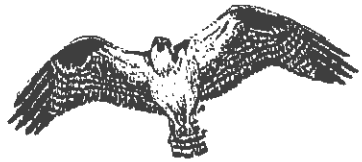


Background: Connecticut's goal is to have 60,000 acres open by the year 2000, which is far fewer acres than were open a hundred years ago. The primary impediments to opening more acres are the presence of sewage discharges and the need to conduct frequent monitoring to satisfy federal health-assurance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

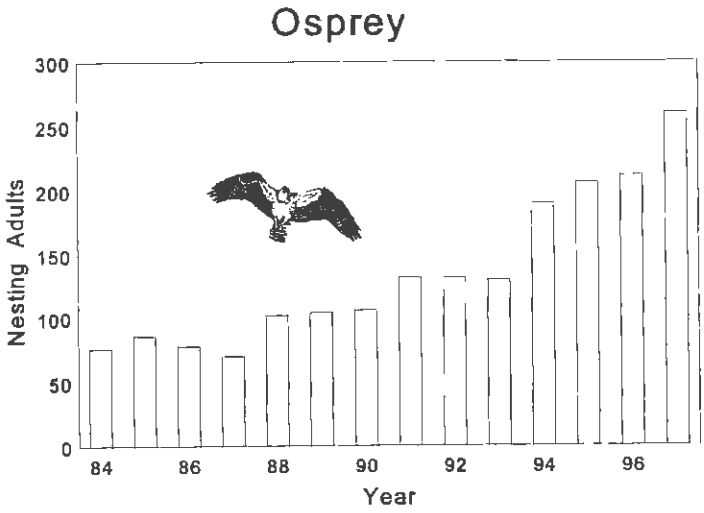
Recent Trends: The dramatic increase in 1997 is attributed indirectly to the increase m commercial value of Connecticut's harvest over the past decade Shellfish companies have expanded to take advantage of the recent opening of beds that were previously closed



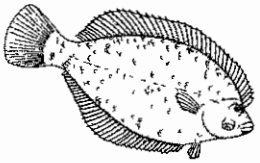
Indicator: Number of ospreys that nest each year in Connecticut.



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.



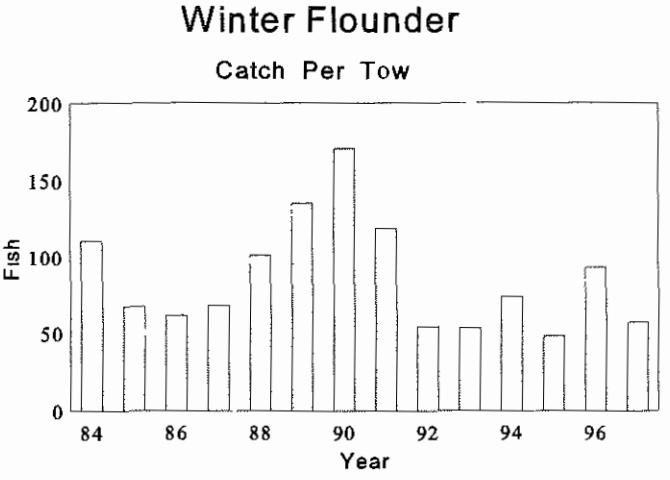
Recent Trends: The osprey continues to rebound from its low point in the 1960s. Now, with fewer chlorinated hydrocarbons in the food chain, and after years of cooperative ventures to erect nesting platforms along the coast, nesting success continues at a rate sufficient to sustain positive growth. Several factors are responsible for 1997 having the highest number of breeding ospreys in recent history: a record number of fledglings in 1994, installation of new predator guards on many nesting platforms, and an apparent abundance of fish.



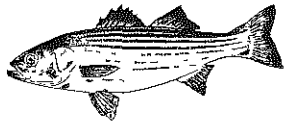
Indicator: Average number of winter flounder caught (per tow) in nets of research vessel

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

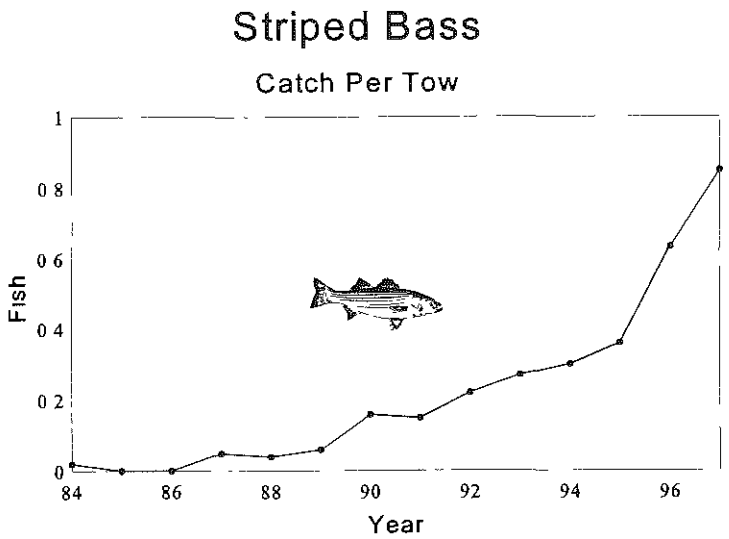
Recent Trends: The downturn in winter flounder populations in the 1990s is attributed by the DEP to increases in harvest, caused in part by harvest restrictions on other species Some year-to-year variation can be caused by variations in the weather The modest 1994 increase was caused by a surge of two-year-old fish, but adult flounder were at their lowest levels ever, and fell even farther in 1995 Scientists are uncertain about the wide fluctuations of the past two years, and hope that the 1998 samplings will provide an explanation



Indicator: Average number of striped bass 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

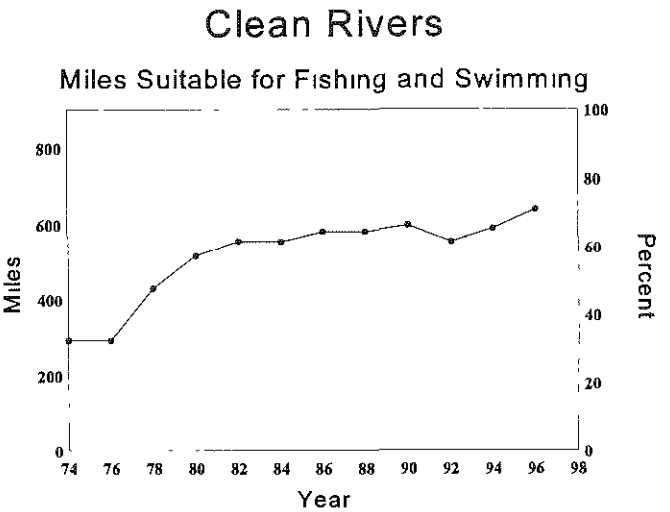


Recent Trends: Low population levels in the early 1980's spurred cooperation among coastal states to impose conservative restrictions on fishing Current regulations allow an angler to keep only two striped bass of legal size (28 inches) per day Regulations were even more restrictive in recent years, and were successful in allowing the striped bass' recovery The significant increase of the last three years might be due to cleaner and more productive spawning areas in the Chesapeake Bay

RIVERS

Indicator: Miles of major Connecticut rivers and streams classified as suitable for both fishing and swimming

Background: Of the state's 5800 miles of river and stream, about 900 miles are defined as "major" and are considered in this indicator The definition of "major" and the water quality data are from the DEP's biennial Water Quality Report to Congress This indicator is a good, but not perfect, measure of water quality Some miles are clean enough for swimming and to support fish but cannot be classified as "fishable" because the fish contain chemicals from industrial discharges that have long ceased Also, some "fishable" miles are not considered "swimmable" because of intermittent sewage overflows The state goal is to have all major miles fishable *and* swimmable by 2005.

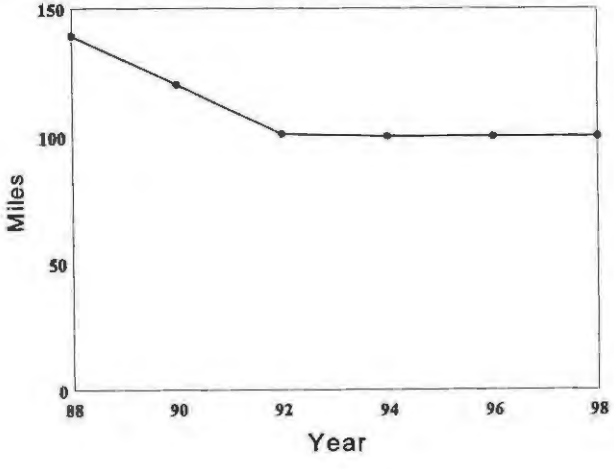


Recent Trends: Progress was rapid in the 1970s, when federal grants for sewage treatment plants were available Connecticut established its own Clean Water Fund in 1986, which has enabled some treatment plants to be upgraded and some combined sewer systems to be separated (see next indicator) The 1992 downturn was a change in definitions, not actual water quality Recent improvements occurred on the French, Shetucket, Farmington, and Willimantic Rivers

Indicator: Miles of river affected by "combined sewer overflows."

Sewage Overflows

Miles of River Affected by Overflows



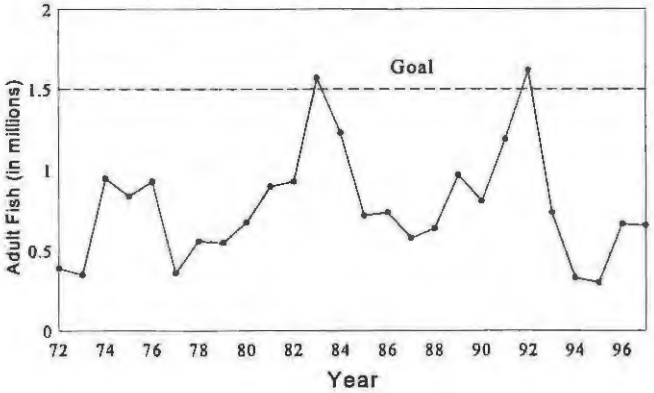
Background: Sewer systems in fourteen Connecticut cities and towns were built with sanitary and storm sewers combined. During storms, these systems carry more water than their treatment facilities can handle, and a combination of storm water and untreated sewage overflows directly to the rivers. The 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.

Recent Trends:

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

Shad

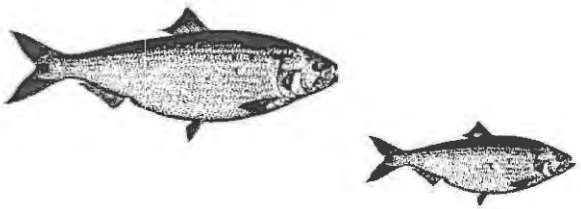
Number Returning to Connecticut River



Indicator: Estimated number of American shad that return each year 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.

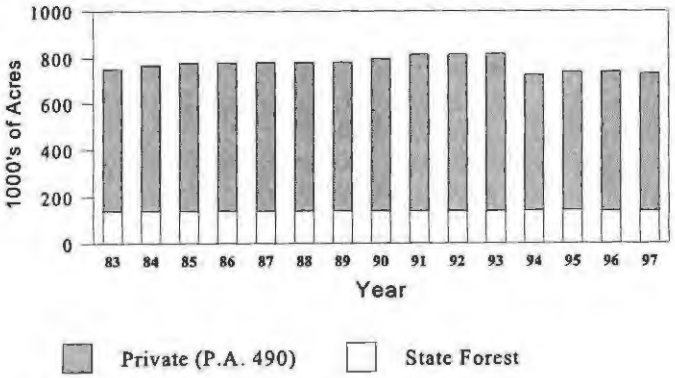
Recent Trends: The decline of shad in recent years was observed over most of its range (East Coast rivers). Scientists are uncertain of the cause.



LANDSCAPE

Forest

Large State and Private Forest Acreage



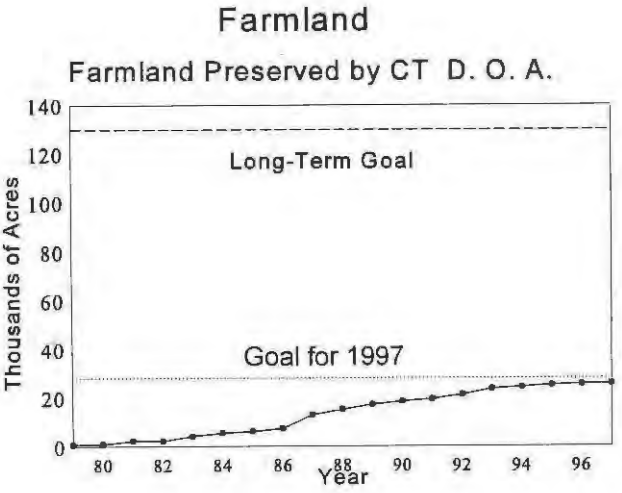
Indicator: Combined acreage of 1) state forest and 2) privately-owned forest that is enrolled in Connecticut's preferential property tax-rate program (P.A. 490).

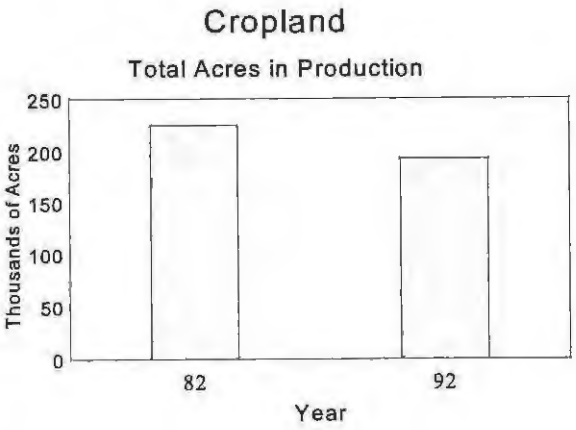
Background: Connecticut's goal is to conserve forests for multiple use, which can only be accomplished on parcels of sufficient size. Much forest is owned in small parcels which often have limited value for wildlife, wood production, and other uses. To be eligible for P.A. 490, a landowner must own 25 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.

Recent 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 in 1994.

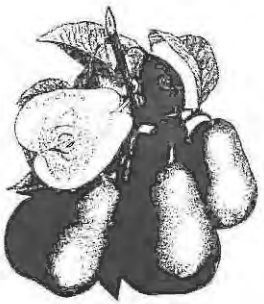
Indicator: Acreage of agricultural land preserved by the Department of Agriculture.

Background: The graph at right 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 development.



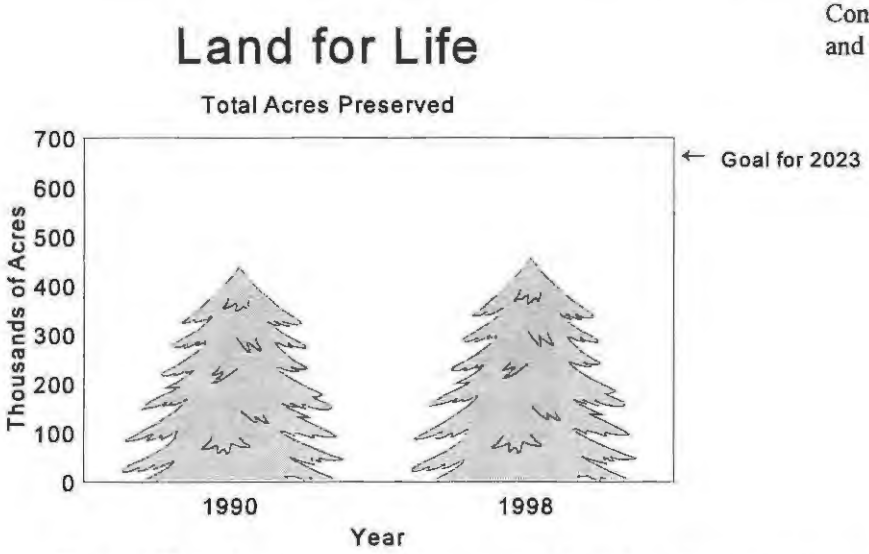


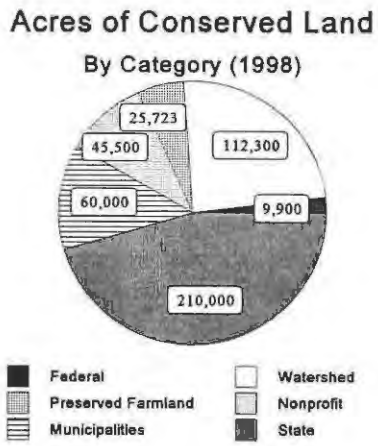
Recent Trends: The state's progress toward its goal has slowed. As the graph at left reflects, economic pressures continued to drive far more acreage out of production than was preserved. Two farms were approved for preservation by the Bond Commission in 1997.



Indicator: 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 bar 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 six types of land are: 1) federal, 2) farmland preserved by the state Department of Agriculture, 3) estimated municipal open space, 4) Class I and II watershed lands owned by water utilities, 5) estimated nonprofit lands (land trusts, The Nature Conservancy, etc.), and 6) state-owned forests, parks, and wildlife management areas.



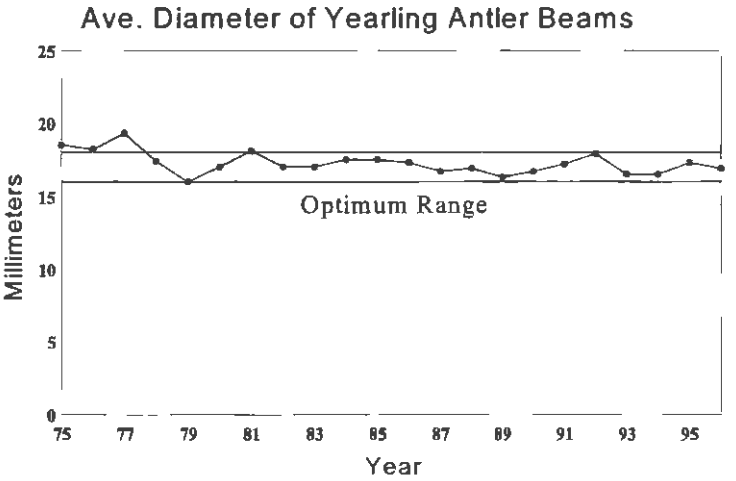


Recent Trends: Progress has been modest throughout the 1990s. Most of the increase was in the categories of state land and preserved farmland (9,000 and 7,000 acres, respectively). Rapid progress is anticipated if the General Assembly adopts the recommendations of the 1997 Governor's Open Space Task Force.

Indicator: Average diameter of antlers on yearling deer (i.e. 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.

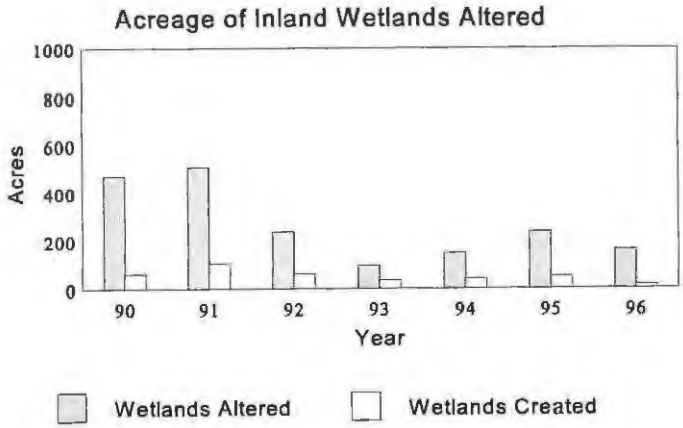
White-Tailed Deer



Recent Trends:

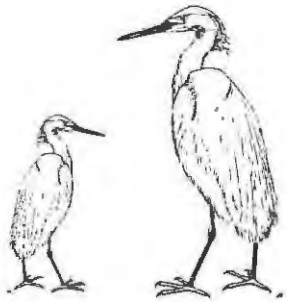
Connecticut's deer population appears to stay within the targeted range. Minor fluctuations in herd health from year to year probably reflect fluctuations in food availability and winter conditions.

Inland Wetlands Loss



Indicator: Acres of inland wetlands 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. 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.

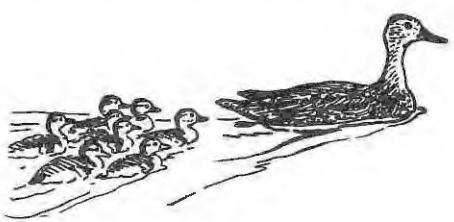


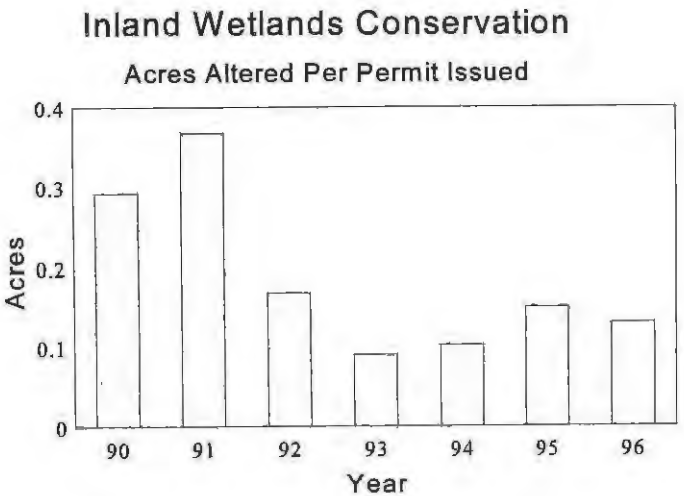
Recent Trends: Some of the ups and downs in wetlands loss since 1990 are directly related to changes in the number of applications received (which is why the next indicator is also included).

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

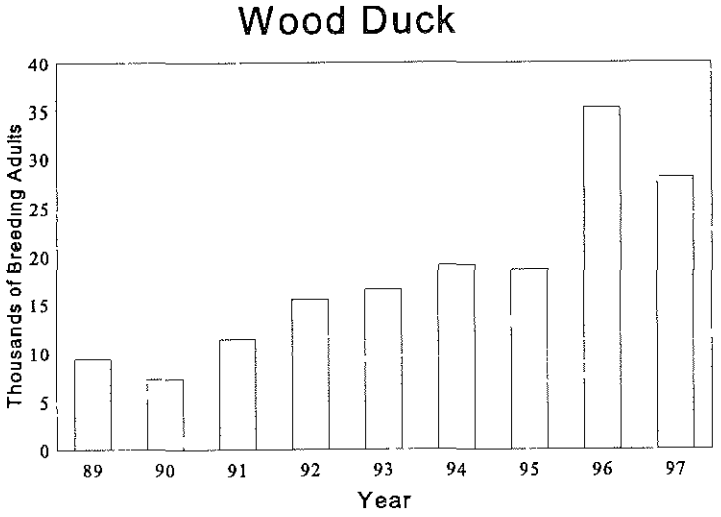
Background: This data gives some indication of the relative strictness or permissiveness of these agencies from year to year, regardless of the number of permits sought.

Recent Trends: Averaging just more than one-eighth of an acre lost with each permit issued, the DEP and municipalities have apparently become more protective of wetlands since 1991.





NOTE: In this year's report, the data for all years were adjusted to reflect more accurate accounting. The new accounting method does not count permits that many towns require for work in "buffer areas" outside of wetlands.



Indicator: Estimated number of wood ducks that nest each year in Connecticut

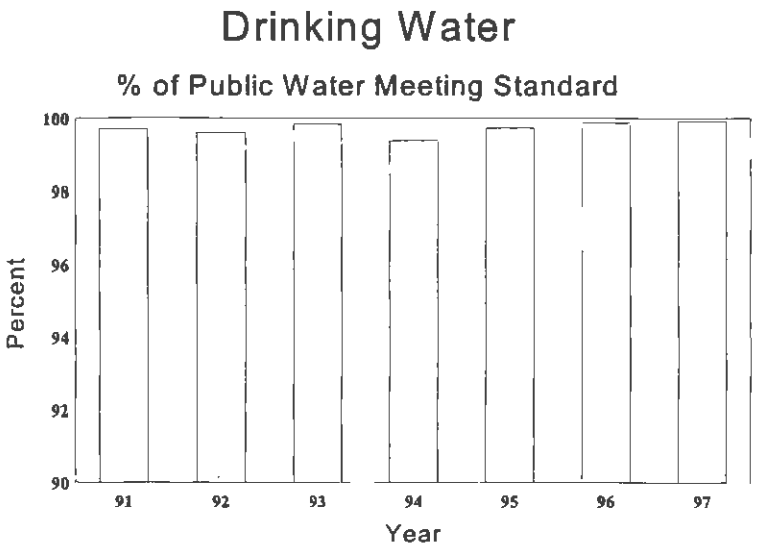
Background: Wood ducks are medium-sized waterfowl that nest in hollow trees and human-made boxes near fresh water throughout inland Connecticut They require relative seclusion, unpolluted inland wetland habitat, and protection from over-hunting (which almost caused the bird's extinction earlier this century) This is a good indicator because many other species share similar habitat requirements. Population estimates are made annually by the DEP

Recent Trends: Recent increases in wood duck numbers are due to favorable weather conditions and to the placement of artificial nesting boxes near ponds and wetlands Many citizens have assisted in this effort The unusually high count in 1996 and 1997 might reflect changes in observations, not in actual population

Indicator: Percentage of public water being delivered that meets the standards.

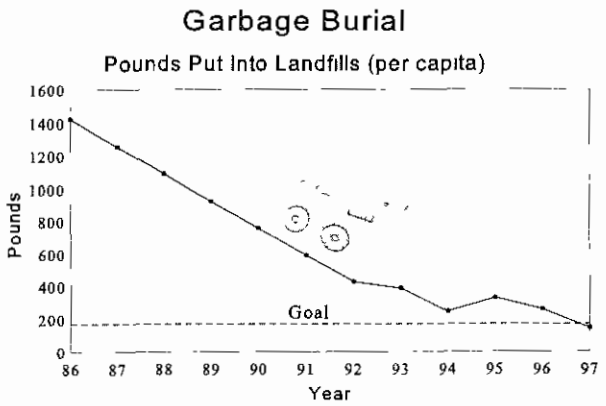
Background: Each public water utility reports water quality monthly. This indicator shows the percentage of monthly reports that show full compliance, after weighting the reports to account for the number of people each company serves.

Recent Trends: Though problems persist, they occur more frequently with small systems. Such problems do not greatly affect this indicator, which takes into account the number of people each system serves.



DAILY LIFE

These last five indicators do not show trends in the condition of Connecticut's environment. Rather, they report trends in activities of Connecticut residents which can be expected to affect the environment.



Indicator: Average resident's share of municipal solid waste that gets buried in landfills within Connecticut

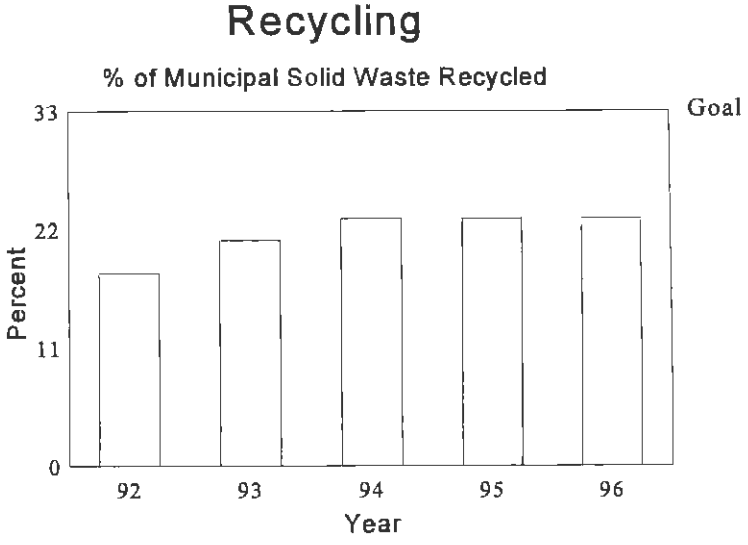
Background: Disposal of municipal solid waste by burial in landfills is the least desirable management option, it ranks behind recycling, source reduction, and resource recovery (i e , incineration for energy recovery) This indicator charts progress toward the goal of reducing reliance on landfills, 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

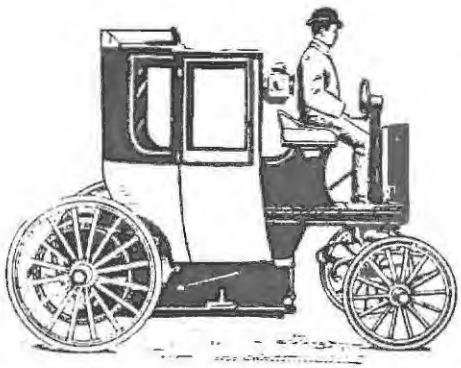
Recent Trends: Since 1986, five resource recovery plants have begun operation, collection of recyclables has improved to account for 23% of municipal waste, and some consumers have altered buying habits These factors allowed dozens of landfills to close as they became full or as federal regulations prohibited their continued operation

Indicator: Percentage of municipal solid waste collected for recycling.

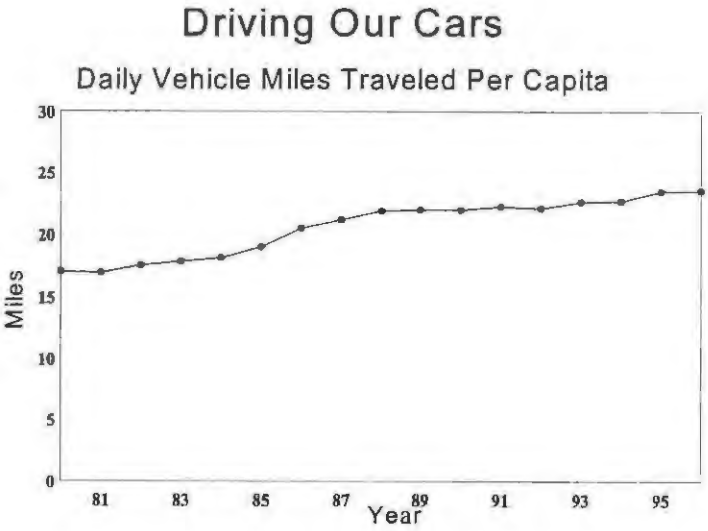
Background: The General Assembly established a goal of reducing *and* recycling 40% of Connecticut's municipal solid waste stream by the year 2000; the DEP has calculated that this would require 33% of the waste to be recycled (with the other 7% disappearing through waste *reduction*).

Recent Trends: The statewide average held steady in 1995 and 1996. Some municipalities exceed 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.





Indicator: Number of miles the average Connecticut resident drives a vehicle every day.



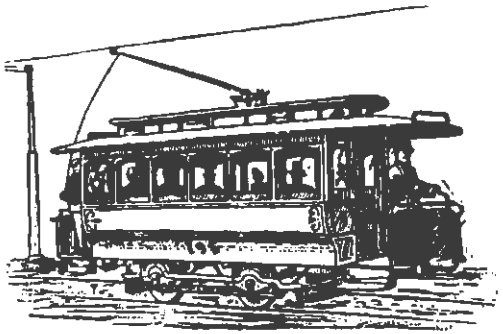
Background: Driving a car is probably the most environmentally damaging activity a Connecticut resident will engage in. Trucks and the increasingly-popular sport utility vehicle cause even greater damages. Impacts are direct (air pollution, oil leakage, etc.) and indirect (stimulating demand for new roads). DOT estimates total miles driven each year in Connecticut.

Recent 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.

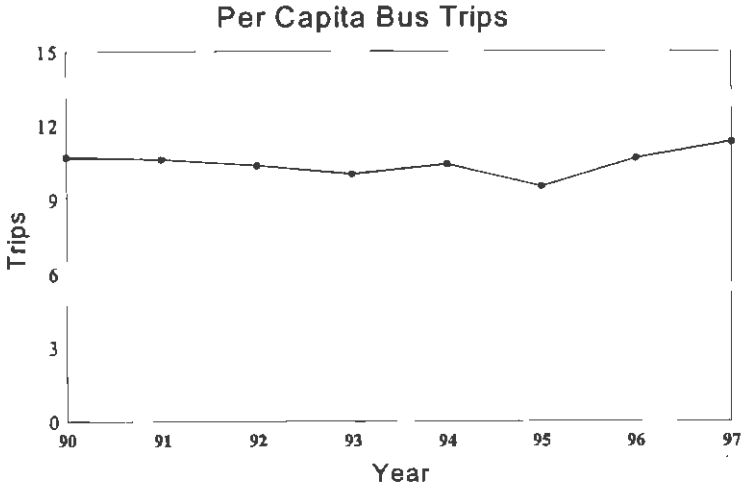
Indicator: Number of local bus trips taken by the average Connecticut resident during a year.

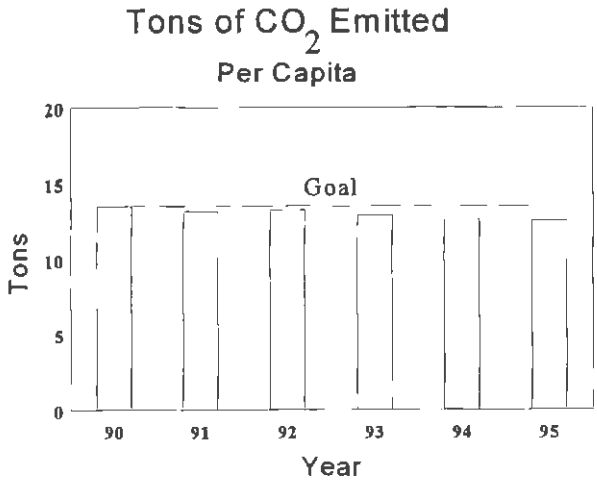
Background: Riding a bus is just one alternative to driving a car. Ridership data are collected by the DOT.

Recent Trends: Bus ridership reached a ten-year high in 1997. Reasons for this progress probably include improvements in bus routing and the efforts of some companies to encourage transit use by their employees.



Taking the Bus





Indicator: Average Connecticut resident's contribution of carbon dioxide (CO_2) to the atmosphere, from all types of fuel combustion.

Background: Carbon dioxide is added to the atmosphere primarily through the burning of oil, coal, and gas. These fuels are used in manufacturing, electricity generation, transportation, and the heating of buildings. Carbon dioxide is called a "greenhouse gas" because it traps heat near the earth's surface, like the glass roof of a greenhouse. It might play an important role in global climate change, which could contribute to a rise in sea level over time.

Recent Trends: The goal for CO_2 emissions is the 1990 level. A reduction in the consumption of residual oil by power utilities is the most probable reason for the downward trend in CO_2 emissions. Data are not yet available for the past two years.

Part III

1997 Activities of the Council on Environmental Quality

Research and Communication

This annual report is the second since the Council adopted its new reporting format. Instead of publishing only the yearly report required by statute, the Council has begun to release the products of its research in interim reports. Each is published in a long version and a short version. The annual report now includes summaries of these interim reports. Advances in computer and printing technology have made these additional publications possible on the Council's modest budget.

In November, the Council published "Connecticut: Light Years Ahead? — Utility Deregulation, the Environment, and Economic Expansion." This interim report is summarized briefly in Part I 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 topic. These organizations, which include businesses and non-profit organizations, are invited to comment at meetings open to the public on the Council's conclusions and recommendations while they are still in draft form.

The Council has begun work on its next interim report, which will attempt to identify and present realistic measures of compliance with environmental laws in Connecticut. Once established, the Council will use these indicators to report regularly on progress toward full compliance This report will be published in early 1998.

Also in 1997, Council staff spent considerable time preparing the report of the Governor's Blue-Ribbon Task Force on Open Space. The Executive Director was a member of the Task Force and chaired the subcommittee that drafted the report. The Task Force delivered its report, "Open Space Connecticut! A Legacy for Life" in December. (Governor Rowland's response and proposal for action are summarized briefly in Part I of this report.)

Since 1995, the Council had been assisting the newly-created 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 1997 it supervised the creation and publication of "*links*," the new 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. At meetings, the Council heard from representatives of the BHC Company, Connecticut Water Works Association, Department of Environmental Protection, Connecticut Siting Council, Connecticut Fund for the Environment, Trust for Public Land, International Fuel Cells, United Illuminating Company, Friends of Connecticut State Parks, Environmental Law Section of the Connecticut Bar Association, Enron Corporation, Connecticut Business and Industry Association, Norwalk Second Taxing District, Environmental Energy Solutions, the National Audubon Society, and others.

In July, the Council held a meeting at the Norwich City Hall — its first public meeting in New London 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 Norwich was the second of 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. The Council's third forum was in New Haven in January 1998, where the Council again received outstanding testimony from the public Comments from the Norwich and New Haven forums are summarized in the table on the next page.

Solving Problems

The Council received and helped solve complaints on a variety of complicated problems in 1997. This is one of the Council's most important statutory obligations. Alert citizens helped to identify unresolved problems ranging from damage caused by illegal activities on state lands and trails, to an unpermitted air pollution source, to potential violations of the Connecticut Environmental Policy Act by state agencies.

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

What the Council Heard *Topics addressed at CEQ public forums in Norwich and New Haven*	
TOPIC	% of Speakers*
Land Use and Transportation Need for Regional View, Better State-Local Partnership, and Alternatives to Highway Expansion	33
Open Space, Including Water Company Lands and Forest Fragmentation	33
Air Quality, Acid Rain, Monitoring, Effects of Traffic Congestion	25
Pesticides (and other toxins) and Human Health	17
Water Quality· Nonpoint Pollution, Stormwater, Erosion	17
Aquifer Protection and Private Wells	17
Electric Utility Deregulation	8
Fisheries Depletion in Long Island Sound	8
Wetlands and Municipal Land-Use Regulation	8
DEP Enforcement (lack of staff)	8

*some speakers addressed more than one topic

The Council also received valuable suggestions for improving its reports and state Geographic Information Systems

C.E.Q. MEMBERS

Donal C. O'Brien, Jr. (Chairman) Resident of New Canaan Original charter member of CEQ, 1971 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 Former Chair, 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-elect, 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, Town of East Haddam President, CT Conference of Municipalities Member, Advisory Committee, Silvio Conti 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,

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Readers:

We would like to hear from you.

The Council is always pleased to hear what you think of its reports. Many people have offered criticisms and suggestions in response to previous reports, and as a result several changes have been made or are underway.

Does this report give you the information on Connecticut's environment that you need? Is something missing?

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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 9-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 functions include

1) Submittal to the Governor of an annual report on the status of Connecticut's environment, including progress toward goals of the "Environment 2000" statewide environmental plan, with recommendations for remedying deficiencies of state programs,

2) Review of state agencies' construction projects, and

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

In addition, under the Connecticut Environmental Policy Act and its attendant regulations, the Council on Environmental Quality reviews Environmental Impact Evaluations that state agencies develop for major projects, the Council must be consulted when disputes arise regarding any agency's finding that its project will not cause significant environmental impact