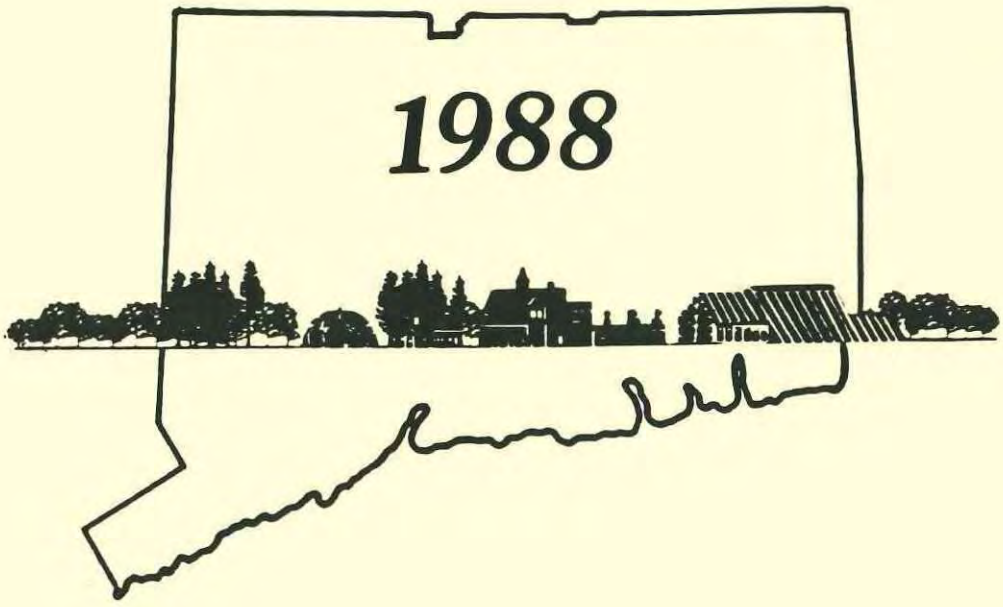
CONNECTICUT ENVIRONMENT REVIEW

The Annual Report of the Council on Environmental Quality



The Council On Environmental Quality

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

The Council's three primary functions include:

1) Preparation of an annual report on a) the status of Connecticut's environment, and b) progress toward Environment 2000: Connecticut's Environmental Plan, for submittal to the Governor,

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 Environmental Impact Evaluation.

COUNCIL MEMBERS -- 1988

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STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

January 18, 1989

The Honorable William A. O'Neill
Governor of Connecticut
State Capitol
Hartford, CT 06106

Dear Governor O'Neill:

I am pleased to present the Annual Report of the Council on Environmental Quality for the year 1988.

As in the past, the Council has summarized briefly the status of Connecticut's air, water, land, and wildlife in the six-page Connecticut Environmental Quality Index.

New to this year's report is the Council's first review of progress toward the goals and objectives of "Environment 2000: Connecticut's Environmental Plan," as required by P.A. 87-142. Several of the forty-two issues contained in the Environment 2000 Plan are reviewed, using an experimental evaluation format. In future years, we hope to be able to expand this section of the report to cover additional issues.

A major undertaking this year was an examination of the state's protection of tidal wetlands and its regulation of structures and dredging in tidal waters. The preservation of tidal wetlands since 1969 stands as one of Connecticut's greatest environmental success stories, but additional administrative improvements and legislative commitments are required to strengthen both programs. Our review of the coastal regulatory programs led the Council into a related issue: the rent-free use by private parties of submerged lands which are owned by the state in trust for the public. The Council recommends that Connecticut adopt a policy of leasing those public trust lands to private users who benefit from the use -- such as marinas and dockominiums -- with revenue dedicated to improvements in coastal regulatory programs and the environment of Long Island Sound.

If you desire more information on any issue in this report, the Council stands ready to assist you.

Very truly yours,

Gregory A. Sharp

Gregory A. Sharp
Chairman

PHONE
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CONTENTS

PART I

EMERGING ISSUES

EMERGING ISSUES

In "Emerging Issues," the Council on Environmental Quality highlights important issues which inevitably will confront the State of Connecticut in the next two years. In this section the Council also reviews progress toward some previous CEQ recommendations.

GROWTH MANAGEMENT

In December, officials and citizens from the six New England states convened to discuss "Growth Management: Sustaining the Economic and Environmental Future of New England." Connecticut's delegates learned that Vermont, Rhode Island, and Maine have adopted ambitious growth management initiatives.

Connecticut and its municipalities rely on many regulations to protect selected resources, but municipalities lack the tools that would enable them to actually design their own fates. Needed is a method more effective than zoning and Master Plans for integrating a town's requirements for moderate-cost and other housing, efficient transportation, capital expansions, open space preservation, economic development, water supply protection, and general "Quality of Life."

The effects of transportation planning decisions on all other aspects of growth are so great that growth management must begin there. As Connecticut confronts a future of traffic congestion and unhealthful air from which it might never emerge, the state must find a way to integrate its own planning with municipal plans so that economic goals are attained along with concurrent improvements in transportation, housing, and the general quality of life. Creative ideas -- development of light rail to service centers of development, for example -- need to find a forum for formal consideration by appropriate state, regional, and local agencies.

The lesson learned from other New England states is that an executive and legislative commitment to "do something about growth management" is a prerequisite for action. The Council on Environmental Quality recommends formation of a Task Force or Commission of diverse constitution to study and make recommendations for managing Connecticut's growth.

WETLANDS

The National Wetlands Policy Forum, chaired by Governor Thomas H. Kean of New Jersey, issued comprehensive recommendations for wetlands policy in November, 1988. Connecticut's citizens can find some satisfaction in the fact that wetlands loss has been curbed more effectively here than in much of the nation. (This is especially true for tidal wetlands; see Section III of this report.) Several goals put forth in the national report will probably involve Connecticut, including improved coordination of state and federal wetlands regulations, and more official guidance in the use of wetlands enhancement and creation. Relative to the latter goal, the CEQ recommended earlier in 1988 that the DEP formulate a cautious policy to guide the practice of creating wetlands to compensate for welands destroyed. The DEP convened a Task Force to work on such a policy.

The national report recommends a short-term goal of achieving no overall net loss of the remaining wetlands base, and a long-term goal of increasing the quality and quantity of that base. Connecticut is in a good position to actually reverse the historic trend of wetland loss in coastal areas by restoring degraded tidal marshes.

SOLID WASTE

Despite remarkable efforts by the General Assembly in 1987 and 1988 to grab the reins of the garbage problem, the DEP's 1988 draft Solid Waste Management Plan projects a near-term shortfall in disposal capacity. Still, enough components of the overall management plan are in place to bring the problem under control. The following three goals still need legislative attention:

1) Waste Reduction -- especially critical since the draft Solid Waste Management Plan is based optimistically on no growth in per-capita waste generation.

2) Recycling -- success depends on solid technical planning and educational work. Though recycling programs will require continuous funding, recycling is still a cost-effective alternative to finding and using traditional disposal options.

3) Siting -- The General Assembly must find a way to encourage municipalities to accept landfills for ash residue, bulky wastes, and some raw garbage.

AIR QUALITY

Hot weather in 1988 helped to produce very unhealthful levels of ozone in the state's air on more days than in preceding years (See Air Quality, p. II-3). It is clear that a new round of pollution control measures will be required if air quality goals are ever to be met. These will be more visible to the general citizenry than traditional, industrial air pollution controls, as they will affect gas station equipment and the emission standards of automobiles. In the absence of federal leadership, Connecticut is working to coordinate action with other northeastern states, but in-state commitment will be required to implement the new controls.

PUBLIC TRUST LANDS

The State of Connecticut owns all lands underlying tidal waters below the mean high water line. Every year brings growing numbers of applications by owners of adjacent uplands to use these "public trust" lands for private purposes: marinas, dockominiums, piers, etc. Cumulatively, these uses take a toll on the environment and cost the state substantial sums to regulate them. Traditionally, Connecticut has let private parties use public trust lands at no cost, while the general taxpayers pay the cost of regulation and coastal conservation. Other coastal states have responded to the "mad dash to the sea" of the 1970s and 1980s by replacing the free-use policy with public trust land leasing programs. This topic is discussed in Section III of this report.

CONNECTICUT ENVIRONMENTAL POLICY ACT

In its 1987 Annual Report, the Council evaluated the first ten years of state agencies' experiences with the regulations of the Connecticut Environmental Policy Act (CEPA). CEPA is the law which requires any state agency to complete an environmental impact evaluation prior to constructing or funding a major project.

The Office of Policy and Management initiated a trial "scoping" procedure in 1988 to involve environmental agencies much earlier in the planning of major projects, which may correct one of the key weaknesses of CEPA. Also in 1988, the Council observed improvement in the quality of environmental impact evaluations prepared by consultants.

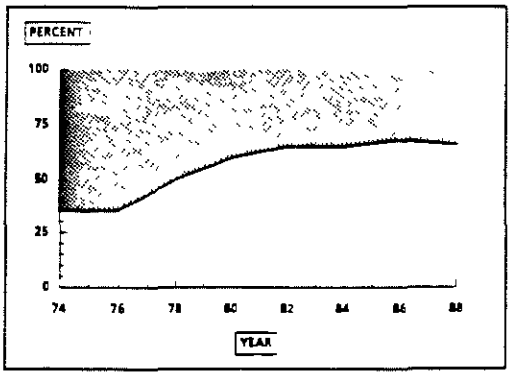
PART II

CONNECTICUT ENVIRONMENTAL QUALITY INDEX

RIVERS, STREAMS and LAKES

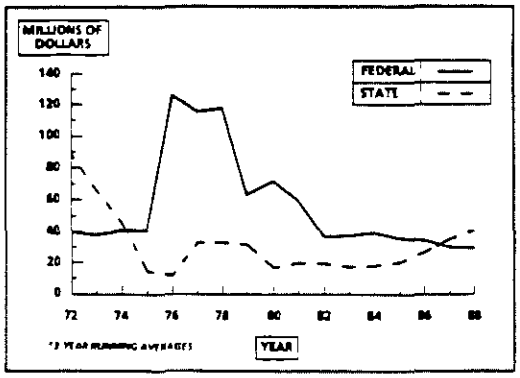
LONG TERM TRENDS

PERCENTAGE OF CT'S MAJOR RIVERS AND STREAMS CLASSIFIED AS FISHABLE AND SWIMMABLE



■ River quality stable, but non-point source pollution could compromise sewage treatment investments. Through the $40 million-per-year state Clean Water Fund, Connecticut plans to restore 100% of its major surface waters to a classification of fishable and swimmable by the year 2010. (Note: The apparent decline from 1987 to 1988 is attributed to a change in stream classification rather than actual water quality.) While state investments to upgrade sewage treatment plants and antiquated sewer systems will continue to yield improved water quality, those gains could be offset by unmitigated non-point pollution sources such as agricultural, urban, and construction runoff. Existing municipal non-point control regulations are not fully enforced in half of Connecticut towns. The DEP has initiated a comprehensive Non-point Source Management Plan, which will require continuous funding to be effective.

SEWAGE TREATMENT PLANT CONSTRUCTION FUNDS IN REAL (1988) DOLLARS



KEY ISSUES

■ New Rivers Management Program holds promise but lacks budget. Private conservation organizations have pressed for years for a coordinated state rivers management program to assess basin-wide pollution problems, to guide land acquisition, and to direct drainage and flooding studies. In accordance with the Environment 2000 Plan, the DEP initiated a Rivers Management Program in 1988. It has the support of non-profit groups, and receives technical assistance from the National Park Service. An active rivers program will require financial commitment from the General Assembly.

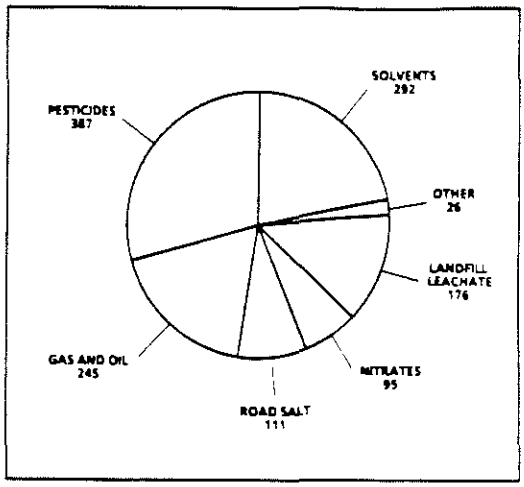
■ State's rain among nation's most acidic, but basic impact research is cut. State and private acid rain monitoring networks confirm that Connecticut is exposed to the most acidic precipitation in the nation. A federal survey indicates that most Connecticut lakes have adequate buffering capacity. Preliminary results of a four-year, state study indicate, however, that rainstorms and snowmelts can cause sudden, acid surges in small streams and river tributaries. Such acid surges are believed to be lethal to aquatic life. Budget cuts in 1988 have interrupted the studies; Connecticut must appropriate funds for continued research if it is to document the in-state consequences of acid rain.

■ Water conservation could reduce need for river diversions. Proposals to divert large quantities of water from major rivers, including the West Branch of the Farmington River, could damage fisheries, reduce the rivers' ability to dilute increasing amounts of sewage, and impair the recharge of ground water supplies. Prior to the diversion of class A rivers, water utilities should be required by the DPUC, the DOHS, and the DEP to exploit water conservation to its maximum potential and to investigate the utilization of class B waters for industrial purposes.

GROUND WATER

■ Aquifer mapping act the first step toward protecting major, public wellfields. In 1988 the General Assembly initiated a four-year aquifer mapping plan for 100 public wellfields. In order to protect public aquifers, which often cross town boundaries, the state needs to promulgate minimum standards for municipal aquifer management plans, provide financial and technical assistance to local aquifer protection boards, and develop lists of activities which should be banned or regulated within a well's zone of contribution. High priority should be given to the recommendations of the Task Force on Aquifer Protection.

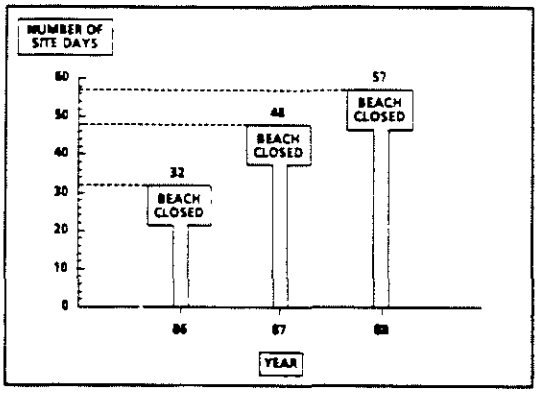
CONTAMINATED WELLS IN CT. REPORTED FROM 1978 - 1987



■ Nonprofit groups a vital link for municipal technical assistance. While state agencies grapple with protecting major public wellfields, the Housatonic Valley Association is one example of a private group providing technical assistance to benefit the 16% of Connecticut's residents who rely upon private wells. Modest state grants to nonprofit outreach programs would be among the most cost-effective means of initiating private well protection.

LONG ISLAND SOUND

COASTAL BEACH CLOSINGS DUE TO SEWAGE - RELATED CONTAMINATION



■ Coastal beach closings likely to continue. The 1988 spate of medical debris on Connecticut's shores is a minor symptom of a serious and chronic problem: raw sewage discharges from combined storm and sanitary sewer systems. Separation of the five highest-volume combined sewer systems will require five to twenty years at current funding levels. To help speed up sewer separation and reduce the number of beach closings, the DEP Commissioner has urged citizens to "Support your local sewage treatment plant" by approving local financing.

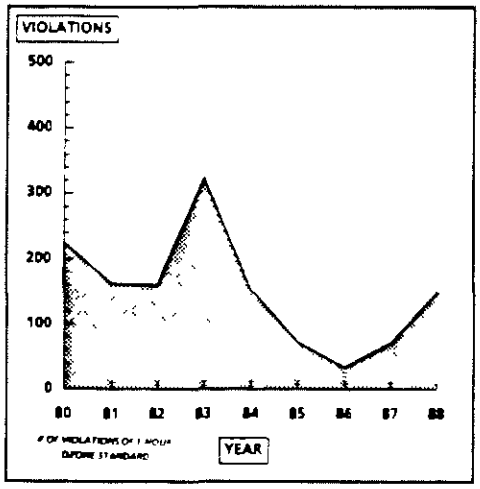
■ Lack of inspectors may close two-thirds of state coast to shellfishing. Most of Connecticut's near-shore waters are periodically closed to shellfishing due to sewage pollution, and the state may have to end shellfishing for two-thirds of its coast due to a lack of shellfish inspectors. Compounding the potential loss of $10 million annually in direct shellfish sales, the failure to meet federal guidelines could result in the forfeit of several thousand acres of viable shellfish beds. The DOHS can meet the new, more stringent guidelines with a minimum of new staff, if it coordinates data collection with currently available DEP, Division of Aquaculture, and municipal services.

■ Additional coves to be restored. Alewife Cove in Waterford was dredged in 1988 using the first allocation under the new Coves and Embayments Program. Eight applications are being reviewed for the $3 million authorized in 1988. The General Assembly should continue to provide annual allocations to restore the many embayments which are unfit for commercial or recreational use due to long-term environmental degradation. (See Section III of this report for recommendations on alternative revenue sources).

AIR QUALITY

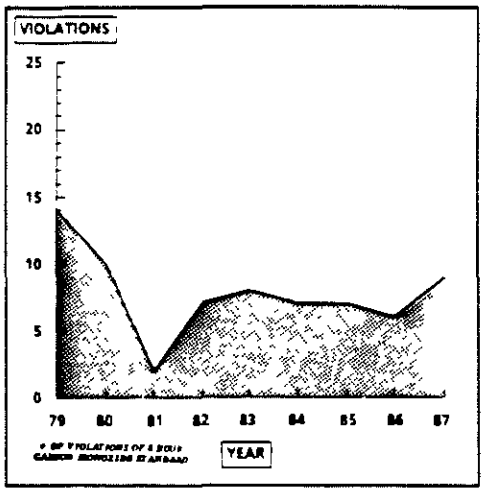
LONG TERM TRENDS

OZONE



■ Ozone is produced when hydrocarbon emissions react with nitrogen oxides in the presence of sunlight. Automobiles are the largest source of ozone-forming hydrocarbons. Ground-level ozone is injurious to human health and vegetation. Upper-atmospheric ozone, which is unrelated, is beneficial but is being depleted.

CARBON MONOXIDE



■ Carbon Monoxide (CO) is the second pollutant which exceeds the federal air quality standard in Connecticut. Automobiles are the major source of CO.

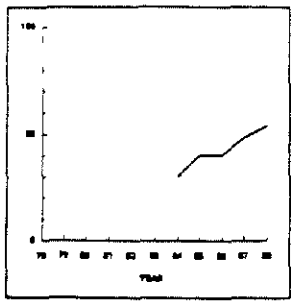
KEY ISSUES

■ Rise in ozone violations spurs regional action. Responding to increasing ozone levels across the Northeast, Connecticut has joined the Northeast States for Coordinated Air Use Management (NESCAUM) with a proposal to tighten summer standards for gasoline volatility, the source of nearly two-thirds of ozone-causing pollutants during hot days. With the fifth-highest ozone levels in the country, Connecticut has implemented numerous industrial hydrocarbon-control programs and an automobile emissions program, but additional controls will be necessary to meet federal air quality standards. To combat the steady increase in nitrogen oxide (NOx) emissions, one of the two primary ozone precursors, NESCAUM recommends adoption of California NOx automobile tailpipe standards. The second major ozone source reduction can be accomplished by implementing Stage II Vapor Recovery, which involves installation of vapor recovery equipment on gas pumps. Other states have demonstrated that Stage II can be installed readily and that it reduces hydrocarbon emissions by more than 90% during vehicle refueling.

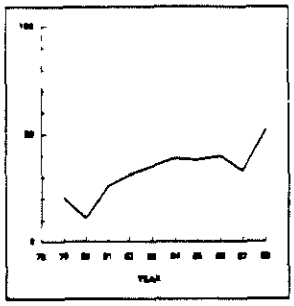
■ Diesel testing recommended as federal studies warn of diesel health impacts. The automobile inspection and maintenance program has reduced hydrocarbons and carbon monoxide emissions for gasoline-powered vehicles. Meanwhile, nearly all the particulate matter emitted by vehicles comes from heavy-duty diesel vehicles. To control health-impairing diesel particulates, the Council recommends that Connecticut 1) implement on-road opacity testing for heavy diesel trucks, as outlined in a 1988, DEP-sponsored feasibility study, and 2) ensure that all state-owned trucks and buses meet applicable federal guidelines.

WILDLIFE

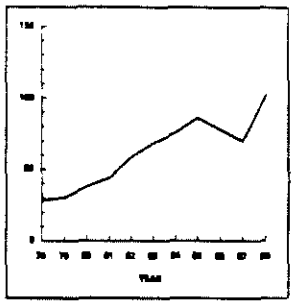
NESTING PIPING PLOVER



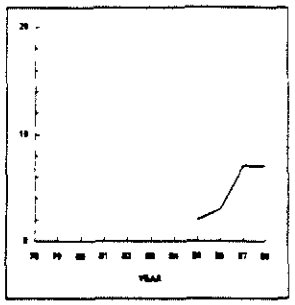
WINTERING BALD EAGLES



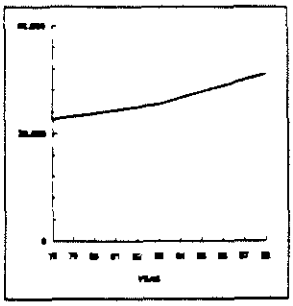
NESTING OSPREY



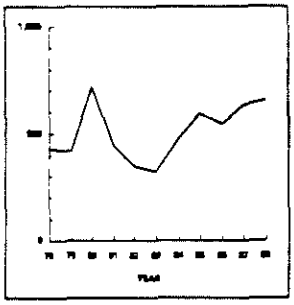
FISHER SITINGS



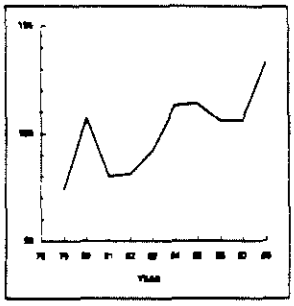
ESTIMATED WHITE-TAILED DEER



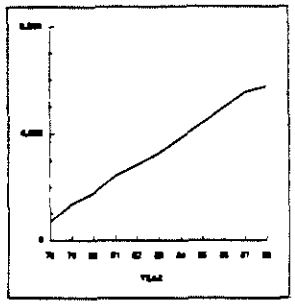
BEAVER PELTS TAGGED



RIVER OTTER PELTS TAGGED



ESTIMATED WILD TURKEY



KEY ISSUES

- Education and coordination of private landowners essential to wildlife's future in Connecticut. Wildlife population trends for managed game and non-harvested species suggest that these species are benefiting from state and private expenditures. The primary concern among surveyed wildlife experts is that while intensive breeding management for selected species is yielding steady population increases, the long-term stability of many wildlife populations will be hampered by continued, incremental habitat loss on private lands. As the fate of many species will be determined by the actions and decisions of private landowners, the DEP will need to expand its role in conservation education.

- Universities are untapped resources for wildlife data collection. Fundamental data necessary to assess trends and manage habitat are not available for most of the 424 species listed in the DEP's checklist of vertebrate wildlife. The DEP could significantly enlarge its database at minimal state expense by encouraging relevant university research, establishing a mechanism for the orderly conduct of research and sampling on state lands, and by reviving state research publishing.

- Connecticut Endangered Species Act necessary to sustain locally endangered wildlife. Noting that some Connecticut species have suffered such declines that they are at risk of state extinction, the DEP is proposing that the General Assembly adopt a comprehensive endangered species law. The proposed bill would prohibit the commerce or collection of 500 plant and animal species, most of which are not federally protected. In addition to preventing the exploitation of endangered wildlife, the bill would direct the DEP to acquire critical habitat, and provide a mechanism to guide state-funded development so as to minimize unnecessary adverse impacts.

- Forestry advice may promote nuisance species at expense of woodland species. Many "nuisance" species--raccoons, striped skunks, blue jays, and cowbirds among them--thrive in "edge" habitats which result from the partial clearing and fragmentation of woodlands. Some of these species may be responsible for declines in woodland-nesting birds. Still, the DEP provides advice to forest landowners promoting the creation of edge habitat. The DEP's non-harvested wildlife management goals should recognize the need for unbroken woodland habitat, and those goals should be better coordinated with other DEP programs.

WOODLANDS, WETLANDS and WILDLANDS

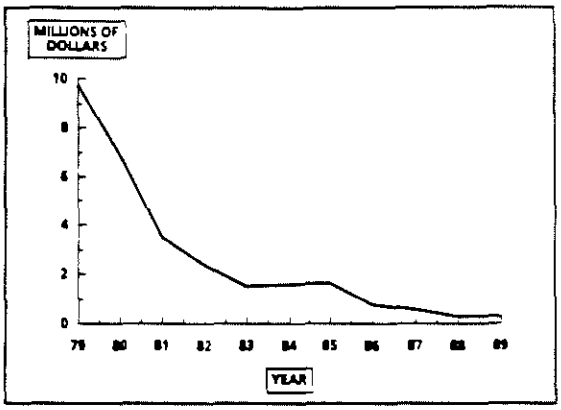
KEY ISSUES

- The future of water utility lands remains crucial to open-space needs of 20 to 30 towns. Statutory improvements were made in 1988 to increase the chances that surplus utility lands will be sold for conservation purposes. Lands may be offered for sale, however, during periods of economic retrenchment, when municipalities and the state feel they cannot afford to buy them. The decision to forgo preservation of land is irreversible; a mechanism is needed to ensure that no important utility-owned open space parcels are lost because of inopportune timing of sales.

- Technical assistance essential for wetlands management. Only two cities are without inland wetlands agencies and are still regulated by the DEP. Inland wetlands in the other 157 municipalities are regulated by boards of volunteer commissioners who number more than 1200 across the state. According to a 1986 CEQ survey, more than 90% of commission chairmen desire more training for their commission members. DEP efforts to increase the availability of training and education are critical to the continued improvement of wetlands regulation in Connecticut.

- Open space subdivision statutes need improvement. Open space dedications by subdivision developers result in a large number of fragmented, wooded parcels which may be less valuable to wildlife than a few large tracts of undeveloped land. Many species of woodland wildlife cannot survive in parcels smaller than several hundred acres. The President's Council on Environmental Quality suggested in 1988 that conservationists pool their efforts to try to preserve some large tracts while opportunities still exist. In Connecticut, one means to accomplish this is to enable those municipalities which require open space dedications in subdivisions to instead require equivalent payments to a local land acquisition fund.

FEDERAL ALLOCATIONS TO CT. FOR OPEN SPACE ACQUISITION AND PARK DEVELOPMENT IN REAL (1988) DOLLARS



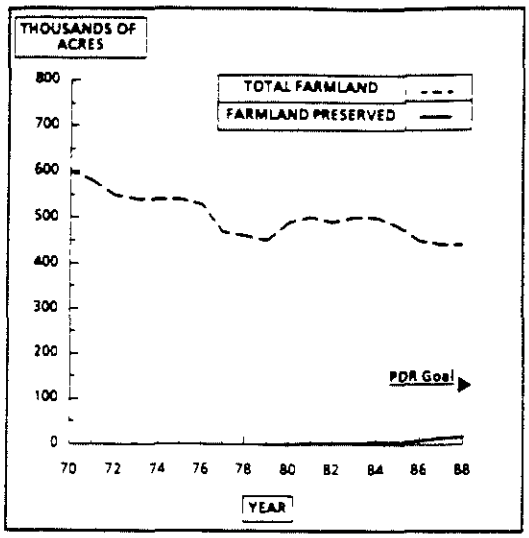
- Continued state and local open space funding required. Accelerating land development has prompted requests for open space funds which exceed the five-year, $100 million Recreation and Natural Heritage Trust Fund proposed by Governor O'Neill in 1988. Continued funding will be needed if the state is to meet its established goals. Furthermore, since rapidly developing towns face competing capital needs that require bond sales, towns should have the legal authority to tax real estate transactions for land acquisition.

- State park management plans: A fading vision. In 1987, the CEQ recommended that the DEP develop management plans for all state parks. This need was underscored in 1988 by a park manager's ad hoc decision to drain a wetland without consulting appropriate DEP units. Inadequate staffing has precluded development of plans in the past, and staff numbers are not likely to increase soon. As management plans must be based on inventories of natural resources and goals for park use, the state could at least begin the process at minimal expense by encouraging university research on its lands.

FARMLAND

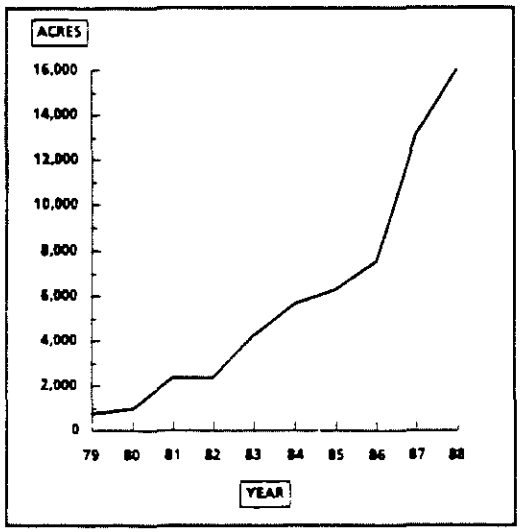
LONG TERM TRENDS

FARMLAND ACREAGE IN CT.



- Joint state and municipal farmland development rights acquisition programs emerge in face of farmland losses. Despite continued progress in acquiring farmland development rights, declines in total farmland acreage far exceed Connecticut's acquisition efforts. Furthermore, Connecticut remains far from the goal of preserving 140,000 acres. An important development is the effort of at least five towns to complement the state's development rights acquisition program by establishing local funds pursuant to P.A. 84-184.

ACRES OF FARMLAND PRESERVED BY CT. DEPT. OF AGRICULTURE (CUMULATIVE)



KEY ISSUES

- Integrated Pest Management should be made available for all farmers. The General Assembly resolved a long-standing dispute in 1988 by enabling farmers to reduce their future liability for ground water pollution if they employ Integrated Pest Management (IPM) practices to minimize the use of pesticides. IPM programs at the University of Connecticut and in other states have consistently demonstrated significant reductions in pesticide applications while yielding improved crop quality. In 1988, Connecticut allocated only one-tenth of the funds required to provide a comprehensive IPM program, limiting IPM applications to certain fruit, vegetable and turf crops. Increased state funding for IPM is necessary to provide opportunities for all agricultural operations to minimize the adverse impacts of pesticide application.

- Composted sewage sludge may permanently damage farmland. Two Connecticut towns compost sewage sludge, and two others have invested in multi-million dollar composting plants. Composting avoids the air pollution associated with incineration, and yields potential fertilizer. The compost product, however, is only as good as what goes into it. Sewage treatment plants receive wastes from both unregulated and regulated industries, urban runoff, and household wastes. Even if the DEP strengthens its monitoring and enforcement of industrial contributions to sewage treatment plants, spills into the sewer system will remain large contributors of hazardous substances. If composted sewage is applied to the acidic soils of New England, even composted sludge from treatment plants with no significant industrial input may permanently contaminate farmland with heavy metals. For any proposal to sell municipal compost on the open market, where it could be purchased for farm application, the DEP should require rigorous testing and concurrent restrictions on the flow of toxic contaminants into treatment plants.

PART III

TIDAL WETLANDS, TIDAL WATERS, AND THE PUBLIC TRUST

SUMMARY

The Council on Environmental Quality set out in 1988 to evaluate the effectiveness of two state coastal regulatory programs: 1) tidal wetlands, and 2) structures and dredging. Its review of the programs' successes and failures led the Council into a third issue: the state's traditional policy of allowing rent-free use of lands owned by the state in trust for the public -- so-called "public trust" lands -- and the potential for leasing those lands to private users.

The Council's findings and recommendations are summarized below.*

SUMMARY OF FINDINGS

The Public Trust

1. Like most coastal states, Connecticut has maintained ownership of all lands below the mean high water line. This state has not, however, actively asserted its ownership rights on behalf of the public. Riparian landowners are permitted to use public trust lands for free, even if the lands are being used for private economic gain.

2. In contrast to Connecticut, many other coastal states lease their public trust lands, collecting rental fees to offset costs of coastal regulation or other programs. New Jersey, as one example, collects more than four million dollars annually as rent from parties who maintain private structures such as docks, marinas, and bulkheads on public trust lands.

Tidal Wetlands

3. The arrest of tidal wetlands destruction is one of Connecticut's great regulatory success stories. Whereas 15,000 acres were lost to development between 1914 and 1965, annual permitted losses now appear to average less than one-half acre per year.

4. Illegal filling of tidal wetlands probably exceeds the permitted filling. Officials in half of the coastal towns have observed illegal encroachment into tidal wetlands. Control of illegal filling is the biggest challenge facing the tidal wetlands program.

5. An estimated 500 to 1000 acres of tidal wetlands do not appear on the official maps. Unmapped tidal wetlands are not protected by tidal wetlands regulations, though they do receive some protection under other laws.

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*One explanatory note is necessary, as the bureaucracy of coastal regulation can be confusing. The Council reviewed the two state-administered coastal permit programs (i.e., tidal wetlands, and structures and dredging); it did not evaluate the program called Coastal Area Management. The latter is a planning, zoning, and site-review procedure that is administered locally with advice from the DEP.

6. Tidal wetlands maps have not been revised since their adoption in the early 1970s, despite a statutory mandate to evaluate and revise them, as needed, every two years.

7. Hundreds (or, more probably, several thousand) acres of degraded tidal wetlands could be restored at minimal state expense.

8. The Department of Health Services has been working successfully for several years to apply Open Marsh-Water Management as a method of controlling mosquitoes on salt marshes. Open Marsh-Water Management controls mosquitoes more effectively, allows for reduced pesticide use, and improves habitat value of marshes when compared to the traditional practice of ditching that it replaces.

9. Sea level is expected to rise one to four feet by 2050, inundating tidal wetlands. New tidal wetlands will form if open land is available. While net wetland loss is projected to be less in Connecticut than in many coastal states, the U.S. Environmental Protection Agency warns that "virtually all wetlands may be lost by 2100 if adjacent uplands are developed and protected (against tides), instead of being reserved for wetland migration."

Tidal Waters

10. Approximately 60 acres of intertidal and submerged lands are affected each year by new (or expanded) permitted structures and/or dredging activities in coastal, tidal, and navigable waters (hereinafter called "tidal waters").

11. No environmental monitoring program exists to assess the cumulative impacts of the 100 to 150 structures and dredging activities permitted each year, nor the numerous illegal structures. Impacts to shellfish and other resources are suspected. The way in which cumulative impacts are considered in individual permit decisions is not clear, to the disadvantage of the environment and applicants alike.

12. Connecticut's Coves and Embayments Program, if funded fully, could result in net gains to the commercial, recreational, and wildlife value of many coves and estuaries that have long-standing problems.

Administration: Permitting and Enforcement

13. Applications to conduct regulated activities in tidal wetlands and tidal waters have doubled in the last five years. The number of staff available to process the applications has shrunk. The result is a backlog of 340 applications, more than can be issued in a year (and more than twice the number issued in fiscal year 1987-1988).

14. The backlog of applications results in extraordinary permit-processing delays of many months or even years, which in turn result in low levels of service to the applicant-public, and high rates of illegal (non-permitted) activity.

15. Applicants pay no application fees.

16. Approximately 10 percent of permits for structures and dredging activities issued in 1987 and 1988 were to retain structures that had been placed illegally.

17. The DEP's enforcement efforts are viewed by many local officials as slow and weak. Specifically, 48 percent rate the timeliness of DEP enforcement as fair (9%) or poor (39%). The majority (59%) rate the strength of DEP enforcement as fair (24%) or worse (35%); none rate it as excellent.

18. The violation rate of the structures and dredging law is considered to be significant or very significant by officials in one-third of Connecticut's coastal municipalities.

19. Before 1987, the statutory penalties for violating the structures and dredging law were insignificant (discounting the prescribed jail sentence because it was never imposed). Now they can total $1,000 per day, but there still are no provisions for enforcement by municipalities or citizens, nor can the DEP impose administrative civil penalties.

20. Illegal dumping in tidal marshes and tidal waters is reported to be increasing as violators attempt to skirt the rising costs of legal waste disposal.

Related Issues

21. Numerous applications are submitted to the DEP that propose some form of mitigation or compensation -- wetlands restoration, for example, or duck-nesting platforms -- for the anticipated loss of intertidal flats, tidal wetlands, or other resources caused by the permitted activity. No formal DEP mitigation or compensation policy exists, though the Council notes with favor an important decision made by the DEP Commissioner in 1988 (see p. III-23).

22. Regulation alone cannot assure the permanent protection of land; state acquisition may be required to protect important coastal ecosystems and areas needed for public boating access.

23. The DEP regulates the underwater mining of sand and gravel, and collects a per-cubic yard payment of fifty cents. Other states charge significantly more than Connecticut.

SUMMARY OF RECOMMENDATIONS

The Public Trust

1. The General Assembly and the Department of Environmental Protection should more strongly assert the state's ownership rights in public trust lands.

2. The General Assembly should authorize the DEP to initiate a public trust land leasing program. Revenue from the lease program should be dedicated to the coastal protection and restoration needs expressed below.

Tidal Wetlands

3. The DEP should maintain its current conservative policy of granting few permits for significant filling of tidal wetlands.

4. Tidal wetlands maps should be revised regularly, though not necessarily biennially as current law specifies. The DEP's basic annual budget should be increased to reflect the average annual cost of revising and adopting the maps.

5. The DEP should exploit every opportunity to restore degraded tidal wetlands. Violators should be required to restore off-site wetlands if, for some reason, the areas of the violations cannot be restored.

6. The Department of Health Services should continue its successful effort to apply Open Marsh-Water Management in place of ditching to control mosquitoes.

7. The General Assembly should amend the tidal wetlands statutes to enable the DEP to protect, through permit conditions, low-lying areas adjacent to tidal wetlands to allow for landward migration of wetlands when sea level rises, where possible.

Tidal Waters

8. The DEP should develop and implement a method for monitoring and evaluating the cumulative environmental impact of structures and dredging activities.

9. The General Assembly should continue to fund the Coves and Embayments Program, which has the potential to restore many degraded coves.

10. The DEP should continue its effort to promulgate regulations pursuant to the structures and dredging statutes, and should articulate the goals of the program relative to cumulative impacts and the overall density of in-water structures it intends to permit. The regulations should clarify the criteria by which individual permit applications are evaluated.

RECOMMENDATIONS (Continued)

Administration: Permitting and Enforcement

11. The DEP should establish two types of permit fees: A) an application fee, proportional to the size of the project, and B) an inspection fee, to be paid upon granting of the permit, which would cover the cost of inspecting the project for compliance with permit conditions. Revenue should be dedicated to the program.

12. The DEP should amend its procedures to require "Certificates of Compliance" for completed projects, analogous to the certificates of occupancy builders must obtain for upland structures.

13. The DEP should improve coordination with municipal agencies which regulate the upland portion of permitted projects, and should upgrade the information distributed to potential applicants.

14. The number of DEP staff positions devoted to reviewing coastal permit applications should be increased to at least six.

15. The DEP should delegate inspection authority to those towns which desire it.

16. The number of DEP staff positions devoted to coastal inspection and enforcement should be increased to at least two.

17. The DEP should never give a violator the option of applying to retain and legitimize a structure or fill placed illegally. Upon discovery of a violation, the DEP should push immediately and aggressively for removal, remediation, and civil penalties. After a few successful cases, the Council predicts a sudden decrease in the number of violations.

18. The DEP should develop regulations for assessing administrative civil penalties for tidal wetlands and structures and dredging violations, to help speed enforcement.

19. The General Assembly should amend the tidal wetlands and structures and dredging statutes to enable citizens and municipalities to take violators to court.

Related Issues

20. The DEP should develop a formal mitigation policy for coastal permits that involve unavoidable destruction or degradation of a resource.

21. The DEP should acquire important coastal ecosystems and public boating-access points, and explore the potential for creating public marinas.

22. The DEP should raise significantly the fees it collects from underwater sand and gravel mining operations if, in fact, the DEP allows their continued operation. Mining operations which degrade water quality should not be permitted.

INTRODUCTION

Since 1939, the Department of Environmental Protection and its antecedent agencies have regulated dredging and the placement of structures and fill in all coastal, tidal, and navigable waters of the state (C.G.S. Section 22a-359). In 1969, the General Assembly authorized the DEP to also regulate virtually all activities in tidal wetlands (C.G.S. 22a-28). The Council's conclusions regarding the effectiveness and problems of these two regulatory programs constitute the largest portion of this report.

The Council's review of Connecticut's structures and dredging regulatory program prompted it to examine the related question of the fair use of public trust lands by private interests. In Connecticut, as in most coastal states, land below the mean high water line is owned by the state. While the State of Connecticut leases shellfishing rights, it charges no fees or rent to owners of marinas, dockominiums, piers, etc., who use public trust lands for private purposes. The need for additional revenue to properly regulate coastal development, preserve coastal resources, and reclaim degraded coastal ecosystems led the Council to explore, and ultimately recommend, a leasing program for submerged public trust lands.

Four additional, related issues -- coastal land acquisition, mitigation, subaqueous mining, and harbor management commissions -- are discussed separately toward the end of this report.

In portions of this report that deal with administrative matters -- permitting and enforcement -- the structures and dredging program and tidal wetlands program are considered together. The two programs are so closely related administratively that a combined permit is issued for any activity that involves both tidal wetlands and structures and dredging.

The Council acknowledges the June, 1988 transfer of the structures and dredging and tidal wetlands programs from the DEP's Water Resources Unit to the Department's Coastal Area Management Unit. Several improvements have been noted, such as the effort to integrate the regulatory programs with the overall coastal planning and local assistance functions of the coastal unit. For the most part, however, the Council finds that the short period of time under the new management makes it impossible to evaluate most of those changes in this report. In any event, the issue of who is in charge has no bearing on many of the funding and statutory problems identified in this report.

Sources of Information

In June, 1988, the Council invited several coastal experts to discuss successes and problems of the coastal regulatory programs. Council staff interviewed municipal officials in virtually every coastal community. Staff also reviewed every tidal wetlands permit and structures and dredging permit issued in 1987 and the first ten months of 1988. Several other states and federal agencies, including the U.S. Environmental Protection Agency and Army Corps of Engineers, provided reports and other useful information. Council members and staff visited several problem areas. From these and other sources, the Council believes it has obtained a realistic assessment of the state's coastal regulatory programs.

A. ASSERTING THE PUBLIC TRUST

In Connecticut, as in most coastal states, ownership of all lands below mean high water is in the hands of the state. States hold the lands in trust for the public, and the lands are thus referred to as "public trust" lands. Recent rulings of both the United States and Connecticut Supreme Courts have confirmed state ownership of these lands.

The State of Connecticut leases certain rights to certain submerged lands -- namely the right to harvest shellfish from shellfish beds -- but charges nothing to the person who builds a marina, wharf, pier, or dock in public trust lands. In the eighteenth and nineteenth centuries, the state generally encouraged development of the shoreline to stimulate maritime commerce, on which the state's economy depended. Most current shoreline development is for recreational boating and other uses, rather than traditional maritime commerce, that do not require continued free use of the state's public trust lands.

Owners of shoreline property have certain riparian rights,* especially the right to gain access to deep water. If the landowner places a wharf or other structure in the water beyond the mean high water line, however, he is making use of state-owned, public trust land for his own exclusive use. The Department of Environmental Protection regulates such structures, but the upland landowner, with his permit in hand, can use the public trust land at no cost. When selling his upland property, the landowner may profit substantially from the increased value derived from the permit to erect and maintain a wharf. In the case of dockominium sales, no actual land is bought or sold; a dockominium slip may sell for $45,000, but neither the seller nor the buyer pays anything to the state for the use of the land underlying the slip. Without interfering with the basic riparian right of access to deep water, the Council concludes there is a need for the state to obtain some compensation for the use of its public trust lands.

The need for compensating the state is based on the unrelenting pressure being placed on our coastal resources. Continued growth of the state's urban coastal communities, a desire by many to live by the water and moor one or more boats, and a boom in boating have all strained the ability of the state to preserve, regulate, and restore coastal resources. Most of the improvements recommended in this report will cost money. Who should pay? There is no need to charge the general taxpayer when an opportunity exists to require modest payments from the people who use public trust lands for private economic gain.

Maine, New Jersey, and Florida are among the many coastal and Great Lakes states that collect rent for the private use of public trust lands. Annual revenues range from tens of thousands to millions of dollars.

Recommendation: The Council on Environmental Quality recommends that the State of Connecticut assert greater rights in its submerged public trust lands. This assertion should take two forms:

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*The term "Riparian rights" is favored here over the more specific "Littoral rights" because of the former's more general use.

1. The DEP should assert more of a proprietary or possessional interest in the land held by the state in the public interest. For example, a person proposing to establish a business on pontoons at the mouth of the Connecticut River should be required to demonstrate that his proposal to use the public's land serves the public's interest, not merely that it will cause little harm to the environment. Does the public want the river lined with barges selling furniture, art, and used auto parts? The DEP should recognize that persons proposing to use the public's land for personal gain should be permitted to do so only if the use serves the public's interest. (This recommendation does not pertain to greater rights of public access to the beaches and shorefront property, which is a separate issue not addressed in this report.)

2. The General Assembly should adopt statutes that authorize a state agency to develop and implement a leasing program for public trust lands. Any leasing program will entail so many details that the General Assembly should enact the basic framework and require the designated agency to develop regulations.

States have structured their leasing programs in different ways, but a few points are common to all or most. The lease that a user of public trust lands must obtain is entirely separate from any environmental permits required. The fact that a user must pay rent to the state does not presuppose that the use is harmful or not in the public interest. In fact, in states such as Maine, one cannot even obtain a lease if the use is not in the public interest. Rent is merely the public's fair return for the private use of its land. In most states, the office that administers leases is entirely separate from the regulatory bureau; the potential for large lease revenue is not supposed to influence the environmental agency's decision to issue or deny the project's permits.

Highly desirable uses, such as non-profit educational institutions, can be exempted. In Florida, non-water-dependent uses pay ten times the rent that water-dependent uses pay.

Rents can be calculated on a square-foot basis, as in Maine, or as a function of upland value, as in New Jersey. The Council recommends a rent structure that most reflects the impact to the public trust, which would probably be based on the square footage of public trust land that is lost to the public.

States that have enacted public trust land leasing programs in recent years have generally extended a rent-free period to existing users for a certain number of years. During that time, however, a change in use, ownership, or a major modification will require the user to obtain a lease. The obvious drawback of a "temporary grandfather" provision is that the revenue stream starts out small, collecting only from those uses that receive permits and leases after enactment of the leasing program. Granting temporary grandfather exemptions only to the smallest uses may be one way to make the initial revenue stream substantial.

Council staff reviewed all structures and dredging permits issued in 1987 and the first ten months of 1988, and attempted to calculate the

areas for which rent would be charged; that is, the total area of public trust land being devoted to private uses. Based on rough but conservative estimates, the Council calculates that at least 2,500,000 square feet of public trust lands are built upon or otherwise usurped by permitted activities each year. This estimate was corroborated by U.S. Army Corps of Engineers data from the last five years. If all permittees were paying rent equal to four cents per square foot (a very modest sum that is the maximum rent under Maine's law), the state would be collecting $200,000 each year, just from the uses that obtained permits in 1987 and 1988. Clearly, if all new and existing users of public trust lands were paying rent, the total annual revenue would be in the millions of dollars. Depending on the per-square-foot rental rate, the revenue could conceivably total tens of millions of dollars. (New Jersey, basing its rent in part on upland property values with certain minimums, collects more than four million dollars annually, and the amount increases each year.)

The Council envisions a dedicated fund which could be applied to all or some of the following needs (described in more detail in the following sections):

-- Tidal wetland and coastal embayment restoration projects.

-- Adequate staffing of the Department of Health Services to inspect shellfish beds; inadequate staffing will likely lead to the closing of many productive beds in 1989.

-- Adequate staffing of the DEP's coastal regulatory programs to better serve the applicant-public, to protect the state's coastal reources, and to patrol for illegal activities.

-- Regular updating of the official tidal wetlands maps.

-- Acquisition of important coastal ecosystems.

-- Development of public access for boating and fishing.

-- Grants to municipalities for public projects that promote public enjoyment of the public trust.

-- Adequate staffing to patrol boaters and boating law violators on the Sound and in the tidal rivers.

It would be best had Connecticut enacted a leasing program decades ago. However, with half of the coastal towns reporting that shoreline development has not neared its potential, Connecticut still stands much to lose or gain.

Everyone recognizes that the clean-up of Long Island Sound will cost the public billions of dollars. Connecticut's first line of defense against further degradation is a strong coastal resource regulatory program. Secondly, the enactment of a leasing program for public trust lands -- a reversal of past policies allowing their use for free -- is the largest untapped opportunity for funding environmental improvements to Connecticut's coastal resources.

Economic Impact of a Public Trust Land Leasing Program

The Council has heard from several sources -- conservationists as well as marina owners -- that marina owners face many regulatory obstacles and expenses, that they are often required to provide public benefits at their own cost, and that many "mom-and-pop" marinas could be forced out of business if they were further "taxed" by the state. The Council has also heard questions raised as to why marina- and dock-owners should be penalized, when many provide access to the water and economic benefits to the community.

The Council considers these comments seriously, and recommends that a lease fee structure be established which in no way could be considered punitive or burdensome to water-dependent operations. The Council believes that when compared to the total cost of operating a marina, dockominium, or even a single boat, a modest per-square-foot rental fee would be an insignificant entry on the owner's ledger.

The Council observes that many marinas are being converted to dockominiums, a change considered undesirable by some. The Council sees no reason that a modest leasing program would affect the rate of conversion. Demand for moorings of all types is certain to increase for the indefinite future, and will probably never decrease. The Council regrets that many boat-owners of modest means will be "squeezed" by the conversion of marinas to dockominiums, but finds no connection between that fact and the proposal to implement a leasing program. Economic factors of far greater magnitude than the leasing program will determine the rate of dockominium conversion.

The overriding need for revenue to protect coastal resources leads the Council to make its recommendation for leasing public trust lands. The most equitable means to raise revenue is to require payments from those who enjoy the use of public lands for economic gain and private enjoyment; the alternative is to require the general taxpayer to pay.

As a final economic note, the Council recommends that lease revenues be used to fund existing as well as new coastal regulatory staff (in addition to other coastal conservation programs, as described above), thereby reducing the total demand on the state's General Fund budget.

B. TIDAL WETLANDS

Tidal wetlands are defined by Section 22a-29 of the General Statutes -- in language that might befuddle all but the expert botanist -- as lands subjected to tidal action and capable of supporting particular plant species. Most of the wetlands are easily recognizable to the layman as the extensive salt marshes along the shoreline. Less known are the scattered freshwater tidal wetlands along the Connecticut River that occur as far north as Wethersfield. Combined, tidal wetlands are estimated to total 15,000 to 17,000 acres.

By 1965, shoreline development had claimed more than half of the tidal wetlands that existed in Connecticut in 1914. Booming population and economic pressures along the coast since 1965 lead the Council to conclude that virtually all tidal wetlands would have been lost by now had not strict regulatory controls been enacted. Since implementation of tidal wetlands statutes in 1970, permitted losses appear to total only six to ten acres, though illegal filling has probably claimed more.

Arrest of tidal wetland destruction stands as one of Connecticut's great regulatory success stories. Nationally, coastal marshes are regarded by the U.S. Fish and Wildlife Service as the most jeopardized type of wetland ecosystem. By establishing a goal, in statute, of preserving remaining tidal wetlands, Connecticut initiated the aggressive action needed to avert the catastrophic loss of wetlands that otherwise would have occurred, and might yet befall other states.

Loss of remaining tidal wetlands would be catastrophic because of their remarkable value to the public. Their value as wildlife habitat is tremendous, as many species, from black ducks to diamondback terrapins, would perish without them. Perhaps more importantly, if such is possible, tidal wetlands are inextricably linked with the future of fishery resources of Long Island Sound. Without tidal marshes, the Sound would be but a large basin of water without the many species of fish that depend on the marshes in early stages of their lives. Nutrient cycling and physical buffering of the shoreline are two more of the many economically important functions of coastal marshes.

Although Connecticut's recent record of protecting tidal wetlands is generally excellent, several problems remain: inaccurate mapping, a slow permit process, thousands of acres in degraded condition (including the condition of being ditched for mosquito control), uncertain consequences of a projected rise in sea level, and slow, weak enforcement in the face of widespread illegal filling.

1. Unmapped Tidal Wetlands -- Tidal wetlands are regulated as such only if they appear on the state's official maps, most of which were adopted in 1970 through 1972. Despite a statutory requirement to revise wetland boundary maps at two year intervals, revision has not been done. The development of maps and their formal adoption require time and money, and both were expended on other duties.

Based on its survey of local officials and other sources, the Council estimates there are between 500 and 1000 acres of unmapped tidal wetlands.

A tidal wetland's absence from the official map does not place it in immediate jeopardy. Activities in the wetland would still be regulated under the structures and dredging law (if below high water), or subject to a local coastal site plan review (if above high water in a coastal town). Also, municipal inland-wetland agencies can regulate unmapped tidal wetlands, though this fact is not universally understood. None of these other regulatory programs are as protective as the tidal wetlands law.

Recommendation: State tidal wetlands maps should be revised regularly, though not necessarily biennially as current law specifies. The DEP's basic annual budget should be increased to reflect the average annual cost of revising and adopting the maps. (In other words, map revision should be viewed as an ongoing cost of administering the tidal wetlands law, rather than an occasional cost of great magnitude.)

2. Wetlands Restoration: Undoing Past Damage -- Hundreds of acres of degraded tidal wetlands can be restored. Common causes of degradation are past disturbances and restrictions of tidal flow by roads, culverts, tide gates, and other obstructions. Symptoms of degradation include reduced productivity and invasion by Phragmites and other non-native and/or freshwater plant species which are not as useful to wildlife as native salt marsh vegetation. Also, ditching of marshes to control mosquitoes has reduced the habitat value of many marshes. Almost all of the state's large marshes were ditched in past decades for mosquito control.

State and local efforts to restore tidal wetlands have proved successful. New, improved tide gates restore tidal flushing, increasing salinity in the marsh and causing the resurgence of native marsh vegetation. A second restoration effort, affecting more than tidal wetlands, is the Coves and Embayments program. Sediment-clogged Alewife Cove in Waterford was dredged to restore tidal flushing, and the program appears to have great potential for improving several other coves.

A third restoration effort has been an outstanding success: The Department of Health Services, in consultation with the DEP and other agencies and private organizations, has been implementing Open Marsh-Water Management (OM-WM) on several tidal marshes. OM-WM replaces ditching as a means of controlling mosquito reproduction. It has been proven effective in controlling mosquitoes, reducing demand for pesticides, and increasing the value of the marshes for wildlife. OM-WM replaces the gridwork of ditches with a network of ditches connecting strategically-placed permanent ponds in which fish live and feed on mosquito larvae. Some ecologists criticize OM-WM on the basis that it is an attempt to manipulate natural ecosystems to control a single species, which is usually foolhardy in the long run. That criticism may be valid where OM-WM is used to control mosquitoes on a virgin marsh; in Connecticut, OM-WM is used to replace ditching and consequently represents an ecological improvement.

Recommendations: 1) The DEP should continue pursuing a goal of restoring hundreds of acres of tidal wetlands to their formal productivity. This goal is expressed in the Environment 2000 Plan. One means to help achieve this goal at minimal state expense would be to require violators to restore specified, off-site degraded wetlands in cases where circumstances prohibit the violator from restoring the area of his violation.

2) The General Assembly should fund the Coves and Embayments Program annually.

3) The Department of Health Services should continue its successful program of Open Marsh-Water Management as an alternative to ditching of tidal marshes for mosquito control.

3. Tidal Wetlands and the Rising Sea -- The National Academy of Sciences has concluded that the "Greenhouse Effect" of carbon dioxide in the atmosphere will cause global temperatures to increase, glaciers to melt, and sea levels to rise. Scientific opinion varies on the amount of sea level rise we should expect. Sea levels in the year 2050 will be anywhere from one to four feet higher than they are now. The variations in scientific predictions make planning for sea level rise difficult.

In July, 1988, the U.S. Environmental Protection Agency (EPA) released a report, "Greenhouse Effect, Sea Level Rise, and Coastal Wetlands." The EPA attempted to project net losses of coastal wetlands at various points along the Atlantic coast. As wetlands become inundated, some wetlands will build up and some others will shift landward as the water rises: estimates of net loss are necessarily inexact. Interestingly, the projected net loss of tidal wetlands along Connecticut's shore is less than for any other location studied. It appears that, in Connecticut, a little planning now could ensure the preservation of many acres of tidal wetlands that would otherwise be lost.

If landowners are permitted to deposit fill and place bulkheads up to boundaries of tidal wetlands, those wetlands will have no place to shift into as sea level rises. The EPA study concluded, "Virtually all wetlands may be lost by 2100 if adjacent lowlands are developed and protected, instead of being reserved for wetland migration."

While it is true that many problems will be caused by sea level rise, including the back-up of sewers in coastal cities, the Council concludes that tidal wetlands will always be important, and their future existence should be secured wherever possible.

Recommendations: 1) The Department of Environmental Protection should incorporate buffer zones into tidal wetlands and other coastal permits, to allow for the predicted migration of wetlands as sea level rises. Buffers would be appropriate where gentle slopes, as opposed to steep or rocky slopes, border tidal wetlands. In locations where conversion of uplands to tidal wetlands is virtually certain to occur, the DEP should include the future wetlands sites on the tidal wetlands maps. If necessary, the General

Assembly should amend Section 22a-30 of the General Statutes to authorize incorporation of appropriate buffer zones.

2) The DEP should encourage municipalities to consider sea level rise and the projected migration of tidal wetlands in all coastal zoning decisions. This recommendation is based on the CEQ's survey of coastal officials, half of whom have some concern about sea level rise and would appreciate guidance from the DEP.

C. TIDAL WATERS (STRUCTURES AND DREDGING)

The state regulates dredging and the placement of fill or erection of structures in "tidal, coastal, and navigable waters" (C.G.S. Section 22a-359). Legally, tidal and navigable are synonomous in Connecticut regardless of a water body's actual navigability, except that the state's jurisdiction extends up the Connecticut River to Massachusetts on the basis of the river's navigability even beyond tidal influence. On other rivers, the state's jurisdiction extends upriver to the first dam or other feature which precludes navigation from coastal waters, or to the point where tidal influences cease. (It might be possible to extend the state's jurisdiction to non-tidal waters that are not considered navigable under existing legal interpretations but that are, in fact, navigable; the Council, in light of more urgent problems, elects to make no recommendation on this point.)

The Connecticut General Assembly first legislated a permit system for regulating dredging and the erection of structures in tidal waters in 1939, and has modified the statute several times, most recently in 1987. Public Act 87-435 authorized the DEP to promulgate regulations to refine the permit system, and regulations are currently being prepared for adoption in 1989.

How successful has the structures and dredging law been in protecting the environment and the public interest? The question is extremely difficult to answer, largely because no environmental monitoring system exists to assess the cumulative impacts of the structures and dredging. Except in rare instances, one dredging activity or the creation of one marina will not by itself create noticeable impacts to the state's overall shellfish, wildlife, or finfish resources. Cumulatively, however, these activities take a definite toll. According to the U.S. Army Corps of Engineers, there are no standard methods for assessing cumulative adverse impacts to the natural environment, though the U.S. EPA is reported to be developing such methods. Without knowing the full extent of the impacts, the Council concludes that impacts occur nonetheless:

-- Approximately 2,500,000 square feet, or 60 acres, of submerged lands are affected each year by permitted structures and/or dredging. The acreage affected by illegal activities is significant but incalculable.

-- Marinas have been permitted to expand into areas known to host hard clams and other shellfish.

-- The soft clam, harvested by the hundreds of tons a century ago, no longer has any importance to commercial shellfishermen. The last commercial landings were reported in 1974. Disturbance of their habitat is reported to be one cause of their nearly total decline.

-- Winter flounder, Connecticut's most important commercial fish species, is reported to be decreasing. Winter flounder spend winters in bottoms of estuaries and shallow waters. Dredging is but one problem facing this species.

-- Some species of shorebirds are reported to be declining by at least one Connecticut ornithologist. Numerous factors outside Connecticut could account for the declines, but it is known that intertidal flats are essential feeding grounds during migration.

-- Tidal wetlands near at least one marina have eroded and shrunk, apparently because of frequent wave action from marina boat traffic.

It is difficult for any observer to understand how cumulative impacts are considered in permit decisions for structures and dredging. The statutes are vague. The savvy applicant will attempt to demonstrate that his project, by itself, will not cause significant impacts to navigation, water quality, flounder, shellfish, etc., and that the anticipated benefits of public access will outweigh the minor impacts to the environment. The applicant might be correct, of course, but the DEP should enter each permit decision with some underlying understanding of the potential effects of approving one hundred or more such applications each year. At the least, a regional overview would be appropriate.

At its June, 1988 hearing, the Council heard comments from all quarters on the tandem problems of cumulative impacts and unclear goals of the structures and dredging program.

-- A municipal conservation official wondered at what point piecemeal development of an estuary would be stopped. Do the first fifty applicants get their permits, after which all will be denied ? Or does every riparian landowner get to install a wharf until the estuary is lined with wharves? Is there an overall guiding policy?

-- A representative of the U.S. Army Corps of Engineers advised the Council that unless the state has a written policy guideline, the regulatory staff will continue to act on each application separately, and will end up approving nearly everything. The state will be "nibbled to death."

-- A town planning official suggested that small projects such as individual docks are, collectively, having the greatest overall impact of any type of shoreline development. Yet each dock, by itself, seems like a minimum intrusion.

-- A developer's attorney stated that an applicant who follows all of the established application procedures has no idea what outcome to expect. The goals and rules of the program should be clear, so an applicant does not waste time and money on an application that stands no chance of approval. He also stated that marina development should be planned, so that development, which is inevitable, will go where it will do little harm and the important natural resources can be preserved.

Clearly, the highest priority for the structures and dredging program, in addition to the basic task of protecting the environment and the public trust, must be to elucidate the program's goals and to more systematically consider cumulative impacts of permitted activities.

Recommendations: 1) For the first time, the DEP is developing regulations to implement the structures and dredging statute, pursuant to P.A. 87-435. The DEP should use this opportunity to state clearly the program's goals and the criteria by which the department will judge applications. The criteria should include consideration of cumulative impacts.

2) The DEP should develop and implement a monitoring system to periodically assess the cumulative environmental impacts of its permit decisions.

3) Harbor Management Plans, discussed in section E of this report, will help to plan development of some estuaries and should be encouraged.

CASE STUDY

In 1976, the developer of an office building placed a bulkhead and fill in a harbor to allow for construction of a parking lot. Approximately 1440 square feet of aquatic habitat was filled. In July, 1977 the DEP notified the owner that his bulkhead and fill violated structures and dredging statutes. The DEP's order to remove the unlawful structure was upheld by the Superior Court, but the Court in 1985 granted the owner his motion for a new trial. A new application was submitted in 1987. In August, 1988 a proposed decision was issued by a DEP Hearing Officer, and now waits to be upheld or rejected by the Commissioner. The Hearing Officer's recommendation is to order removal of part of the illegal fill, allowing some fill to remain beyond the original shoreline, to be consistent with neighboring properties.

Whatever the ultimate outcome, two conclusions can be drawn:

1. The owner of the office building will have gained economic use of the parking lot on illegal fill for more than twelve years. It appears that the worst penalty he will suffer will be the removal of the illegal fill (or, more likely, a portion of it). Observing this case, a potential violator would be hard pressed to find a reason to go the legal route.

2) Interestingly, the DEP Hearing Officer's proposed decision makes no mention of the fact that the lands filled illegally are owned by the state (as public trust lands). The Council attributes this to the state's traditional passivity in protecting the public's ownership rights. In the view of the Council, staff of the DEP should be aggressive in identifying and protecting the public's rights in public trust lands.

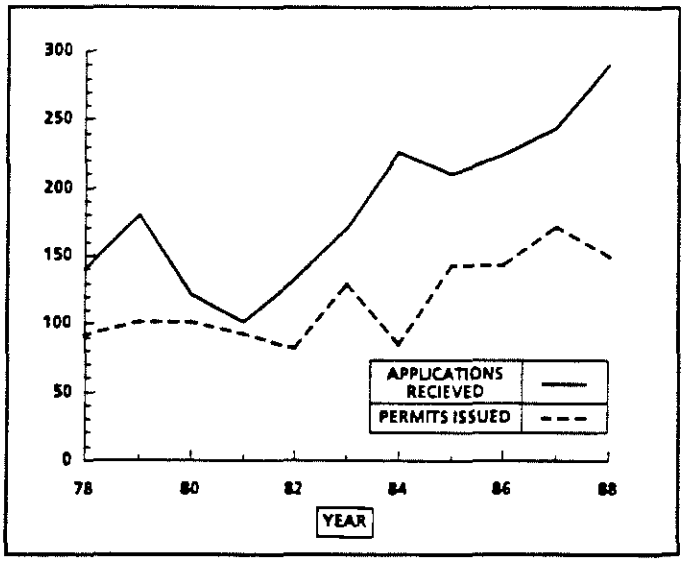
D. ADMINISTRATION: PERMITTING AND ENFORCEMENT

It is least confusing to describe many of the administrative problems facing tidal wetlands and tidal waters together, as a significant percentage (14%) of regulated activities affect both resources directly and receive a joint tidal wetlands/structures and dredging permit from the DEP.

1. Slow Permit Process -- Extraordinary permit-processing delays and a chronic backlog of applications are two features for which the coastal regulatory programs are well known. The number of applications received has exceeded the number issued by sixty or more in each of the past five years (see graph, below). A backlog of 300 to 400 applications exists.

The backlog yields two undesirable results: a low level of service to the applicant-public, and high rates of illegal (non-permitted) activity. An incoming application for a permit for a minor activity can sit for months prior to the required public notice. If the DEP then holds a public hearing or requires additional information from the applicant, the delay can turn from months to years; some applications in the backlog date to 1983. An application for a major activity -- expansion of a large marina, for example -- can consume weeks of staff time, causing further delays for all other applicants. The length of time required to obtain a permit is the complaint most frequently received by local officials regarding the DEP's structures and dredging permit program, according to the Council's survey.

TIDAL WETLANDS AND STRUCTURES & DREDGING APPLICATIONS AND PERMITS ISSUED, 1978 - 1988



The time required to obtain a permit is an oft-cited reason for the large number of tidal wetlands and structures and dredging violations. With anticipated delays of a year or more, an impatient riparian landowner can put a dock in the water and, at worst, be required to submit an application at a later date to keep it. (The penalty picture appears to be changing, however; see further discussion under enforcement, below.) Some municipal officials say that landowners break the law deliberately in order to focus attention on their cases and speed receipt of their permits.

The cause of the regulatory logjam is recognized by all parties and is beyond dis-

pute: The coastal regulatory programs have been understaffed in a big way. When the programs were moved from the DEP's Water Resources Unit to the Coastal Area Management Unit in 1988, the number of staff making the move totalled one. Other staff of the Water Resources Unit worked on the program part-time, but the situation in early 1988 contrasted sharply with the early 1980s when five people worked on the program and the number of applications was half or fewer. Since being moved to the CAM Unit, the programs have gained staff; four people work on the programs full-time, and others devote part of their time to support work (such as inspections and technical review).

Related to the length of the permit process are complaints about the confusing nature of the applications themselves. Local officials have observed that applicants are often uncertain about how much information is required, especially for structures and dredging permits, for which regulations do not exist. One problem may be the information packet for applicants, which is not sufficiently specific. Some officials have suggested that two (or more) classes of permits be developed, one for minor activities (repairs, minor extensions, etc.) and one for major ones. As an analogy, many municipal inland wetlands agencies differentiate between minor and major applications, with different information requirements for each.

Recommendations: The Council recommends strongly that the coastal permit process be speeded up, to better serve the public and to lessen the pressure to conduct illegal activity. This recommendation does not presuppose that the majority of applications should be approved, only that decisions should be more timely. Specific recommendations are to:

a) Institute permit application fees. Fees should be sufficient to cover the cost of reviewing the applications, and should be proportional to the size of the project. The General Assembly should authorize the DEP to place application fees in a dedicated fund.

b) The DEP should implement a two-class permit system, one class for minor activities and one for major activities, if environmental quality would not be compromised. In any event, the DEP should upgrade the packet of information given to applicants to make the procedure less mystifying to minor applicants.

c) The Council commends the DEP's current efforts to promulgate, for the first time, regulations to administer the fifty-year-old structures and dredging law. Regulations should clarify the application process.

d) The DEP should, when possible, re-institute the procedure of processing applications jointly with the U.S. Army Corps of Engineers. The Corps' jurisdiction overlaps the state's considerably, and applicants must secure permits from both agencies. The DEP stopped joint processing because of demands on staff time.

e) The DEP should implement a computerized recordkeeping system for logging all tidal wetlands and tidal waters impacts, legal and illegal.

f) Increase the number of staff reviewing coastal permit applications to at least six.

2. Enforcement -- The enforcement tide might be rising, and none too soon when one considers the enforcement record over recent years:

-- The Council estimates that illegal filling of tidal wetlands exceeds permitted filling, perhaps by a substantial margin. Officials in at least fifteen coastal towns have observed the effects of illegal filling; the aggregate must surely exceed the one-quarter to one-half acre affected each year by permitted activities.

-- Officials in the majority (55%) of coastal communities have observed illegal encroachments into tidal wetlands. One-third consider the violation rate of the structures and dredging law to be significant or very significant.

-- The DEP's enforcement efforts are viewed by many local officials as slow and weak. Specifically, 48% rate the timeliness of DEP enforcement as fair (9%) or poor (39%). The majority rate the strength of DEP enforcement as fair (24%) or worse (35%); none rate it as excellent.

-- Records substantiate local officials' perceptions: The time required to resolve a reported violation has averaged about 600 days (with a range of 84 days to four years). A few very lengthy cases may have skewed the average upward; on the other hand, not included in the average are some violations first discovered in 1981 and 1982 that have not yet been resolved.

-- Like many other lands,tidal wetlands are experiencing increased dumping of waste materials as people attempt to skirt the rising costs of legal disposal. The same is true on submerged lands; according to the DEP's Marine Fisheries Program, sunken wrecks of barges, boats, and automobiles make trawling virtually impossible in some areas of the Sound.

-- The tidal wetlands law is enforceable only by the Attorney General. This contrasts with the Inland Wetlands and Watercourses Act under which any person or municipality can initiate court action to penalize a violator.

--Until the October, 1987 effective date of P.A. 87-435, the maximum fine for a structures and dredging violation was fifty dollars. Now the maximum penalty is $1000 per day which, if imposed, could be an effective deterrent.

-- A handful of tidal wetlands penalties have been collected, but Section 22a-35 of the General Statutes confines penalties to "knowing" violations of the law. This differs from the Inland Wetlands and Watercourses Act and many other state laws; this difference may be rooted in the framers' belief that tidal wetlands maps would be updated, and the landowners notified, every two years, which would make complete ignorance unlikely.

-- Until 1988, most strucures and dredging law violators were given the option of applying for a permit to retain their illegally-placed structures. Approximately ten percent of the permits issued in 1987 and early 1988 were for retaining structures that had been placed illegally. With the transfer of the program to the Coastal Area Management Unit in 1988, the DEP's attitude toward the "work now, apply later" strategy appears to be changing.

While weaknesses in the statutes are partly responsible for enforcement problems, the primary problem is, again, lack of staff. The DEP does not have the field staff needed to inspect completed development projects to see that they comply with their permits, as well as to respond to complaints from citizens and local officials. Municipal officials' perceptions that nothing happens to the violator when a complaint is filed with the DEP are, in some cases, technically incorrect. Nothing significant may happen for months or even years on low-priority cases, but the files are kept open with the hope that a lighter workload will allow staff to revisit the cases some time in the future. The DEP does not communicate with the complainant, who may just assume that the complaint was ignored and nothing happened.

Recommendations: a) The DEP should have at least two full-time staff dedicated to enforcement of tidal wetlands and structures and dredging statutes.

b) In addition to the recommended permit application fee described previously, permit recipients should be required to pay an "inspection fee" at the time the permit is issued. This fee should be large enough to cover the cost of inspecting the project for compliance with permit conditions.

c) Inspection authority should be delegated to those towns which want it. According to the CEQ's survey, slightly more than half of coastal municipalities would be interested in having official inspection authority. (Fewer (37%) would welcome enforcement authority beyond inspection; they have insufficient staff resources to do the job completely, and they prefer to have the state deal with recalcitrant parties.) Inspection by trained local officials would cut demands on DEP staff time; the initial investment of time required to train local officials would not be large.

d) Amend the tidal wetlands and structures and dredging statutes to enable citizens and municipalities to take violators to court.

e) Amend Section 22a-35 of the General Statutes to remove the requirement that a violation be done "knowingly" for penalties to be imposed. Adopt language parallel to the Inland Wetlands and Watercourses Act which holds responsible any party who "is conducting or maintaining" any activity which violates the law.

f) The DEP should cease to give violators the option of applying to "retain and maintain" a structure or fill placed illegally. Upon

discovery of a violation, the DEP should push immediately and aggressively for removal, remediation, and civil penalties. After a few successful cases, the Council predicts a sudden decrease in the number of violations.

g) The DEP should develop regulations for assessing administrative civil penalties for tidal wetlands and structures and dredging violations, to help speed enforcement.

CASE STUDY

A marina was enlarged without permits in 1982, 1984, and 1985. In 1987, the owner applied for a Structures and Dredging permit to expand his marina further and to legitimize unauthorized structures.

In November, 1988, a DEP Hearing Officer issued a proposed decision which now waits to be upheld or rejected by the Commissioner. The proposed decision recommends issuance of a permit to enlarge the marina, to legitimize some of the unauthorized structures, and to order removal of others.

Regardless of this case's final outcome, the marina owner will have made economic use of his unauthorized structures for several years, earning considerably more income than if he had waited to receive permits. In fact, he has been earning income from structures that may never be made legal. Cases like this one burden the DEP's regulatory and adjudicatory staff, and fuel the popular strategy of manipulating the permit process by placing structures in public waters and worrying about permits later.

E. RELATED ISSUES

1. Acquisition of Important Areas

In a 1988 Special Report called, "America's Mad Dash to the Sea," the Natural Resources Defense Council points out the limitations of regulation:

> "At bottom, the very nature of coastal regulation predicts its failure. Permit decisions cannot be cumulative; they are intrinsically small and, on the merits, hit-or-miss. What they hit may be re-applied for the following year or month; what they miss is lost, for the most part, irreversibly. The more broadly one regulates to preclude development, however, the more one runs the risk of taking and of liability for compensation.
>
> Regulatory programs have bought us time, and for this reason they need to be defended and applied." (in The Amicus Journal, Summer, 1988)

Recommendation: Where oustanding tidal wetland ecosystems remain, the DEP should work with municipalities and conservation organizations to acquire the land or restrictive easements on the land. Where opportunities exist to purchase public access points for boaters, those too should be given high priority for acquisition, as even a small development at some indefinite time in the future could preclude all use by the public.

During the Council's July hearing, it was suggested by one party that the state should operate public marinas. The Council is unable to evaluate the feasibility and merits of the suggestion at this time, but recommends that the DEP explore this possibility.

2. Mitigation

Many applications are submitted to the DEP which propose some form of mitigation or environmental improvement to compensate for the anticipated damage to a natural resource. The compensation strategy reached a peak in 1988 -- in a case yet to be decided -- when an applicant who proposed dredging intertidal flats to accommodate a marina expansion offered to construct osprey-nesting platforms, martin houses, black duck-nesting platforms, least tern nesting habitat, and oyster habitat.

In September, 1988, Commissioner Carothers made an important decision regarding another application involving a mitigation proposal. A homeowner applied to construct a swimming pool in tidal wetlands, and to restore an area of degraded wetlands elsewhere on his property. The Commissioner, in overturning the Hearing Officer's recommendation to grant the permit, ruled that "such a mitigation proposal, however well-intentioned, cannot be held to justify a project that cannot first pass muster under the standards of the legislation..." Since the tidal wetlands statutes call for the preservation of tidal wetlands, the first test that a proposal must pass is a determination of whether it degrades a wetland. The swimming pool would have had deleterious effects, and thus the permit was denied. The Council on Environmental Quality applauds the Commissioner's decision, and recommends formal adoption of the policy expressed.

3. Subaqueous Mining

Two companies regularly mine sand and gravel from the waters of the state, pursuant to permits granted under Section 22a-384 of the General Statutes. Because of water quality concerns, it is not clear how long such activities will be permitted to continue. The per-cubic-yard charge of 50¢ can yield $100,000 to $200,000 annually.

Recommendation: The Council recommends that no permits be issued for subaqueous mining projects which threaten to degrade water quality. For any permits which are issued, the Council recommends increasing the per-cubic-yard fee to the maximum charge levied in other states; the Council finds no reason to keep the costs of subaqueous mining lower here than in other states.

4. Harbor Management Commissions

Sections 22a-113k through 22a-113t of the General Statutes describes a procedure by which a coastal community may form a Harbor Management Commission and adopt a Harbor Management Plan. Plans must be approved by the Commissioners of Environmental Protection and Transportation. More than half of the coastal towns report having formed a commission or taken steps to do so; at this date, one harbor management plan has been approved by the Department of Environmental Protection.

Recommendation: The Council encourages the formation of Harbor Management Commissions, for the benefits to be obtained from local involvement and planned growth. The Council recommends, however, that the DEP approve only those plans which have strong conservation components, as required be C.G.S. Section 22a-113o.

PART IV

ENVIRONMENT 2000: CONNECTICUT'S ENVIRONMENTAL PLAN

EVALUATION OF ENVIRONMENT 2000: CONNECTICUT'S ENVIRONMENTAL PLAN

In 1987, the General Assembly required the DEP to formulate a statewide environmental plan (P.A. 87-142). The result was Environment 2000: Connecticut's Environmental Plan, signed by Governor William A. O'Neill on September 1, 1987. P.A. 87-142 also gave responsibility to the CEQ for evaluating progress toward the goals and objectives of the Plan.

The Council takes this new responsibility seriously, and with this report initiates an annual update on the state's progress toward E-2000 objectives. This year's report, however, is only a "pilot" evaluation, intended to demonstrate the quantitative and graphic approach the Council hopes to use in future annual reports. Consequently, evaluations of only a few issues are presented. For this year's report, the Council selected only those issues for which good evaluation data were available. These issues are not intended to reflect priorities of the state, and the reader should not interpret this year's E-2000 report as an evaluation of overall environmental progress.

To depict the state' progress, the Council designed a graphic format which directly tracks E-2000 objectives and strategies. Central to the Council's approach is the belief that objectives must be measurable to be meaningful. If an objective cannot be measured, we will never know to what extent we have achieved it. This year, the Council has elected to report on only the six issue-objectives toward which progress can be measured and quantified. (A small number of additional objectives can be measured in theory, but cannot in fact because no monitoring data exist.)

The Council has expressed to the DEP and the E-2000 Advisory Committee its concerns that the majority of the Plan's objectives, as worded, cannot be measured. DEP staff and Advisory Committee members are working on the problem, and the Council looks forward to working with them to improve the measurability of the Plan's objectives.

Guide to the E-2000 Evaluation Format

1. Two pages are devoted to each of the six issues being evaluated. The first page is copied directly from the E-2000 Plan; the second page (the "evaluation page") contains the Council's graphic evaluation of progress.

2. The graph at the top of each evaluation page depicts progress toward the objective. (Goal statements are not evaluated because they are, by nature, general statements of purpose not intended to be measured). The title of each graph indicates what is being measured (number of days, miles of stream, etc.).

Each graph is calibrated to also reflect percent attainment of the objective; by the year 2000, it is everyone's hope that all data lines will reach 100%. For most objectives, the graph depicts actual environmental quality measurements, as opposed to measurements of governmental activity.

3. Each graph will show annual advances and declines. The five-year intervals identified on the graph reflect the dates when the plan is to be revised pursuant to P.A. 87-142

4. The grid at the bottom of each evaluation page depicts the degree to which each management strategy on the preceding page has been implemented. Each grid is constructed independently of the graph above it (except that it was anticipated by the framers of the Plan that implementation of the strategies would result in attainment of the objective). If progress toward an objective fails to advance on the graph above, the reader can look at the grid to see if failure to implement one or more of the strategies may be at fault. On the other hand, if all strategies have been implemented but there is little progress toward the objective shown on the graph, then one must conclude that the strategies were not properly designed to meet the objective, and thus the Plan needs rethinking and amendment.

Where a strategy is worded vaguely or includes more than one well-defined activity, the strategy is termed "Unmeasurable." The reader should not interpret this to mean that no action has occurred; it means only that no meaningful way can be found to depict that action graphically.

5. The following is an explanation of the milestones which are used to measure implementation of each management strategy (except for those termed "Unmeasurable."

Statutory authority -- Does the DEP (or other appropriate agency or organization) have statutory authority to implement the strategy?

Regulations adopted -- Have the necessary regulations been adopted?

Responsibility assigned -- Has responsibility for implementation of the strategy been assigned to a particular unit or individual?

Evaluation criteria developed -- Has the agency developed criteria by which success of the strategy can be measured?

Funding -- Has adequate funding been appropriated?

Monitoring Initiated -- Has the agency established the monitoring or data-gathering system necessary to evaluate the success or failure of the strategy?

Private sector involved -- Has the agency involved private conservation organizations or the business sector, as appropriate?

Strategy initiated -- Has actual implementation of the strategy been initiated?

Strategy 25% complete, Strategy 50% complete, etc. -- Indicates the degree to which the strategy has been implemented.

Evaluation complete -- Has the agency evaluated the success or failure of the strategy?

Attainment of each milestone is designated on the grid by one of the following symbols:

● Milestone is fully attained.

○ Milestone is partially attained.

N Milestone not applicable.

No entry means no action (or unmeasurable, if so indicated).

To conclude this introduction, the Council wishes to repeat the point that the primary purpose of this year's Environment 2000 report is to demostrate the type of graphic evaluation the Council intends to employ in future years. The six issues in this evaluation, while depicted accurately, were selected on the basis of available data and do not reflect the priorities of the E-2000 Advisory Committee or the most pressing needs of 1989. As the E-2000 Plan is revised and more objectives become measurable, the Council's annual evaluation will encompass more issues. The format being used this year is experimental, and the Council welcomes comments.

COMBINED SEWER OVERFLOWS

GOAL: Protect public health and the environment from the impacts of combined sewer overflows.

OBJECTIVE: Eliminate combined sewer overflows.

STATUS & TRENDS: Periodic raw sewage overflows have occurred during heavy rainfalls in some Connecticut municipalities which have combined sanitary and storm water sewers. This has restricted full recreational uses and has presented a public health hazard. While Connecticut's Clean Water Fund provides a long term financing mechanism to correct combined sewer overflow problems, it will take several more years before projects to eliminate these overflows will be able to receive financing.

STRATEGIES:

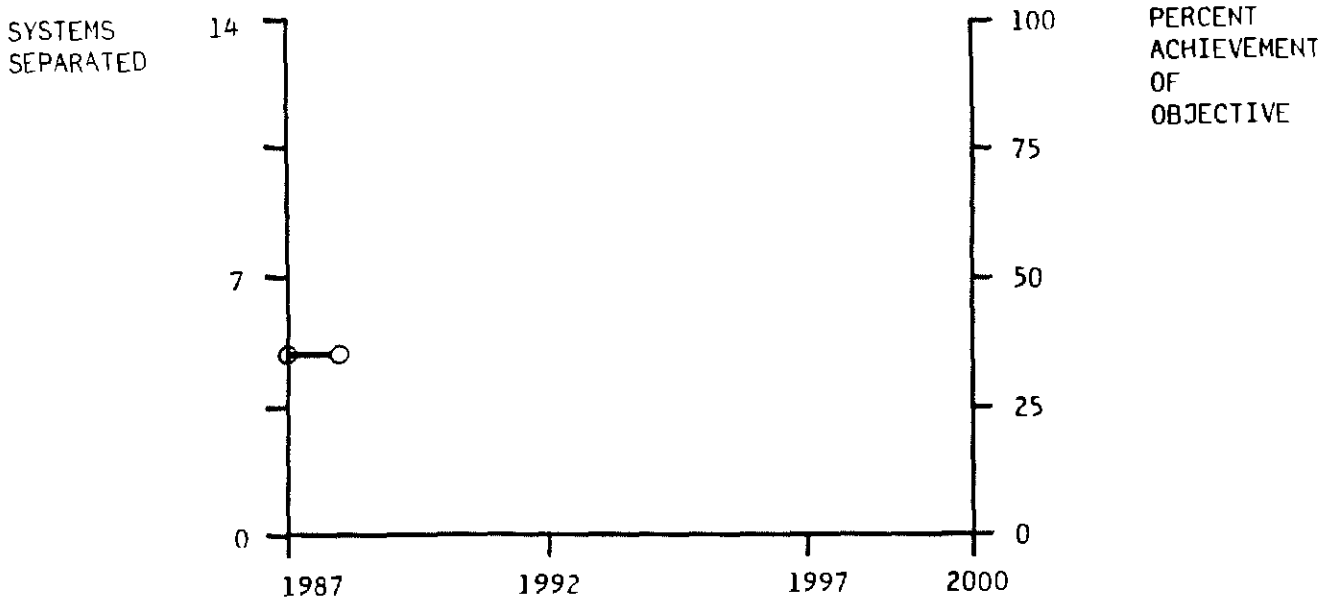
1) Complete engineering and environmental assessments for all municipal combined sewer overflow systems for the purpose of identifying the specific correction strategies, construction priorities, and construction phases.

2) Eliminate minor system overflows within the near future.

3) Continue to finance and implement the state's Clean Water Fund and Grants to allow timely corrections of the state's sewerage infrastructure problems.

4) Develop an interstate compact concerning the correction of combined sewer overflows into waters entering Connecticut.

OBJECTIVE MEASURE: NUMBER OF COMBINED SEWER SYSTEMS SEPARATED



MILESTONES

STATUS OF MANAGEMENT STRATEGIES

STRATEGIES (See E-2000 Excerpt, Previous Page)	Statutory Authority	Regulations Adopted	Responsibility Assigned	Evaluation Criteria Developed	Funding	Monitoring Initiated	Private Sector Involved	Strategy Initiated	Strategy 25% Complete	Strategy 50% Complete	Strategy 75% Complete	Strategy 100% Complete	Evaluation Complete	Comments
1) Engineering Assessments	●	●	●	N	●	N	N	●	●	●				
2) Minor Overflows	●	●	●	●	●		N	●	●					
3) Clean Water Fund	●	●	●	●	●	N	N	●						
4) Interstate Compact							N							

DAM SAFETY

GOAL: Protect life and property from the hazards of dam failure.

OBJECTIVE: Attain adopted safety standards for all dams.

STATUS & TRENDS: There are over 4,000 public and privately-owned dams which require continued maintenance, and many of them do not meet required safety standards. Many private dam owners are unwilling or financially unable to upgrade and maintain their dams to required standards and are attempting to place them in state ownership. As a result, the potential for dam failure caused by improper maintenance or inadequate spillway capacity will continue.

STRATEGIES:

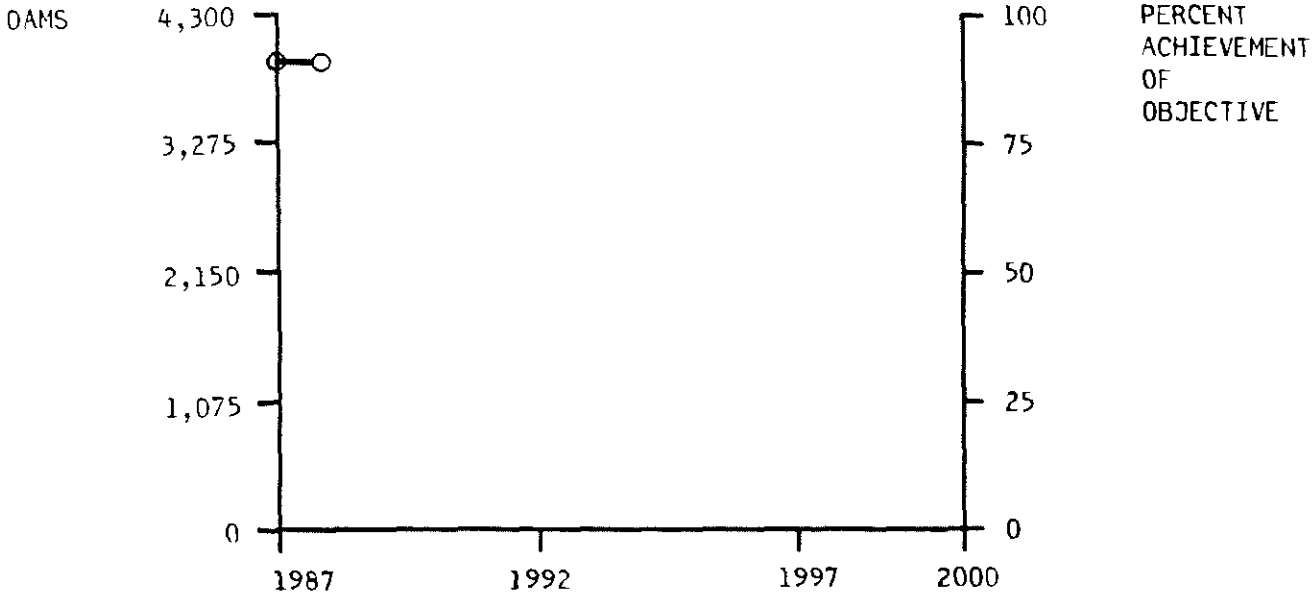
1) Enhance the dam safety inspection and maintenance program.

2) Continue a program for the ongoing maintenance of state-owned dams to assure their safety and long-term performance.

3) Continue state assistance programs for repair of privately-owned dams

4) Develop criteria for the acquisition of dams in the public interest

OBJECTIVE MEASURE: ESTIMATED NUMBER OF DAMS IN ATTAINMENT OF SAFETY STANDARDS



STATUS OF MANAGEMENT STRATEGIES

MILESTONES

STRATEGIES (See E-2000 Excerpt, Previous Page)	Statutory Authority	Regulations Adopted	Responsibility Assigned	Evaluation Criteria Developed	Funding	Monitoring Initiated	Private Sector Involved	Strategy Initiated	Strategy 25% Complete	Strategy 50% Complete	Strategy 75% Complete	Strategy 100% Complete	Evaluation Complete	Comments
1) Enhance Safety Program														Unmeasurable*
2) Dam Maintenance														Unmeasurable*
3) Private Dam Safety														Unmeasurable*
4) Acquisition Criteria			●			N	N	●	●					

*The term "Unmeasurable" indicates that the Council is unable to find an objective way to depict the extent to which a strategy, as worded, has been implemented. Important: "Unmeasurable" should not be construed to imply "no action."

SHELLFISH

GOAL: Conserve Connecticut's shellfish and enhance the commercial and recreational harvest.

OBJECTIVE: Protect, improve and increase habitats for a sustained yield of shellfish.

STATUS & TRENDS: Many of the state's once-thriving shellfish beds have been closed because of various sources of pollution along the coastal areas. In addition, shellfish habitat is also being lost as a result of coastal dredging and siltation from activities in upland development areas. As a result of this degradation of shellfish habitat and resources, there is an increasing risk to human health, a loss of recreational shellfishing, and diminished commercial harvesting. Other problems include the absence of shellfish base and spawning stock for the state's valuable oyster beds, absence of a program to enable closed shellfish areas to be reopened, a lack of uniformity in jurisdiction and regulatory authority by local enforcement, and limited enforcement efforts which allow overharvesting and taking of shellfish from polluted waters.

STRATEGIES:

1) Develop and implement a program to reclaim, maintain, and improve shellfish beds and habitats

2) Implement pollution abatement which will allow reopening of those shellfishing areas presently closed

3) Increase shellfish enforcement capabilities, in part by increasing fines and strengthening related environmental laws.

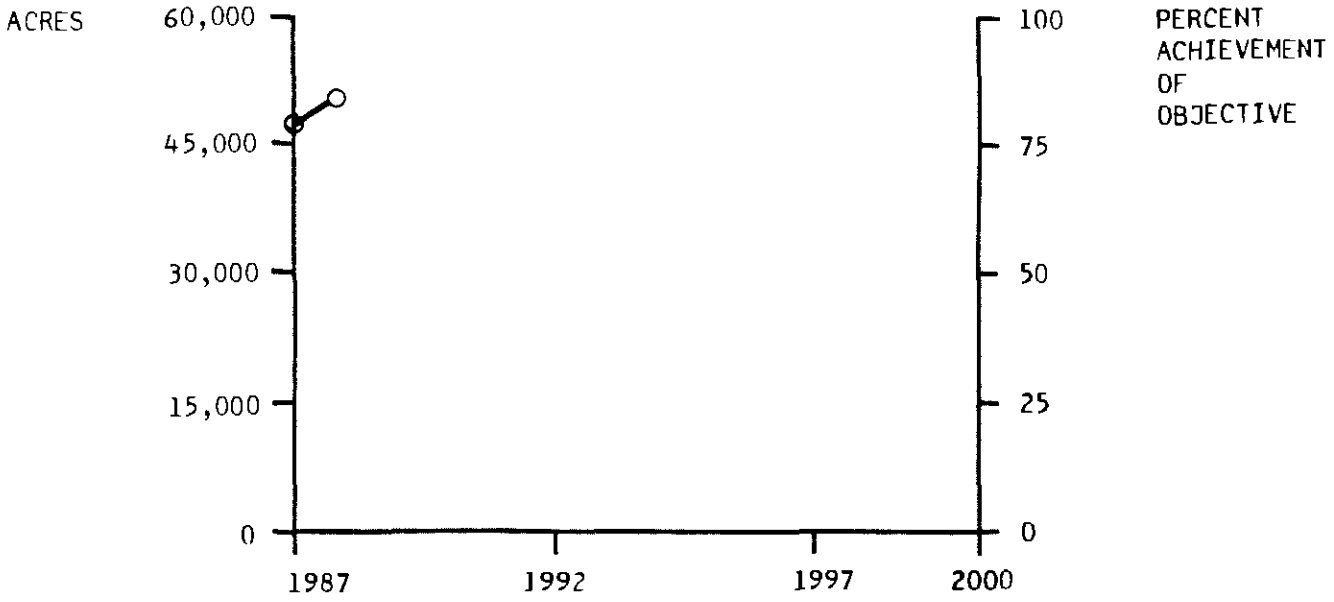
4) Evaluate and improve the procedure used to open and close shellfish beds.

5) Increase state and local revenue derived from shellfish and aquaculture harvesting and allocate such funds for improved management methods.

6) Resolve state and municipal conflicts over management methods.

7) Develop a comprehensive marketing study to analyze the present size of the shellfish and aquaculture industry and its growth potential.

OBJECTIVE MEASURE: ACRES OF SHELLFISH BEDS
(Objective Based On 1987 Acreage + 13,000 Acres To Be Restored)



STATUS OF MANAGEMENT STRATEGIES

MILESTONES

STRATEGIES (See E-2000 Excerpt, Previous Page)	Statutory Authority	Regulations Adopted	Responsibility Assigned	Evaluation Criteria Developed	Funding	Monitoring Initiated	Private Sector Involved	Strategy Initiated	Strategy 25% Complete	Strategy 50% Complete	Strategy 75% Complete	Strategy 100% Complete	Evaluation Complete	Comments
1) Shellfish Bed Restoration	●	●	●	●	●	●	●							Implementation Unmeasurable *
2) Pollution Abatement														See Combined Sewer Overflows Section
3) Shellfish Enforcement														Unmeasurable *
4) Opening Proce dure														Ongoing but Unmeasurable *
5) Increase Shellfish Revenue														Unmeasurable *
6) Resolve Conflicts														Unmeasurable *
7) Marketing Study	●	N												

*The term "Unmeasurable" indicates that the Council is unable to find an objective way to depict the extent to which a strategy, as worded, has been implemented. Important: "Unmeasurable" should not be construed to imply "no action."

SURFACE AND GROUND WATER QUALITY

GOAL: Protect public health and the environment from the adverse effects of water pollutants.

OBJECTIVES: Attain and maintain Connecticut's surface and ground water quality standards.

STATUS & TRENDS: Since the enactment of Connecticut's 1967 Clean Water Act, significant improvements have been made in the state's surface water quality, although some surface waters have not yet attained designated goals. In 1980, the program was expanded and Connecticut was the first state to adopt a comprehensive ground water quality program. In spite of these efforts, existing high quality waters are in jeopardy and may become permanently contaminated and unfit for use. Among the major problems left to be dealt with are inadvertent or accidental discharges and land use development impacts. As more incidents of contamination are identified, there will be increased difficulty in risk assessment, establishment of health effects, and designation of tolerance limits.

STRATEGIES:

1) Develop additional controls and measures that maintain water quality standards and provide for growth.

2) Continue to issue permits which require the best pollution control methods as they become available.

3) Require municipalities and utilities to identify and protect water supply sources in their planning, zoning, wetlands, and land acquisition programs.

4) Develop and encourage *Best Management Practices* for non-point source pollution control.

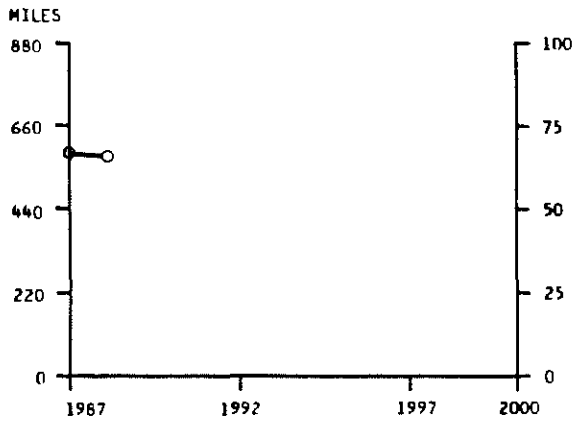
5) Identify and protect high yield aquifers through a joint state/municipal cooperative program.

6) Provide incentives for municipal wastewater collection and treatment systems.

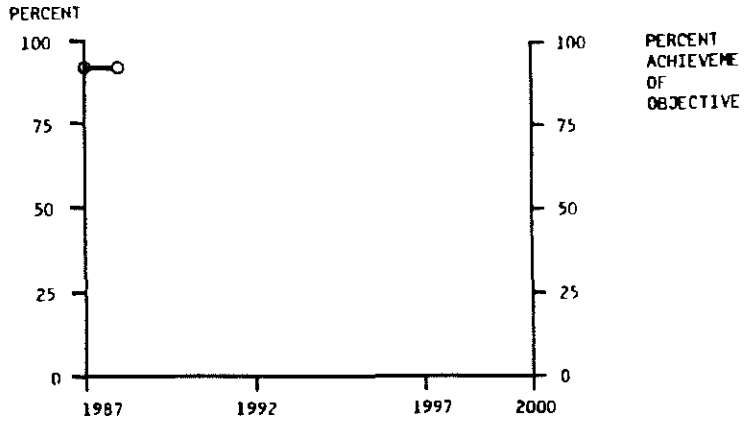
7) Maintain and improve the Connecticut *Water Quality Standards and Classification System* and the *Basin Planning Strategies*.

8) Continue to identify and eliminate untreated sources of pollutants, including spills and failing septic systems.

OBJECTIVE MEASURE. MILES OF MAJOR RIVERS AND STREAMS CLASSIFIED AS FISHABLE AND SWIMMABLE



OBJECTIVE MEASURE: PERCENTAGE OF CT'S GROUND WATER UNIMPAIRED BY POLLUTION



STATUS OF MANAGEMENT STRATEGIES

MILESTONES

STRATEGIES (See E-2000 Excerpt, Previous Page)	Statutory Authority	Regulations Adopted	Responsibility Assigned	Evaluation Criteria Developed	Funding	Monitoring Initiated	Private Sector Involved	Strategy Initiated	Strategy 25% Complete	Strategy 50% Complete	Strategy 75% Complete	Strategy 100% Complete	Evaluation Complete	Comments
1) Water Quality Controls														Unmeasurable *
2) Permits														Unmeasurable *
3) Municipalities & Utilities														Unmeasurable *
4) Non-point Pollution														Unmeasurable *
5) High Yield Aquifers	●	●	●		○		●	●						
6) Wastewater Incentives														Unmeasurable *
7) Water Classification														Unmeasurable *
8) Eliminate Untreated Sources														Unmeasurable *

*The term "Unmeasurable" indicates that the Council is unable to find an objective way to depict the extent to which a strategy, as worded, has been implemented. Important: "Unmeasurable" should not be construed to imply "no action."

TIDAL WETLANDS

GOAL: Preserve Connecticut's tidal wetlands.

OBJECTIVE: Prevent the loss and degradation of existing tidal wetlands and foster restoration of previously degraded ones.

STATUS & TRENDS: By 1969, approximately one-half of the state's 30,000 acres of tidal wetlands had been destroyed, causing significant damage to marine ecological systems. Since that time, with the passing of tidal wetland legislation, loss of tidal wetlands as a result of development has almost ceased. Mapping, however, has not been complete, and many tidal wetlands have been further degraded. It is felt that even with the strict regulation of activities proposed for tidal wetland areas, more degradation of wetlands can be expected as a result of adjacent upland development and existing restriction of tidal flows.

STRATEGIES:

1) Identify and map undesignated tidal wetlands and critical supporting upland areas.

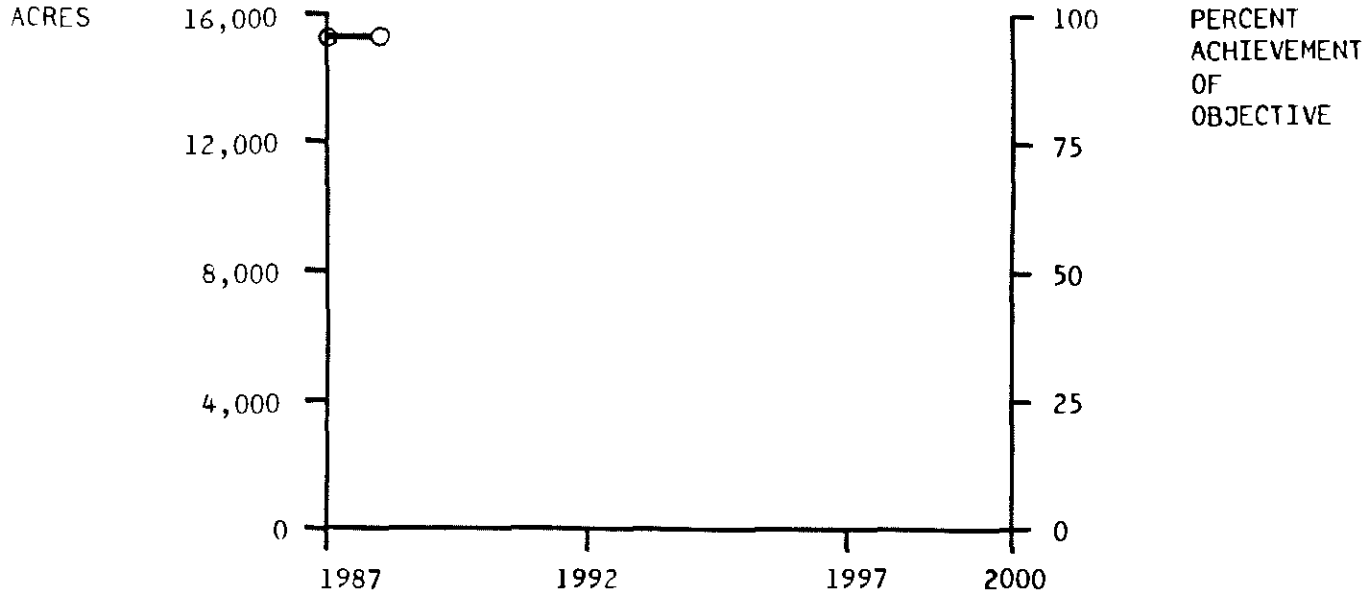
2) Assess the impacts of mosquito control activities, tidal restrictions, upland area development, marina operations and expansion, dredging, water diversion, erosion caused by recreational and commercial boating, and discharges from recreational vessels, and develop appropriate land use regulations.

3) Develop a wetland compensation strategy based on wetland restoration for certain permitted activities in tidal wetlands.

4) Develop a strict regulatory strategy and standards and criteria for wetland creation projects.

OBJECTIVE MEASURE: ACRES OF TIDAL WETLANDS

(Objective Based On Estimated 1987 Acreage + 1,000 Acres To Be Restored)



STATUS OF MANAGEMENT STRATEGIES

MILESTONES

STRATEGIES (See F-2000 Excerpt, Previous Page)	Statutory Authority	Regulations Adopted	Responsibility Assigned	Evaluation Criteria Developed	Funding	Monitoring Initiated	Private Sector Involved	Strategy Initiated	Strategy 25% Complete	Strategy 50% Complete	Strategy 75% Complete	Strategy 100% Complete	Evaluation Complete	Comments
1) Undesignated Wetlands	●	●	○	●			N							
2) Impact Assessment														Unmeasurable*
3) Wetland Restoration	●		●	○			N	●						
4) Wetland Creation	●		○				N	○						

*The term "Unmeasurable" indicates that the Council is unable to find an objective way to depict the extent to which a strategy, as worded, has been implemented. Important: "Unmeasurable" should not be construed to imply "no action."

AIR QUALITY

GOAL: Protect public health and the environment from the adverse effects of air pollutants.

OBJECTIVE: Attain and maintain air quality standards.

STATUS & TRENDS: Although many public health standards are being met for air pollutants now under regulation, some pollutants that are generated by other states and transported into Connecticut are major contributors to the statewide ozone non-attainment problem. Further, a large number of localized areas do not meet public health standards for carbon monoxide. New development which is carried out on a first-come, first-served basis may jeopardize areas where ambient quality standards are being met. In addition, there are areas in the state that do not provide sufficient air quality margins for growth.

STRATEGIES:

1) Develop additional controls and measures that attain and maintain air quality standards and provide for growth.

2) Continue to issue permits which require the best pollution control methods as they become available.

3) Increase the scope and use of the current air quality monitoring network.

4) Develop incentive programs for air pollution sources to reduce emissions.

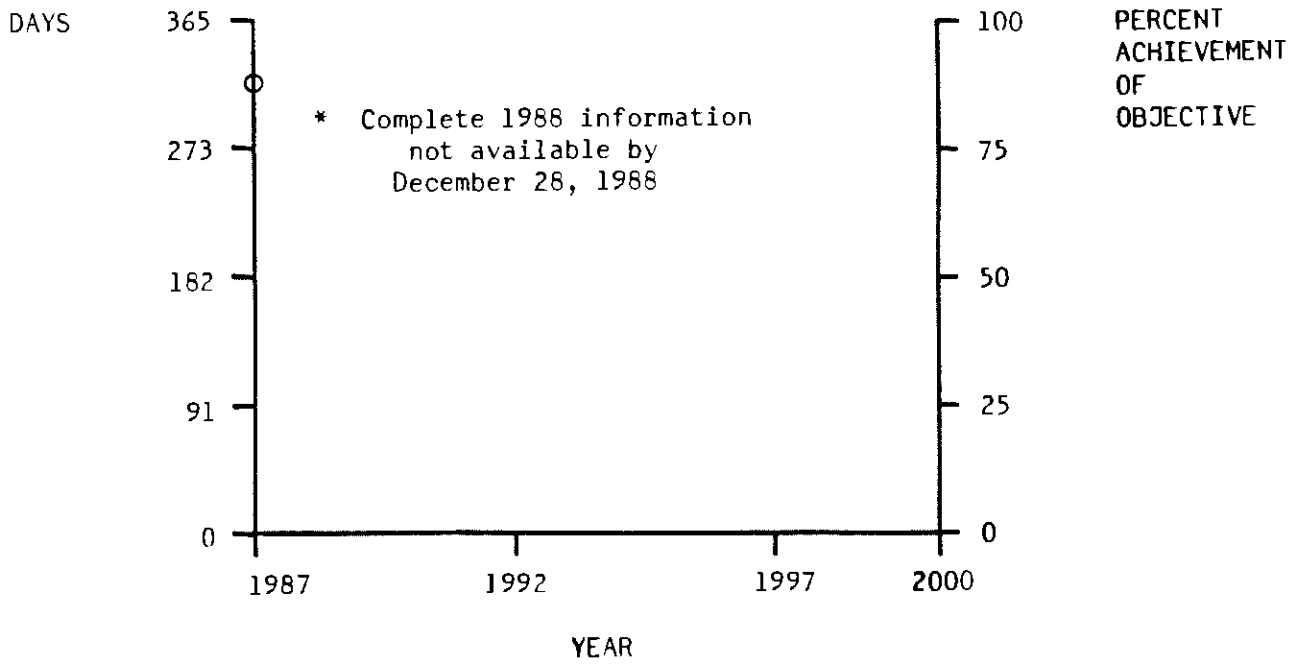
5) Promote the development and implementation of national, regional and intrastate programs to reduce ozone concentrations.

6) Develop programs to reduce localized carbon monoxide concentrations.

7) Maintain and improve the vehicle inspection/maintenance program.

8) Strengthen and expand the ability to remedy objectionable odors.

OBJECTIVE MEASURE: NUMBER OF DAYS IN WHICH CT MEETS ALL AIR QUALITY STANDARDS



While the above objective is measurable, none of the air quality strategies, as worded, can be evaluated graphically. Consequently, the "Status of Management Strategies" section has been omitted for this issue.

PART V

1988 ACTIVITIES OF THE C.E.Q.

1988 ACTIVITIES OF THE COUNCIL ON ENVIRONMENTAL QUALITY

The Council maintained the course it charted in 1985: In-depth evaluations of selected state environmental problems, careful review of state agency construction projects, and thorough investigation of citizen complaints. Highlights of 1988 CEQ activity include the following:

-- In March, 1988, the Council issued a Special Report, "Conclusions and Recommendations of the Council on Environmental Quality Regarding the Use of Wetlands Creation to Mitigate Wetlands Impacts." The Council recommended that the DEP adopt a cautious policy regarding wetlands creation. In response, the DEP convened a Task Force of diverse interests to help develop such a policy; the Council is represented on the Task Force and is committed to helping the DEP follow through to completion of this important policy.

-- The Council continued its practice of testifying and/or intervening in a few, carefully selected permit application proceedings where important precedents are likely to be established. In 1987, the Council was a party in the Route 7 hearings. In 1988, Council staff testified at hearings regarding a proposed marina expansion that involved unusual mitigation and compensation proposals.

-- The Council reviewed and commented on a record 23 Environmental Impact Evaluations (EIEs) and Findings of No Significant Impact (FNSIs) prepared by state agencies. In contrast to previous years, the majority of EIEs and FNSIs reviewed in 1988 received adequate ratings from the CEQ. The Council attributes some of this improvement to recommendations in its 1987 report on the Connecticut Environmental Policy Act (CEPA). The Council also followed up on its other 1987 recommendations by working with OPM and other agencies to improve CEPA procedures.

-- Many of the citizen complaints received by the Council in 1988 pertained to alleged violations of environmental laws by the Department of Transportation. The Council recommended that penalties be assessed against the DOT and its contractors, where appropriate, and will continue to work on this problem in 1989.

-- Some citizen complaints pertained to activities of the DEP in state parks. Plans for management of state lands was a major topic of the Council's 1987 Annual Report, and the Council continued to monitor the DEP's progress in this area in 1988. The Council expects to undertake more work on this issue in 1989.

-- Citizen complaints were, as usual, highly varied in nature. Chronic complaints to the CEQ about the DEP's enforcement of open burning regulations led to procedural improvements in that department's inspection and enforcement. Several complaints raised issues the Council intends to explore in 1989.

The Council looks forward to maintaining productive relationships with Governor William O'Neill, the General Assembly, state agencies, and citizens, in working toward our common goal of environmental excellence.

CEQ Members

Gregory A. Sharp, Chairman. Resident of Northford. Partner in the law firm of Murtha, Cullin Richter, and Pinney. Formerly employed by the Connecticut Department of Environmental Protection. Chairman, Conservation and Environmental Quality Section of Connecticut Bar Association. Member, Department of Health Services' Scientific Advisory Panel. Secretary, Injured and Orphaned Wildlife Inc. Former member, DEP Environment 2000 Advisory Committee. Formerly on board of directors, Connecticut Audubon Society, and Connecticut Fund for the Environment. Former member, Governor's Pesticides Task Force. Former member, Solid Waste Management Advisory Council.

Barbara Ellis-Uchino. Resident of Woodbridge. Editor in chief, Woodbridge-Bethany Bulletin, The Orange Bulletin. Formerly on board of directors of Connecticut Fund for the Environment. Treasurer, West Rock Ridge Park Association. Formerly on board of directors, Connecticut Chapter of Sierra Club, also chair of its political action committee and New Haven Group. Former publicity chair, League of Women Voters of Amity.

Dana S. Hanson. Resident of Newington. Executive Director, Capitol Region Council of Governments, 1968 to present. Former Manager of Regional Affairs Department, Greater Hartford Chamber of Commerce. Former Executive Director, Cambridge (Massachusetts) Civic Association. Board member, National Association of Regional Councils (1982-'87). Board member, Riverfront Recapture, Inc. (1985 to present). Board member, CRRA Mid-Connecticut Project (appointed 1988). Board member and Secretary/Treasurer of Capitol Region Forum for the Future (1986 to present). Member, Regional Planning Association of Connecticut. Former member, Bolton School Board.

Astrid T. Hanzalek. Resident of Suffield. Connecticut General Assembly, 1970-1980. Vice-chair, Greater Hartford Chapter, American Red Cross. Chairman, Connecticut River Watershed Council. Board of directors, Connecticut Forest and Park Association. Board of directors and co-founder, Suffield Land Conservancy. Board of directors, Connecticut Water Company. Vice-president, Antiquarian and Landmark Society. Member, Bradley International Airport Commission. Corporator, Newington Children's Hospital. Member, State Ethics Commission.

John D. Pagini. Resident of Coventry. Director of Community Development and Planning, Town of Enfield. Former Senior Land Use Analyst, Robinson & Cole. Former Environmental Planner, Town of Glastonbury. Former member (1979-1981) and chairman (1980-1981), Coventry Planning and Zoning Commission and Inland Wetlands Agency. Recipient, Professional Conservationist Award, Connecticut Association of Soil and Water Conservation Districts (1980). Member, American Planning Association. Member, American Institute of Certified Planners.

Norman C. Smith. Resident of Mystic. Former chairman, Georgia Conservancy. Recipient of Governor's Conservationist-of-the-Year award as nominated by Georgia Sportsmens Federation and National Wildlife Federation. Former member, Conservation Commission, Newark, Deleware. Former President, Mashantucket Land Trust and member, Advisory Board, Connecticut Land Trust Service Bureau. Former member, Inland Wetlands Agency, Town of Groton. President, Connecticut River Foundation (1986 to present). Member, Committee for the Connecticut River, The Nature Conservancy.

Peter M. Stern. Resident of Glastonbury. Planning consultant, The Futures Group. Chairman, Glastonbury Conservation and Inland Wetlands Commission (member since 1974). Vice-president, Kongscut Land Trust. Member, Issues Committee, Connecticut Audubon Society; Director, Great Meadows Conservation Trust. Former Vice-President for Corporate and Environmental Planning, Northeast Utilities. Former Assistant Research Director, The Conservation Foundation.

Mary Walton. Resident of Griswold. Organizer of Save Our State Committee, involved in major environmental issues of eastern Connecticut. Recipient, U.S. Environmental Protection Agency Region I Environmental Award, citizen activist category. Delegate to Southeastern Connecticut Regional Planning Agency (15 years): former chairman of its program committee, member of reference committee, and former delegate to Regional Planning Association of Connecticut. Represents Town of Griswold on Southeastern Regional Resource Recovery Authority.

Dana Waring. Resident of Glastonbury. Vice-chairman, Glastonbury Conservation and Inland Wetlands Commission. Member, Advisory Board, Connecticut Land Trust Service Bureau. President and founder, Kongscut Land Trust. Former trustee, Connecticut Chapter of The Nature Conservancy. Formerly on board of directors, Connecticut Environmental Mediation Center. Former engineering manager, Pratt and Whitney Aircraft Corp., and consultant to United Technologies Corporation. Licensed professional engineer.

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