



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127
<http://dep.state.ct.us>
Arthur J. Rocque, Jr., Commissioner

Information Integration and Improvement Project

Background: The Connecticut Department of Environmental Protection's (DEP's) Information Integration and Improvement Project (I-3 Project) will renovate DEP's information management resources to better support the State and EPA mission of protecting the environment. The I-3 Project will also improve and expand access to sound environmental information for internal and external customers, and assure that the procedures for obtaining, analyzing, storing and accessing data are as efficient and effective as possible.

Goal: Design and implement a comprehensive environmental information management system which will provide the necessary infrastructure for DEP to integrate agency information and business processes across program and organizational lines and provide one-stop access to environmental information.

Objectives of the I-3 Project:

- C *Develop and Implement the Capability to Integrate all Information Related to Common facilities, sites or individuals utilizing a Common Facility Identifier (CFI)* - The CFI will provide the foundation for integrating existing systems and building new multi-media systems components, and provide opportunities for the seamless exchange and sharing of information.
- C *Capitalize on Burden Reduction Opportunities (Electronic Tools, Applications and Reporting)* - The development of an integrated data management system will make use of electronic tools which will have the capability to provide increased efficiencies to the regulated community, especially small businesses. Future developments will provide for the electronic submission of permit applications, periodic compliance reports, monitoring data, and incident reporting. This capability will provide a valuable link for the agency to Governor Rowland's *High Efficiency Licensing Program*.
- C *Enhance Public Access to Environmental Performance Data* - Improved access to environmental information enables citizens to be involved and informed environmental decision-makers. Enhancement of the agency's website will further DEP's ability to communicate to the public the state's efforts to preserve and protect the environment.
- C *Employ an Inclusive Stakeholder Process that will Represent Internal and External Interests* - The process will foster enterprise-wide participation. As part of the stakeholder process, DEP will ensure that local government, industry, environmental and other public interest groups as well as the general public have an opportunity to participate.

Strategies:

- C Establish an organizational structure to develop and implement the I-3 project.
- C Develop a comprehensive strategic plan to reform information management agency-wide.
- C Establish a common facility identifier.
- C Design and implement the multi-media Enforcement Case Management Pilot Project.
- C Conduct a document management, filing and file storage system assessment.
- C Develop a quality assurance and quality control plan detailing data assessment procedures to be designed into each phase of the overall system.
- C Continue to enhance efforts to support electronic reporting and the development of electronic tools
- C Develop on-line commerce capabilities for the DEP book store as part of the Governor's One-Stop Program.
- C Implement a statewide integrated campground reservation system based on Internet and/or phone access.
- C Develop and distribute CD-ROM for small businesses on new Source Review and Title V Permitting requirements. Software will have the capability to perform emissions calculations for criteria and hazardous air pollutants and pre-fill permit application forms.
- C Continue efforts to improve and enhance the Geographic Information System (GIS).
- C Continue the Comprehensive Business Needs Analysis including integration of strategic planning, information management and environmental measurement systems.
- C Continue web site development for public access of information.



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Efficient and Effective Enforcement

Background: Protecting the environment and the public from risks resulting from violations of environmental laws and regulations is fundamental to the Department of Environmental Protection's (DEP's) mission. Connecticut has seen dramatic improvements in the quality of its environment during the past 25 years, and much of the improvement in the quality of the environment is attributable to a strong set of environmental laws and regulations and the expectation of compliance with those requirements. DEP's enforcement programs have been the centerpiece of efforts to ensure compliance, and have yielded significant improvements in the environment. While Connecticut has seen dramatic improvements in environmental quality, the environmental problems have become increasingly complex. DEP faces new challenges in the type and scope of the activities and entities regulated. To meet these new challenges, the DEP will need to implement a broad range of solutions. These solutions include additional tools to ensure compliance through assistance and incentives for voluntary compliance.

During 1997 and 1998 enforcement programs within the Department of Environmental Protection (DEP) were reviewed by the U.S. Environmental Protection Agency, the U.S. Inspector General and the General Assembly's Legislative Program Review and Investigations Committee. As a result of these reviews, there were numerous findings and recommendations regarding the DEP's enforcement policies and practices. To ensure consistency in implementation of enforcement policies and procedures, the Commissioner created the Office of Enforcement Policy and Coordination (OEPC) in January of 1999 and was given specific mandates in Public Act 99-225, Section 30. The OEPC group will be responsible for addressing recommendations and finalizing agency responses for issues raised by both EPA and Program Review staff. In addition, the group will be responsible for preparation for the agency's annual report on enforcement to the Environment Committee, finalization of commitments made in response to EPA's June, 1997 multi media enforcement review and completion of and training in the various enforcement policies that provide a framework for environmental enforcement in Connecticut.

Goal: To achieve the highest level of environmental protection for the citizens of Connecticut through traditional enforcement while providing financial, regulatory and technical compliance assistance when appropriate.

Objectives:

- C Identify and reduce significant non-compliance in high priority program areas, while maintaining a strong enforcement presence in all regulatory areas.
- C Promote voluntary compliance within the regulated community where appropriate through education and outreach, incentives and compliance assistance.

Strategies:

- C Enhance existing systems to insure proper case management of complaints and violations investigated.
- C Take timely and appropriate enforcement actions for all high priority violations.
- C Improve and expand compliance assistance activities to increase compliance.
- C Improve ability to timely review reported data from regulated entities.
- C Conduct staff training to ensure the agency's workforce is well-trained and knowledgeable about environmental enforcement.
- C Promote information exchange and periodic reviews between and among programs to ensure consistent implementation of the Department's enforcement policies and procedures.
- C Create an electronic enforcement manual on the Department's Intranet site to allow for easy access by all staff to the Department's enforcement policies guidance and formats.
- C Develop mechanisms to ensure consistency and predictability in the Department's enforcement response.
- C Enhance and implement the Multi-Media Enforcement Case Management Pilot Project through inclusion of DEP line staff as part of the larger Information Integration and Improvement Project (I-3 Project).
- C Develop an action plan to ensure the timeliness of enforcement actions.
- C Improve documentation of final penalty reductions in settlements through consent order data sheets.
- C Enhance and maintain enforcement data bases to improve coordination, reporting, and accountability.
- C Pilot the use of administrative civil penalty regulations for three enforcement divisions within DEP: Office of Long Island Sound Program, the Inland Water Resources Division, and the Waste Bureau's Recycling Program.
- C Finalize an administrative Civil Penalty Policy and train staff in its use.
- C Promote use of the Permit Application Management System (PAMS) enforcement module to facilitate accurate multimedia compliance history assessments for permit and enforcement staff as well as generating reports.
- C Promote use of EPA tools such as IDEAWin, and models for calculating penalties; BEN, ABEL, PROJECT, MUNIPAY and INDIPAY.



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Enhance Permit Timeliness

Background: The Department of Environmental Protection (CTDEP) recognizes the importance of an effective and efficient permitting process, and has made permit streamlining a priority. CTDEP has made a commitment to a process of continuous improvement to insure staff at all levels explore innovative solutions that maximize the use of resources to make the process as efficient as possible while insuring that the permitting process provides the necessary safeguards to protect the environment and human health. Implementation efforts have focused on developing simplified permitting mechanisms such as general permits, improving customer service by providing information and assistance through seminars and workshops, and access to technical staff, and the development of new tools such as software that simplify the process for small facilities.

Goal: Maintain a high quality permitting process that is straightforward, expeditious and protective of the environment.

Objective: Promote continuous improvement of the environmental permit application process and enhance permit timeliness by fostering communications, customer service and the development of assistance tools that simplify the process for permit applicants.

Strategies:

- C Continue to work closely with stakeholders through the air, waste, and water advisory committees. Some of the major issues discussed this past year have included: emission and effluent trading, solid waste management planning, reduction of mercury in the environment, and aquifer protection.
- C Continue to partner with business and trade groups to provide information at major trade conferences, co-sponsor workshops and seminars, and continue efforts to meet with municipal officials throughout Connecticut.
- C Provide access to permitting assistance. The Permits Assistance Office provides on average, assistance to over 4500 customers annually.
- C Continue to work with environmental equity communities to improve access to the permitting process. For the past four years, CTDEP has worked with members of the Hartford community to address environmental concerns and identify pollution prevention opportunities in two primarily African-American and Hispanic neighborhoods. The Hartford Neighborhood Environmental Project lays the groundwork for ongoing environmental achievements in these communities.
- C Continue to develop electronic tools to simplify the permitting process for small businesses. The Small

Business Assistance Program and the Air Bureau, in cooperation with UCONN's Environmental Research Institute, is developing a CD-ROM for small businesses and state agencies on new source review and Title V permitting requirements. The software will have the capability to perform emissions calculations for criteria and hazardous air pollutants and will pre-fill permit application forms.

- C Evaluate compliance with general permits. This year Connecticut was one of eight states selected for funding as part of a compliance measurement pilot project sponsored by EPA. The proposal submitted by CTDEP will develop statistically valid baseline compliance rates for select general permits and evaluate the effectiveness of compliance assistance and enforcement on overall compliance with general permits.
- C Evaluate general permit procedures for opportunities to improve efficiency. For example, in February, CTDEP reissued the general permit for non-contact cooling and heat pump wastewater. This permit was modified to make it less burdensome on users and to streamline the registration requirements while still being protective of the environment and human health. Many of these improvements are the direct result of last year's compliance audit of this general permit. Over the next two years CTDEP will evaluate areas for other opportunities to improve efficiency and effectiveness of general permits.
- C CTDEP is making a major commitment to using computer technology and the Internet to improve interaction and delivery of information to all our constituencies. Initiatives are underway to make DEP regulations available on-line and the Department is migrating to WORD forms for user ease. The availability of permitting information was expanded to 7 day/24 hour access via the Internet. Permit related information now generates over 2000 "web hits" per month with over 800 forms or guidance documents being downloaded each month.
- C CTDEP remains a primary participant in the statewide "High Efficiency Licensing Program" project led by the Office of Policy and Management. CTDEP permitting information can be easily accessed through links from the State's master licensing database on the Connecticut Licensing Information Center (CLIC) site, allowing seamless access to environmental licensing information from a centralized State run "front page".

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Environmental Assistance and Outreach

Background: While the Connecticut Department of Environmental Protection (CTDEP) has made considerable progress towards achieving clean air, water and land, there are many environmental challenges that cannot be met through traditional, media-specific approaches. Some problems require an integrated approach that cuts across the disciplines of air, water and waste management. CTDEP is committed to achieving the highest level of environmental protection for its citizens by using a combination of traditional and innovative regulatory approaches to assure compliance. The assistance programs outlined below support the department's goal of maximizing compliance with environmental regulations while providing incentives to encourage facilities to go beyond compliance and, wherever possible, to integrate pollution prevention approaches as the preferred method of compliance. These programs also further the department's goal of improved customer service and active participation by the department in affected communities, particularly urban communities that have been traditionally under represented such as Hartford, Bridgeport, New Haven, New London and Waterbury. The department continues to focus assistance and outreach efforts on a number of constituencies including:

- C Minorities and other historically under-represented interests.
- C Municipal, state and federal agencies and boards.
- C Small and medium sized businesses.
- C Key sectors of the regulated community.
- C Not- for- profit environmental interest groups and other non-governmental organizations; and
- C The general public.

Goal: Foster communications, outreach and assistance activities to more efficiently and effectively reach the Department's diverse constituencies. Promote access to environmental information and awareness of the Department's regulatory and conservation activities to assist all stakeholders in their decision making processes.

Objectives:

- C Promote pollution prevention as the preferred method of compliance.
- C Increase the Department's response to the needs of urban communities.
- C Advance the principles and practices of equal opportunity and employment within the department to promote quality services to all constituencies.
- C Provide a central source of information and access for business, industry and municipalities and the public on environmental permitting.
- C Increase compliance by small businesses, state agencies and municipalities by providing access to compliance assistance tools such as computerized software, brochures, fact sheets, and seminars.

Strategies: Over the next two years the Department will pursue the following strategies to further promote existing outreach and assistance efforts.

- C Continue efforts to implement the Department's Pollution Prevention Plan which was adopted in October of 1996. The Plan describes the Department's goals and strategies for promoting pollution prevention and eliminating barriers that impede this effort. The Plan calls for the primarily voluntary reduction of eleven toxic substances for which there are pollution prevention opportunities and which can be managed in a more environmentally sound manner. Strategies in the plan are grouped by audience to facilitate outreach: (1)consumer, (2)commercial/industrial and (3) state agency/institutional.
- C Continue to offer on-site business pollution prevention assistance provided primarily through a partnership with the Connecticut State Technology Extension Program. (CONNSTEP)
- C Continue to assist applicants in understanding the environmental permitting process and coordinating application processing for new and expanding businesses;
- C Providing outreach opportunities to promote compliance by better informing business and industry of their regulatory obligations. Such outreach highlights compliance success stories and innovative solutions to environmental problems.
- C Promoting improved environmental performance by providing guidance, training and recognition for the use of environmental management systems.
- C Develop a cd-rom to assist small businesses, state agencies and municipalities with difficult and time-consuming tasks such as emission calculations, record keeping and reporting.
- C Continue to provide sector specific fact sheets that include both compliance and pollution prevention information. Several have already been developed for Auto Repair, Metal Finishers, Dry Cleaners, Consumers, Vo-Tech Auto Repair Facilities, Printers, and Lithographers.
- C Continue to serve as the liaison with businesses for both ClimateWise and NICE 3. Climatewise encourages pollution prevention and efficient use of energy by companies through partnership and the National Industrial Competitiveness through Energy, Environment, Economics (NICE3) provides grants that improve efficiency of manufacturing processes.
- C Continue to promote community-based environmental protection through the Hartford Neighborhood Project in an effort to provide neighborhood organizations with information about environmental issues and concerns with the goal of empowering the public to be able to effect change in their communities. The project also includes training for businesses and institutions on pollution prevention.
- C Attain the hiring and promotional goals as set forth in the Department's Affirmative Action Plan.



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Watershed Management

Background: Connecticut's water resources have improved dramatically since the passage of the Clean Water Act in 1967. The dramatic improvement in the water quality of surface water bodies and the steady decline in permitted wetlands alterations are two good examples of the effectiveness of Connecticut's water resource programs. These improvements are largely due to a host of permit and enforcement programs which address specific problems on a state-wide basis. While the success of these programs is manifest, there are issues that remain unresolved. These issues include: a significant number of "impaired water bodies" where one or more designated uses (e.g. swimming or fishing) are not supported, and nonpoint sources of pollution, (e.g. urban and agricultural storm water runoff, construction site sedimentation, degraded aquatic habitat conditions channelization, contaminated sediments, failing septic systems, atmospheric deposition of mercury and other contaminants, and other conditions). In summary, these problems reflect an array of human activities related to the routine use of land and water in Connecticut. Resolution of these problems will require the involvement of various government, public and private interests which reside in a given watershed

Watersheds are geographic areas defined by natural drainage divides. Watersheds or drainage areas seldom coincide with jurisdictional boundaries such as town or state lines, and they vary in size from drainage from backyard ponds to the 11,000 square miles that comprise the Connecticut River Watershed. Watershed management considers the resources and problems of a contiguous watershed, and involves the identification of priorities and opportunities within those areas to remediate or prevent pollution. A watershed approach can extend existing federal and state efforts resulting in local stewardship, improved water quality and habitat and resource protection. Watershed management will require strengthened partnerships with watershed advocacy organizations, municipal programs and other interest groups and new ways of doing business.

The Department has had considerable experience in watershed management. Connecticut's lake water quality management program has implemented several successful watershed programs for Candlewood Lake, Bantam Lake, West Hill Pond and Highland Lake. CTDEP has been the lead agency in the interstate Long Island Sound Study, which has addressed complex water management issues on a watershed basis. CTDEP's non-point source control program has implemented watershed management programs for the Mattabesset River, Scantic River, Fenger Brook and Sasco Brook. In 1996 watershed management projects were initiated for the Norwalk River and the Quinnipiac River. These two initiatives will provide on-going case studies to refine this program. Watershed advocacy groups such as the Farmington River Watershed Association and the Housatonic Valley Authority have effectively championed resource improvements for decades. The Water Bureau has prepared "Unified Watershed Assessments" for five major river basins, and has identified priorities for watershed management. The Water Bureau has also convened working group sessions with the National Soil and Resource Conservation Service (NRCS) to implement the federal Clean Water Action Plan in Connecticut.

The Bureau of Water Management proposes the implementation of a Water Management approach to focus existing resources and to allocate new resources to the challenges described above. An internal CTDEP

Watershed Steering Committee has been established as well as four subcommittees: the Basin Overview Subcommittee, the State Watershed Management Program Subcommittee, the Information Management Subcommittee, and the Watershed Partnership Subcommittee. The subcommittees report back to the steering committee, and the steering committee reports to CTDEP managers on the implementation of Connecticut's watershed management program.

Goal: Maintain and support effective watershed management in Connecticut that will:

- C Realize measurable improvements in water quality.
- C Protect and restore aquatic habitats, including wetlands, riparian areas, fish and shellfish habitats.
- C Improve public access to water resources and balance multiple uses.
- C Improve local capacity to manage, protect and restore water resources.
- C Promote shared responsibility for watershed protection and management through outreach, partnerships and education programs.
- C Maintain existing programs that control or remediate sources of surface and groundwater pollution and manage other water related resources.

Objective: To develop a process to more efficiently implement water resource management programs based upon watershed boundaries and the susceptibility of natural hazards, emphasizing the long-term qualitative and quantitative aspects of all water dependent resources and activities.

Strategies:

- C Develop a statewide watershed management strategy integrating relevant Water Bureau and agency programs and seek public review and comment from advisory committees, watershed groups and other interested parties.
- C Reorganize the eight county Soil and Water Conservation Districts into four or five natural resource conservation districts to build local capacity for watershed management.
- C Develop overview reports for the five major basins to refine watershed management needs and priorities, and to share resource management information with the public.
- C Appoint or hire watershed coordinators for each of the five major basins.
- C Continue to support interstate watershed initiatives such as the Long Island Sound study, the Connecticut River Heritage Initiative, and the Pawcatuck River Partnership.
- C Continue watershed activities currently underway for the: Quinnipiac, Sasco, Norwalk, Hockanum, Mattabassett, Scantic, Quinnebaug/Shetucket and Naugatuck Rivers.
- C Continue to support rotating basin water quality monitoring and stream assessment gaging and provide results to watershed partners.
- C Continue to support the USGS/CTDEP long-term water quality monitoring program and provide results to watershed partners.
- C Manage the use of 319 nonpoint source management funds consistent with Connecticut's Unified Watershed Assessments, Nonpoint Source Plans, and watershed priorities.
- C Provide oversight of remediation activities for PCB cleanup activities in the Housatonic River that are occurring as a result of a settlement with General Electric.
- C Develop watershed management guidance documents, fact sheets and website.
- C Develop training program for watershed partners.



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Connecticut's Management of Toxic Air Pollutants

Background:

Since 1970, the primary focus of air quality improvement efforts has been the attainment of the National Ambient Air Quality Standards (NAAQS). The Clean Air Act established the NAAQS for the six pollutants known as criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide. Connecticut has diligently worked for more than twenty-five years towards the attainment of the NAAQS. Although Connecticut is in nonattainment for the ozone standard, concentrations have been declining since monitoring began in 1973. Connecticut's success in attaining the lead, nitrogen dioxide, and sulfur dioxide NAAQS, and its continued progress towards attainment of the particulate matter, carbon monoxide and ozone NAAQS, now provide the opportunity to address other pollutants that impact public health. Many precursors and components of the criteria pollutants potentially could have toxic or adverse health effects. Connecticut recognized this was an issue in the early 1980's and in 1986 adopted and began implementing the most comprehensive regulation controlling toxic air emissions in the United States at the time.

A wide variety of substances are classified as toxic (or hazardous) air pollutants. The exact compounds and substances included in this category are determined by state and federal regulations, as well as their potential adverse health effects. Toxic air pollutants may be released naturally or through human activities. Toxic pollutants, such as benzene, mercury or chromium, present serious threats to human health and the environment. Exposure to toxic pollutants may yield various acute (short-term) and/or chronic (long-term) effects in humans. Acute effects include eye irritation, nausea, or difficulty breathing. Chronic effects include damage to the respiratory or nervous systems, birth defects, reproductive effects or cancer. The type and severity of the effect is determined by the toxicity of the pollutant, the quantity of the pollutant, the duration and frequency of exposure, and the general health and level of resistance or susceptibility of the person exposed. In addition, toxic air pollutants can have indirect effects on human health through deposition onto soil or into lakes and streams, potentially affecting ecological systems and eventually human health through consumption of contaminated food. Toxic air pollution is a health concern both in the vicinity of the emitting source and beyond. Toxic pollutants emitted from a source may be transported by the air far from the source to diverse areas of the world. As a result, local air toxic pollution may be the product of, or be aggravated by, both local sources of air toxics and more distant sources

Goal : Reduce emissions of air toxics through reduction strategies that include pollution prevention, emission controls and effective waste management.

Objective: Work in cooperation with other New England states and the Northeast States for Coordinated Air Use Management (NESCAUM) to develop and implement a regional air toxics action plan to accomplish the following:

- C Identify priority compounds;
- C Identify sources of emissions;
- C Quantify benefits of existing and planned control strategies;
- C Identify additional reduction needs;
- C Identify federal, state and regional responsibilities and opportunities;
- C Identify short, intermediate and long-term control targets.

Strategies:

- C Conduct year-round air toxics monitoring at the East Hartford and Hamden stations for photochemically active chemicals such as volatile organic compounds and aldehydes, and pursue a more intensive summertime schedule of sampling in East Hartford, Hamden, Stafford and Westport to assess monitored levels of ozone precursors.
- C Continue dioxin monitoring associated with resource recovery facilities. Monitoring for dioxin began in 1987 and is currently the most comprehensive monitoring program in the country.
- C Continue to support a long-term air toxics monitoring network to collect data on air toxic concentrations. In 1998, a three-year research and monitoring effort was initiated with the University of Connecticut's Environmental Research Institute (ERI) to characterize levels of toxic air pollutants from locations throughout the state. Six sites have been established; five in urban areas and one in a rural setting. These sites include sites in Hartford, Wallingford, Bridgeport, Groton, Voluntown and Manchester. Connecticut's study will measure ambient levels of toxic air pollutants, such formaldehyde, benzene, and metals. This project will expand the information that is available on ambient air levels of toxic air pollutants so the impact, including potential risk, can be more accurately assessed.
- C Maintain a leadership role in regional efforts to reduce air toxics- The Northeast States for Coordinated Air Use Management (NESCAUM) is developing a program to target reductions of air toxics throughout the region. Connecticut, as one of the NESCAUM member states, is serving as the project manager for this effort. The outcome of this project will significantly improve our scientific understanding of air toxics and pollution control opportunities. This effort is being conducted to realize the most effective air toxics reductions in the states, region and nation.
- C Targeting Air Toxics for Compliance - The Department will continue to target emissions of hazardous air pollutants. Efforts have focused on reducing chromium emissions from autobody shops and chromium electroplaters. The Air Management Bureau has designated violations of hazardous air pollutants under Section 22a-174-29 as high priority violations to ensure a quick enforcement response. Air toxic controls will continue to be an area of emphasis within the context of New Source Review Permitting. The Department will coordinate with EPA on the implementation of the Maximum Achievable Control Technology Standards as part of the of the Title V Operating Permitting program.
- C Revise Connecticut's Hazardous Air Pollutant Regulation - The Department proposes to work on revising its regulation for control of air toxics to incorporate new information that has become available since the adoption of the regulation in 1986. The complexity of the existing regulation and the Department's focus on ozone precluded earlier revision. Resources previously committed to other issues can now be directed to revising the regulation. In keeping with the regulatory structure of the existing regulation, the Department has requested that the Connecticut Department of Public Health propose changes to the existing hazard limiting values contained in the existing regulation.



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Mercury Management in Connecticut

Background: During the past several years, many governmental agencies have studied mercury concentrations in fish due to potential health effects from consumption of contaminated fish. The occurrence of elevated levels of mercury in fish was reported to be widespread among lakes in Canada, the U.S and Scandinavia. In 1995 the U. S. Environmental Protection Agency (USEPA) released a draft *Mercury Report to Congress* which cited concern over high concentrations of mercury in fish in the Northeastern United States. In February 1998, the three media interstate organizations (NEWMOA, NESCAUM and NEIWPC) and Canada's Ecological Monitoring and Assessment Network published the *Northeast States and Eastern Canadian Provinces Mercury Study* which summarized the mercury problem and policies in this region. The following June, the Conference of New England Governors and Eastern Canadian Premiers (CNEG/ECP) adopted the Regional Mercury Action Plan. The Action Plan incorporates goals for emissions controls, research, public education and source reduction/recycling. Connecticut took a first step toward addressing the Plan's source reduction/recycling goals when it hosted a Mercury in Products Conference in Cromwell, CT in January 1999. Governor Rowland was the keynote speaker at this conference which was sponsored by NEWMOA, NESCAUM, NEIWPC and CNEG/ECP.

The mercury in fish is generally believed to be associated with atmospheric deposition. Mercury enters the atmosphere when combusted, but it can also vaporize when exposed to the ambient air. New England is impacted by a combination of local sources, along with long-range atmospheric transport from facilities located in regions "up wind" of Connecticut. Mercury in the atmosphere is deposited into surface waters through both dry and wet deposition (precipitation). Like many environmental contaminants, mercury undergoes bioaccumulation, the process by which organisms take up contaminants more rapidly than their bodies can eliminate them. The bioaccumulation effect is generally compounded the longer an organism lives, so that large predatory fish will likely demonstrate the highest mercury levels. This in turn becomes a public health concern since mercury concentrates in the edible muscle tissue of these fish, the parts that humans generally consume.

In 1995 the Connecticut Department of Environmental Protection (CTDEP) and the Environmental Research Institute at the University of Connecticut (ERI) undertook a broad assessment of mercury concentrations in fish tissue within Connecticut water bodies (Phase I). The purpose of the first phase of this study was to evaluate fish tissue for mercury concentrations to determine the extent of the problem. Largemouth bass as well as other species were collected from 54 lakes and three areas of the Connecticut River and tested for mercury concentrations. The results of this survey were released in the March 1996 report entitled *Preliminary Assessment of Total Mercury Concentrations in Fishes from Connecticut Water Bodies*. These results showed high concentrations of mercury in fish muscle tissue in lakes throughout Connecticut. As a result of this research, the Connecticut Department of Health (CTDPH) issued an advisory to limit consumption of fish from Connecticut lakes. Phase II and Phase III efforts were undertaken to fill the remaining gaps in the database and to potentially refine the fish consumption advisory.

As a result of the initial identification of mercury concentrations in fish tissue, the CTDEP recognized the need to establish an Atmospheric Ambient Mercury Monitoring Network, the need to gather additional emission data through stack testing, and the need to develop a Connecticut atmospheric transportation/deposition model. In 1996, the Connecticut Atmospheric Mercury Monitoring Survey Network was established to measure atmospheric mercury concentrations, as well as to evaluate both wet and dry deposition of mercury. The network includes monitoring sites representative of both urban and rural locations. These sites are located in Bridgeport, East Hartford, Waterbury, Cornwall, Greenwich, Groton, Madison and Voluntown. These sites were set up to investigate the seasonal dependencies and the presence of depositional hot spots, while providing data useful for estimating a state-wide depositional average. The monitoring is scheduled to continue through March 2000. This data is being used in the Connecticut Air Quality Model and will be used to establish a baseline to measure the effectiveness of mercury reduction initiatives in the future. Currently, the model is capable of analyzing for mercury, nitrogen, and other air toxics but refinements to the model are ongoing.

Goal: Continue to advance the understanding of mercury in the region and statewide, promote source reduction and recycling of mercury containing products, and support cooperative efforts to address potential environmental and public health impacts attributable to mercury exposure.

Objective: To compile a long-term, comprehensive data set regarding fish tissue and atmospheric mercury concentrations in Connecticut; and to pursue a coordinated strategy on a statewide, regional, national and international basis to ensure reductions of mercury.

Strategies: Many of these strategies are included in the Mercury Action Plan adopted by the New England Governors and Eastern Canadian Premiers.

- C Continue participation and support of the NEG/ECP Regional Mercury Task Force.
- C Continue to support research, analysis and strategic monitoring through the Connecticut Atmospheric Mercury Monitoring Survey Network and refinement of the Connecticut Air Quality Model.
- C Prepare and adopt a Connecticut long-term comprehensive mercury/nitrogen monitoring and modeling program.
- C Implement mercury reduction efforts through regulatory changes such as amending the hazardous waste regulations to incorporate the Universal Waste Rule and establishing emissions limitations for mercury emissions from all municipal waste combustors, medical waste incinerators, sludge incinerators, utility and non-utility boilers.
- C Promote source reduction and safe waste management including recycling by supporting regional labeling and source reduction initiatives through the Mercury Task Force.
- C Continue public outreach and education efforts in conjunction with NEWMOA, and other organizations. Distribute informational materials to increase consumer awareness of the dangers of mercury and non-toxic alternatives to mercury containing products and methods for safe management of mercury containing wastes.
- C Continue mercury reduction efforts with hospitals and schools.

Budget/Time Frame: Implementation of monitoring, modeling, research and other mercury reduction strategies ongoing as resources allow.



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Long Island Sound

Background: The Long Island Sound Study (LISS) was initiated in 1985 when Congress appropriated funding to the U.S. Environmental Protection Agency (EPA) and the states of Connecticut and New York to comprehensively assess water quality in Long Island Sound (LIS). In 1988, the Sound was designated by EPA as an “estuary of national significance” and became one of 28 estuary programs managed under the Clean Water Act’s “National Estuary Program”. A draft management plan was developed in 1993, and in 1994, at the Long Island Sound Management Conference the Long Island Sound Comprehensive Conservation and Management Plan (CCMP) was issued. The CCMP identified seven problem areas of concern in LIS meriting special attention. These included:

- C Low dissolved oxygen conditions (hypoxia) due to excess nitrogen loading from point and non- point sources;
- C The presence of toxic contamination in bay and harbor sediments as well as elevated levels of toxic chemicals in fin fish resulting in health advisories to limit consumption of striped bass and bluefish;
- C Pathogen contamination as a result of combined sewer overflow (CSO) discharges and open water dumping of human sewage from vessel marine sanitation devices. This resulted in many beaches and shellfish beds being closed due to indications of pathogen contamination;
- C Floatable debris contributed by non-point source pollution that mars the Sound’s waters and shorelines posing a hazard to living marine resources and to navigation;
- C Habitat degradation and loss of living marine resources caused by pollution and land development;
- C Public involvement and education to build awareness of watershed processes and human impact on the LIS estuary;
- C Land use management to ensure protection of open space and watershed functions.

To address the problems of hypoxia (low dissolved oxygen) and habitat loss, the CCMP outlined a phased plan for reducing nitrogen loads and recommended development of a habitat restoration strategy. In September of 1996, the Governors of Connecticut and New York and the EPA signed a Long Island Sound Agreement, reaffirming their commitment to the restoration effort. The CTDEP is taking a watershed management approach not only to address inland water resources but also to meet Connecticut’s commitment to the LISS CCMP goals and strategies. A three-phase approach to reducing the nitrogen load to LIS was undertaken by the two states. Phase I froze the maximum nitrogen load to LIS at 1990 levels. Phase II included the State of Connecticut investing over \$250 million in sewage treatment plant upgrades to reduce its portion of the nitrogen load from southwestern Connecticut sewage treatment plants to LIS by as much as 30%. CTDEP has now entered into “Phase III Actions” for reducing hypoxia in Long Island Sound with the goal of reducing the 1990 nitrogen load by 58.5% over the next 15 years.

An important component of LIS Water Quality management involves public outreach, education, and municipal/state relationships. CTDEP has appointed staff to coordinate public outreach and education with LISS

partners and municipalities to raise public awareness of watersheds and implement Long Island Sound management needs.

To address the problems of habitat degradation, CTDEP and NYDEC are in the final stages of producing a habitat restoration plan. The plan establishes a Sound-wide 10-year restoration goal of 2000 acres of habitat and 100 river miles of riverine migratory habitat.

CTDEP is also developing a coast wide Oil Spill GIS to address the need for improved oil spill response identified in the Land Use chapter of the CCMP. Concurrently, NOAA Hazmat is revising their 15 year old Environmental Sensitivity Maps for Connecticut's coastline and coastal waters.

Goal: Improve the overall health and quality of Long Island Sound in accordance with the CCMP by:

- C Attaining the Phase III, interim goal of a 23.4% nitrogen reduction to LIS waters by the year 2004.
- C Monitoring water quality in the Sound to ensure management program effectiveness and assess conditions.
- C Protecting and restoring aquatic habitats, including tidal wetlands, riparian areas, fish and shellfish habitats.
- C Improving public access to LIS water resources and balancing multiple uses.
- C Improving local capacity to manage, protect and restore water resources.
- C Promoting shared responsibility for watershed protection and management through outreach, partnerships and education programs.
- C Maintaining existing partnerships with New York, the EPA, and others through the LISS Management Conference to implement the CCMP.

Objective: Implement elements of the CCMP to improve overall water quality of LIS as well as improving both the quantity and the quality the coastal and near shore habitats in Long Island Sound.

Strategies: Over the next two years the Department will:

- C Complete and implement a Total Maximum Daily Load (TMDL) for nitrogen discharges into Long Island Sound which will outline the actions necessary to achieve the state water quality standards for dissolved oxygen.
- C Propose and implement an effluent trading program for Connecticut municipal sewage treatment plants that can help meet the nitrogen reduction target in the most cost-effective fashion.
- C Develop a statewide watershed management strategy integrating relevant CTDEP programs and seek public review and comment from advisory committees, watershed groups and other interested parties.
- C Continue to conduct appropriate and timely water quality monitoring of LIS waters to assist the CTDEP and other Federal, State, and Municipal partners in resource management decision making.
- C Continue public outreach and municipal partnerships drawing on university and government resources where appropriate.
- C Finalize habitat restoration, secure funding for projects, develop restoration plans and implement projects.
- C Develop an oil spill GIS. This is a multi year work effort being undertaken by OLISP and NOAA. Various DEP divisions will be assisting in this effort.



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Arthur J. Rocque, Jr., Commissioner**

Land Acquisition and Open Space Protection

Background: Connecticut's prosperity has always depended upon its natural resources. Forests and farms contribute to a healthy and diverse economy. Parks and open lands improve the quality of life and help attract businesses. Natural areas and waterways provide critical wildlife habitat, clean drinking water, and scenic natural beauty which is the foundation of the tourism industry. The Connecticut Department of Environmental Protection (CTDEP) has had a long history of involvement with open space protection. In 1997 and 1998 Governor John G. Rowland and the Connecticut General assembly initiated several new policies to help protect Connecticut's natural resources for future generations, and identified the overall goal of protecting a total of 21 percent of Connecticut's land by the first quarter of the 21st Century. To accomplish this goal, the General Assembly has provided financial resources, a streamlined funding process, and a new matching grant program and CT DEP is aggressively pursuing this goal. To succeed in protecting 21 percent of Connecticut's land by the first quarter of the 21st Century, the State of Connecticut must remain committed to acquiring open space for the next two decades. Governor Rowland proposed spending \$166 million in state bond funds between 1998-2003. In 1998 the General Assembly passed the first proposed allocation of \$29.5 million.

In addition to Connecticut's commitment to open space preservation CT DEP continues to pursue several programs related to the control of urban sprawl including implementation of the Connecticut Environmental Policy Act (CEPA), the State's Conservation and Development Policies Plan for Connecticut 1998-2003 (the C&D Plan), and efforts focused on the redevelopment of distressed urban sites. The purpose of CEPA is to identify and to evaluate the impacts of proposed state actions supported with state, federal, or other funds which may that could have a major impact on the state's land, water, air or other environmental resources. This evaluation provides the decision maker with information necessary for deciding whether or not to proceed with the project. The process also provides opportunity for public review and comment. CT DEP is one of the primary reviewing agencies for these actions and continues to dedicate several full-time staff to insure that the CEPA process is adhered to.

The C&D plan provides a policy and planning framework for the administrative and programmatic actions and capital and operational investment decisions of state government, which influence the future growth and development of the state. The objective of the C&D Plan is to guide the planning and decision-making processes of state government relative to: (1) addressing human resource needs and development; (2) balancing economic growth with environmental protection and resource conservation concerns; and (3) coordinating the functional planning activities of state agencies so as to accomplish long-term effectiveness and economies in the expenditure of public funds. In addition, the Secretary of OPM submits to the State Bond Commission, prior to the allocation of any bond funds for any of the above actions, an advisory statement commenting on the extent to which such action conforms to the C&D Plan.

Connecticut's Urban Sites Remedial Action Program was created to address a key constraint to the conveyance and reuse of contaminated industrial properties - the fear purchasers and investors have of assuming environmental liability for pollution created by others. The landmark legislation that created a pilot program in

1992 and a full program in 1993 provides for expedited remediation of polluted property and enables the private sector to invest in property development in urbanized areas, and avoid urban sprawl, without concern for past environmental contamination. The highlights and benefits of this program include:

- C Dedicated staff resources and \$30.5 million in bond funds to address the environmental issues at underutilized or abandoned urban industrial facilities.
- C Expedited review of site remediation plans prepared by responsible parties.
- C The availability of \$30.5 million in bond funds to hire private consultants to undertake site assessments and remedial measures
- C Site criteria directs redevelopment efforts to distressed communities and areas of high economic development potential

Goal: To protect a total of 21 percent of Connecticut's land by the first quarter of the 21st Century. The General Assembly outlined two specific goals for the Department of Environmental Protection (DEP) by 2023. These goals are:

- C To acquire not less than 10 percent of the state's open land as open space in state ownership as part of the state's system of parks, forests, wildlife and natural resource management areas. To meet this objective, an additional 111,000 acres must be acquired; and
- C To help protect not less than 11 percent of the state's land as open space owned by municipalities, private non-profit organizations, water companies and the federal government to foster and encourage the protection of an additional 127,000 acres.

Objectives:

- C Continue to foster strong support for land acquisition opportunities and open space preservation from the Governor, the General Assembly, elected officials, and community partners to advance a long-term and effective land protection strategy for Connecticut.
- C CT DEP will continue build its existing grant programs to provide matching funds to municipalities, nonprofit land conservation organizations and water companies.

Strategies:

- C CT DEP will continue to solicit grant proposals and to provide matching funds to municipalities, nonprofit land conservation organizations and water companies.
- C Continue to dedicate staff resources to the CEPA process and project reviews to promote development consistent with CEPA and the C&D plan.
- C Continue to dedicate staff resources to the Urban Sites Remedial Action Program and coordinate activities with the Department of Economic and Community development to promote the development and revitalization of distressed urban areas in Connecticut.



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Enhancement of Fish & Wildlife Restoration and Habitat Protection

Background: Since 1930, more than 500,000 acres of what was Connecticut farmland have been reclaimed as forest. Today Connecticut's rural forest lands provide a rich backdrop for residents to enjoy recreational, aesthetic and economic opportunities. They yield a harvest of over 70 million board feet of timber annually which support 350 processing and manufacturing firms. It is vital that this natural resource is protected from poor forest products harvesting practices and improper forest management which can severely impact wildlife habitat, the health of these forests as well as damage the soil, water, vegetation, and genetics of several tree species.

Eighty percent of Connecticut's population who live in the urban areas of the state rely heavily upon the smaller areas of forest which remain scattered in and around their neighborhoods as open space. These small forest areas in combination with other urban tree resources, including individual street trees, form the urban forest known to most of our state's residents. This forest, which exists in an environment hostile to forest growth, provides dramatic benefits to the quality of urban life. Like the traditional rural forest, it is important that this forest be properly managed to ensure its long-term health and vitality.

Wildlife populations in Connecticut have also changed dramatically over the past half-century, primarily in response to habitat conditions. In general, species that are more tolerant of human disturbance have prospered to the level that some, such as Canada goose, beaver, deer, raccoon and coyote, now pose significant nuisance or public health concerns. Conversely, species which are less tolerant of human activities or which have specialized habitat requirements have declined. These include many species of grassland and shrub land birds, timber rattlesnake, bobcats, and shorebirds such as piping plovers and least terns.

Fish populations in many Connecticut waters have changed significantly during the last century. Populations of diadromous species have been reduced or extirpated in many rivers and streams by the construction of dams. Populations of many native freshwater and diadromous species have been affected by the alteration of riverine and lake habitats, water pollution, and the introduction of non-native species. Populations of many marine fish species have been affected by overfishing, shoreline development, and nutrient enrichment in Long Island Sound. In recent years, water quality has been improved in many areas and fish populations have been enhanced and managed so that they support increasingly valuable recreational fisheries, commercial fisheries, and wildlife viewing opportunities.

Goal: Promote natural resource diversity in Connecticut.

Objectives:

- C Protect, maintain and enhance the diversity of wildlife and habitats in Connecticut, primarily for nonharvested species and increase educational and recreational opportunities for wildlife viewing.

- C Protect, maintain and enhance populations of diadromous, freshwater and marine fish species such that opportunities for recreational fishing, commercial fishing, and observation are increased.
- C Protect and enhance populations of rare or endangered native species.
- C Improve the health and diversity of urban tree and forest resources by increasing the number of acres of state and privately owned forest land receiving sound, professionally guided management.

Strategies:

- C Protect, maintain and enhance fish populations through regulation of harvest, stocking, habitat protection, and habitat enhancement.
- C Complete development and implementation of statewide fishery management plans for: diadromous species, bass and other warmwater species, trout, marine species, and habitat management.
- C Assess the present status of all fish species listed as Endangered, Threatened or Species of Special Concern and develop recommendations for action.
- C Monitor fish populations and fisheries as dictated by management plans and recommendations for action.
- C Improve fish passage monitoring, identify habitat, work with partners to fund fish passage facilities.
- C Conduct surveys to determine population trends and distribution of nonharvested species.
- C Develop and implement statewide management plans to protect and enhance populations of federally endangered and threatened and state-listed species.
- C Involve landowner and municipalities to protect and enhance important wildlife habitats.
- C Improve public awareness by developing guides, viewing areas and education programs;
- C Support the Natural Area Preserves Program.
- C Seek federal grant funding to support local comprehensive planning for the management of urban tree and forest resources.
- C Enhance the quality of technical forest management assistance to municipalities for the development and implementation of urban forest resource management plans and to private forest landowners.
- C Develop 16 forest management demonstration areas on state-owned forest land to depict sound forest management practices.

Performance Measures:

- C Number of state-listed species for which management and recovery plans are developed and implemented.
- C Acres of wildlife habitat restored or enhanced.
- C Percent of acres of state and privately owned forest land under active management each year.
- C Number of cities, municipalities having an approved comprehensive urban community forest resource plan.
- C Number forest management demonstration areas developed.
- C Abundance, distribution and diversity of existing fish populations and fisheries are maintained or enhanced as dictated in management plans and recommendations for action.
- C Status of State Listed Species are determined and abundance and distribution are maintained.
- C Percent of acres of additional spawning and nursery habitat made available by new fish passage facilities.