

APPENDIX K
Base Program Analysis



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Introduction

This Base Programs Analysis has been prepared pursuant to Section 320(b)(5) of the Clean Water Act, which requires that each National Estuary Program:

“Develop [action] plans for the coordinated implementation of the [comprehensive conservation and management] plan by the states as well as Federal and local agencies participating in the conference.”

EPA’s policy further elucidates Base Programs Analysis requirements, stating that:

“The base program analysis assesses the effectiveness of the estuary’s management framework. It describes existing mechanisms for addressing priority problems identified by the scientific characterization and recommends options for improving or enhancing the management framework.” (See *National Estuary Program Guidance, Comprehensive Conservation and Management Plans: Content and Approval Requirements*, USEPA Office of Water, October 1992; see also *National Estuary Program Guidance, Base Programs Analysis*, USEPA Office of Water, March 1993).

The Peconic Estuary Program (PEP) has structured its Base Programs Analysis in a modular format, corresponding with the chapter structure of the PEP *Comprehensive Conservation and Management Plan* itself. For each module, or chapter, the Base Programs Analysis provides:

- a description of the regulatory/institutional framework;
- an evaluation of effectiveness; and
- recommendations for addressing gaps and expanding strengths (“recommendations for improvements”)

Programs and agencies are discussed in greater detail the first time they are mentioned in this document. For example, USEPA and Clean Water Act programs dealing with technology-based and water quality-based discharge limits are described in the nutrients section, but are simply referred to in the pathogens and toxics sections, which also deal with those programs. Thus, the nutrients section has the most extensive description of water quality and pollution control programs.

During the entire PEP CCMP preparation process, agency and institutional frameworks have been identified and evaluated as part of the management plan preparation process. However, this Base Programs Analysis document serves valuable purposes, above and beyond the work already done. For example, it affords the opportunity for inter-chapter evaluation and reflection, to ensure that all opportunities and options have been fully evaluated and addressed. Also, the document brings together, in one place (see Summary below) programmatic recommendations. As such, it provides a cohesive look at all programmatic needs and recommendations. It also offers the genesis of a template, or checklist, which can be used to assess programmatic progress during implementation efforts.

Two major documents have already been developed to address programmatic issues, focusing largely at the local level. The local focus is based on the fact that the bulk of the PEP land use management



and pollution control (mainly nonpoint source) recommendations must be implemented at the local level. They are:

- *PEP Base Programs Analysis, Nonpoint Source Management Plan Inventory*, June 12, 1995.
- *Evaluating Town Capacity and Needs in Protecting the Peconic Estuary*, Columbia University, 1999.

The reports are incorporated by reference in appropriate sections of the Base Programs Analysis.

Finally, acknowledgement must be provided to the following base programs analysis reports:

- *Discussion of Existing Management Programs for the Long Island Sound and its Resources*, January 1993.
- *Barnegat Bay Estuary Program, Base Programs Analysis*, May 2000.
- *Delaware Estuary Program, Base Programs Inventory, Summary, and Analysis*, May 1995.

Information and narrative from these reports were used in the PEP Base Programs Analysis, particularly with respect to the “regulatory/institutional framework” descriptions for Federal and state agencies and programs.



Brown Tide

Description of Regulatory/Institutional Framework

Federal Agencies and Programs

National Oceanic and Atmospheric Administration

NOAA's Coastal Ocean Program (COP) is part of the National Centers for Coastal Ocean Science. The COP provides scientific information to assist decision-makers in managing coastal resources. The Program targets critical issues that exist in the nation's estuaries, coastal waters, and Great Lakes.

The Peconic Estuary Program, NOAA, Sea Grant, and the State University of New York at Stony Brook's Marine Sciences Research Center sponsored a Brown Tide Summit in October 1995 to develop a comprehensive Brown Tide research agenda. Since the Brown Tide Summit in 1995, the Coastal Ocean Program has committed \$3 million towards Brown Tide research. New York Sea Grant is in charge of administering these funds. The Brown Tide Research Initiative (BTRI) Committee formed as a result of the COP funding commitments and has been instrumental in preparing Requests for Proposals, reviewing research proposals, and assisting in managing the NOAA COP funding. The BTRI Committee includes: NOAA, NY Sea Grant, NYS Department of Environmental Conservation, the Suffolk County Executive, USEPA/Peconic Estuary Program, a local government representative, a citizen representative, and a South Shore Estuary Reserve (SSER) representative.

The intent of the COP Brown Tide program is to understand and predict the onset of Brown Tide blooms, and determine advance strategies for mitigating its environmental impacts. Current research is focused on identifying the factors that cause, maintain, and dissipate the blooms. Brown tide research and characterizations are routinely reported in the scientific literature and are systematically updated through Sea Grant's BTRI reports.

State Agencies and Programs

New York Sea Grant

New York Sea Grant is a cooperative program between the State University of New York and Cornell University which focuses the talents of university scientists and extension specialists on research and the transfer of scientific information to industry, government, resource managers, and the public. Sea Grant supports more than 20 scientific research projects annually in technology and product development, fisheries, coastal environmental quality and processes, and other areas of special interest, including Brown Tide. As with the NOAA Coastal Ocean Program Brown Tide research funding, Sea Grant administers grants and leverages partnerships with the state and private sector.

Regional Level

Brown Tide Steering Committee

A Brown Tide Steering Committee was formed after the Brown Tide Summit in 1995 to more broadly coordinate and guide Brown Tide research and monitoring efforts through the development of a Brown Tide Workplan. The Committee is made up of BTRI members, as well as several additional



members, including elected officials and representatives from various agencies, citizens groups and estuary programs and coordinated by Suffolk County. The Steering Committee's goals are to:

- 1) Coordinate research efforts funded and performed by various entities
- 2) Assist in dissemination of information
- 3) Develop and continually refine and update research workplans, by systematically organizing and summarizing results of previous and ongoing Brown Tide research efforts and identifying priorities for additional research needs
- 4) Estimate funding needs to conduct necessary additional research.

Between 1997 and 2000, Suffolk County has appropriated \$583,000 to support Brown Tide monitoring and investigation efforts. Much of the funding has gone towards funding projects outlined in the 1998 Brown Tide Workplan. Suffolk County will continue to authorize \$150,000 each year for the next three years (2001-2003) from the Capital Budget for additional Brown Tide research and monitoring.

Local Level

Suffolk County

In 1988, the Suffolk County Department of Health Services (SCDHS) Bureau of Marine Resources expanded its surface water monitoring operations to characterize the extent and severity of the Brown Tide blooms. The Bureau of Marine Resources provides this information and needed samples to researchers. Although the cause of Brown Tide is still not known, the study's resulting final report, the Brown Tide Comprehensive Assessment and Management Program (BTCAMP) (SCDHS, 1992), served as the primary basis for the nomination document for acceptance of the Peconic Estuary Program into the National Estuary Program.

Evaluation of Effectiveness

The agencies and programs described above are effective but are underfunded.

Recommendations for Improvements

Continued research and monitoring depends on continued funding. It is recommended in the CCMP that:

- The SCDHS water quality monitoring program continues to provide information needed for analysis and research related to Brown Tide
- Funding for NOAA-funded Brown Tide research and monitoring projects is continued
- Funding sources to implement the Brown Tide Workplan are identified and secured



Nutrients

Description of Regulatory/Institutional Framework

Federal Agencies and Programs

United States Environmental Protection Agency

The principal law governing pollution of the nation's waterways is the Federal Water Pollution Control Act, or Clean Water Act. Originally enacted in 1948, it was totally revised by amendments in 1972 that gave the Act its current shape. The 1972 legislation spelled out ambitious programs for water quality improvement that are still being implemented by industries and municipalities. Congress made fine-tuning amendments in 1977, revised portions of the law in 1981, and enacted further amendments in 1987.

The Clean Water Act (CWA) authorizes the U.S. Environmental Protection Agency (EPA) to establish national, uniform technology-based effluent limitation guidelines for point sources of pollution discharging to "waters of the United States," broadly defined to include wetlands. Effluent limitations are enforced through Section 402 of the CWA, the National Pollutant Discharge Elimination System permit program (NPDES; delegated to New York under SPDES). The CWA does not apply to agricultural nonpoint source pollution.

Recently, Phase II Municipal Stormwater Rules have been promulgated under Section 402 by EPA, which will extend regulatory requirements for stormwater effluent limitations to smaller urban areas than have previously been affected. The program will be phased in over 7 years, and will be administered by the New York State Department of Environmental Conservation (NYSDEC) as part of its delegated authority under the CWA. Municipalities, which fell outside of the regulatory purview of the Phase I Rules, will need to meet the compliance requirements of Phase II. Permitted municipalities will be required to implement 6 minimum control measures:

- I. public education and outreach
- II. public involvement/participation
- III. illicit discharge detection and elimination
- IV. construction site stormwater runoff control
- V. post-construction stormwater management in new development and redevelopment
- VI. pollution prevention/good housekeeping for municipal operations

Sections 208 and 303(e) of the CWA of 1972 established the initial framework for addressing nonpoint sources of pollution (NPS). States and local planning agencies analyzed the extent of NPS pollution and developed water quality management programs to control it with funds provided by EPA under Section 208. Best management practices were evaluated, assessment models and methods were developed, and other types of technical assistance were made available to State and local water quality managers. Section 208 provided that States prepare statewide and regional plans, based on watersheds, for the prevention of both point and nonpoint source pollution.

EPA's Total Maximum Daily Load (TMDL) Program comes from Section 303(d). There remain waters in the nation that do not meet the CWA national goal of "fishable, swimmable" quality despite the fact that nationally required levels of pollution control technology have been implemented by many pollution sources. CWA Section 303(d) addresses these waters that are not "fishable,



swimmable” by requiring the state to identify the waters and to develop total maximum daily loads (TMDLs) for them, with oversight from EPA.

Per Section 312 of the CWA, EPA, individual States and the U.S. Coast Guard work together to provide states with the opportunity to protect citizens and aquatic habitats through Vessel Waste No Discharge Area designations and national standards for marine sanitation devices on boat toilets, or heads. Section 312 of the CWA helps protect human health and the aquatic environment from disease-causing microorganisms that may be present in sewage from vessels and boats. These microorganisms can include bacteria, protozoa, and viruses. For more discussion on No Discharge Areas, see the discussion on the Clean Vessel Act in the Pathogens section.

Section 319 of the Clean Water Act directs each state to develop programs for controlling nonpoint source pollution. New York has an EPA-approved State Assessment Report and Management Program that describes the state’s nonpoint source pollution problems and programs.

Section 320 of the CWA of 1987 established the National Estuary Program (NEP), under which authority for this document supporting the Peconic Estuary Program was prepared. Section 320 authorized the EPA Administrator to convene Management Conferences to develop Comprehensive Conservation and Management Plans for estuaries of national significance that are threatened by pollution. The general goals of the NEP are the protection and improvement of water quality and the enhancement of living resources. To achieve these goals, the program calls for activities to help:

- establish working partnerships among Federal, state, and local government;
- transfer scientific and management information, experience, and expertise to program participants;
- increase public awareness of pollution problems and ensure public participation in consensus building;
- promote basin-wide planning to control pollution and manage living resources; and
- oversee development and implementation of pollution abatement and control programs.

Section 320 also specifies members of a Management Conference to ensure representation by a broad range of interests. Membership must include, at a minimum, representatives of Federal, state, regional, and local agencies, affected industries, academia, and the public.

Section 401 of the CWA of 1977 (33 U.S.C. 1251, Section 401) provides that all projects requiring Federal permits for the discharge of dredged or fill material into waters of the United States also require a Water Quality Certification. The purpose of this certification is to insure that all such activities are consistent with national water quality standards and management policies. This program is administered by the State of New York through Federal delegation.

Section 404 of the CWA establishes the Federal permitting program governing discharge of dredged and fill material into wetlands and other waters, administered by EPA and U.S. Army Corps of Engineers.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (ACOE) is an engineering and water resources development agency authorized to investigate, develop, conserve and improve the nation’s water, land and related environmental resources. The ACOE’s civil programs primarily manage the country’s wetlands and waterways. Program activities include navigation, flood control, flood plain management, shore and



beach restoration and protection, hurricane flood protection, water quality control, wetland protection and enhancement, outdoor recreation and environmental quality.

The ACOE issues permits for the placement of fill material into United States waters or wetlands. This can affect small and large-scale projects such as constructing piers, docks and ramps or dredging and placement activities in navigable waters. The ACOE also issues permits for placement of dredged material into ocean waters.

National Oceanic and Atmospheric Administration

The U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) is the nation's principal marine science agency. NOAA serves the public through a variety of programs designed to manage, assess, and increase our understanding of the marine environment and coastal zone. NOAA's coastal programs are carried out primarily through two line offices, the National Ocean Service and the National Marine Fisheries Service (NMFS), described in greater detail below. NOAA also conducts many studies through its Coastal Ocean Program (COP), a multidisciplinary activity which emphasizes marine environmental quality, fishery productivity, and the physical impact of natural coastal hazards. NOAA's National Sea Grant Program, which supports university research directed at the development and use of marine resources, is implemented in the Peconic Estuary through the New York Sea Grant Institute.

U.S. Department of Agriculture, Natural Resources Conservation Service

The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) carries out a broad program of technical assistance, research and education which aims to improve agricultural and land management practices which help protect surface and groundwater from contamination. These management practices focus on proper animal waste handling, erosion and stormwater runoff control and abatement.

U.S. Department of the Interior, Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) has the principal Federal responsibility for conserving the nation's fish and wildlife including their related habitats.

Although the Service has no direct regulatory control concerning discharges of pollutants into waters of the U.S. or discharge of dredged or fill material, the Agency plays a direct advisory role in these regulatory practices. Under the Fish and Wildlife Coordination Act, the Service must assess the impacts on biota of all water and water related development projects that are funded by the Federal government or constructed under a Federal permit or license. The Service provides information to Federal construction or regulatory agencies and to permit applicants.

U.S. Department of the Interior, Geological Survey

The primary responsibility of the U.S. Geological Survey (USGS) is to conduct surveys, investigating and researching the topography, geology and mineral and water resources of the nation. The Survey is also involved with quantification of the nation's water resources and the effect of development and utilization on them. It makes statistical data and summary reports available to planners, developers and managers.

The USGS is also responsible for the National Water Quality Assessment Program which aims to describe the status and trends in the quality of the nation's ground and surface water resources and to provide a sound, scientific understanding of the primary natural and human factors affecting the quality of these resources. The information collected under this program provides essential water quality information for policy makers.



State Agencies and Programs

New York State Department of Environmental Conservation

The New York State Department of Environmental Conservation is the lead State agency in planning, developing and managing the state's water resources, and undertakes studies for the protection, conservation, development and use of water resources of the state. Other activities include classification of state waters and establishing standards for quality and purity, permitting of wastewater discharges, flood control and flood plain management, control of dredging and filling in navigable waters, control of construction of dams and docks, tidal and freshwater wetland conservation programs and management of fish, shellfish and wildlife resources.

A listing of individual divisions with responsibility over the water quality of the Peconic Estuary follows:

Division of Water: charged with maintaining water quality in all of the state's waterbodies and managing water resources. The Division sets water quality standards, regulates wastewater treatment and associated discharges, monitors water quality, oversees the state's nonpoint source pollution program and protects groundwater aquifers, under delegation of Clean Water Act powers described above.

Bureau of Marine Resources: responsible for managing living marine resources in the state. This includes assessing environmental impacts on marine resources, administering the tidal wetlands and excavation and fill regulatory programs, coordinating state participation in National Estuary Programs, recommending standards and classifications for marine waters, certifying shellfish growing waters for harvesting, administering shellfish management programs, assessing principal fishery stocks and developing recommendations for effective management of species.

Division of Environmental Permits: coordinates permit reviews, assesses environmental impacts of proposed projects, reviews regulations, and issues permits. The Division also administers the State Environmental Quality Review Act which requires all levels of state and local government to assess the environmental significance of actions which they have discretion to approve, fund or directly undertake.

New York State Department of State Coastal Management Program

In New York, the Department of State administers the Coastal Management Program (CMP). The CMP provides for the preservation, protection, development and use of the state's coastal and inland waterways. The program has many aspects: policies covering land use planning, development of recreation, commercial and industrial water-dependent properties, maintenance of fish and wildlife habitats, stabilization of beaches and dunes, and waste discharges from vessels and on shore facilities. The CMP's jurisdiction extends from the limit of the state's territorial waters to a line generally 500 to 1000 feet inland.

The CMP reviews projects having some form of Federal involvement in coastal areas for consistency with local, state and Federal environmental statutes and program. The CMP also provides technical and financial assistance to local municipalities to prepare Local Waterfront Revitalization Plans. These plans promote revitalization of coastal areas while protecting their integrity.



Under the Coastal Zone Act Reauthorization Amendments of 1990, each state was required to develop and submit to the EPA and NOAA a coastal nonpoint pollution control program. The purpose of the program is “to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters,” working in close conjunction with other state and local authorities.

New York State Department of Health

The Department of Health enforces compliance with the Public Health Law and the State Sanitary Code. In the area of water resources, the Department establishes drinking water quality standards, and establishes regulations for the sanitary control of water supplies. The Health Department sets guidance for seafood consumption to protect public health. The Department also assists DEC in developing water and air human health standards and in overseeing public health interests for the inspection and remediation of inactive hazardous waste sites.

Regional Level

Long Island Regional Planning Board

The Board conducts planning and technical studies targeted to the preparation and update of the Bi-County Comprehensive Development Plan for Nassau and Suffolk Counties. Activities are supported by grants from Federal, state and local government agencies. Technical assessments conducted at both regional and local levels have focused on a wide array of topics including the implications of land use on waste management planning, the quality of groundwater and surface waters and natural resource protection. The Board also provides technical expertise to local municipalities and makes recommendations on development proposals, government operations and open space plans and acquisitions.

Local Level

New York has a long-standing tradition of local self-determination or local home rule. Home rule authority is highly valued and strongly defended. Land use controls in particular are viewed as a local prerogative. At the county level, Suffolk County performs state-assigned functions such as enforcement of state laws, and the conduct of elections, as well as providing a variety of public services to its residents in such areas as public and environmental health, sanitation, highways and public safety.

In New York, municipalities, usually local planning and/or zoning commissions, and zoning boards of appeals are responsible for determining land use and zoning. This authority is delegated to localities by state law and under state guidance. Commissions, in conjunction with other local agencies, exert additional regulatory control over activities in the community. Some examples include conservation, aquifer protection, and wetland and historic commissions.

Municipal Boards or Councils

In New York, the elected Municipal Boards are charged with the responsibility of overseeing all functions of local government. These boards are ultimately charged with the regulation of land use and zoning—the “backbone” of home rule. In most instances, the Board commissions the development of a master plan or other comprehensive land use document which defines the existing development patterns within a given community, articulates a set of objectives or goals, sets forth a plan for guiding future development in conformance with the stated goals or objectives and can grant



zoning incentives. The Board will usually delegate watchdog powers to a planning board that analyzes individual development proposals in the context of the overall master plan to insure compliance. However, if this authority is not delegated, zoning, rezoning and granting special permits is the function of the legislative board.

Boards and Department of Health

The Department of Health has far-reaching authority in exercising their responsibility to protect public health and safety. Its broad regulatory authority places it at the forefront of environmental protection. The Board of Health can adopt regulations for many activities that might endanger public health or the environment. Health Department jurisdictions typically extend into the areas of water supply, sewage disposal and sanitation.

The Suffolk County Department of Health Services implements delegated programs from the NYS Departments of Health and Environmental Conservation, as well as Suffolk County Sanitary Code Articles 4, 6, 7, and 12. These Sanitary Code sections limit nutrient and toxic pollution to groundwater, with attendant benefits to surface waters.

Conservation Commissions and Boards

Municipalities are empowered under state law to establish local environmental advisory agencies. Among their purposes are to inventory natural resources within the community; receive and monitor designated open space/conservation areas as well as conservation easements on behalf of the community; serve as an advisor on conservation matters to other municipal boards, councils and agencies; and prepare and periodically update maps of open space/conservation areas and other important natural resources.

Inland or Freshwater Wetland Commissions

The municipality is empowered under state law to enact legislation providing for the local regulation of inland or freshwater wetlands that is consistent with state statutes. Once wetland regulations are enacted, the municipal board will generally delegate implementation to an Inland Wetland Commission or Conservation Board. These commissions preside over specific development actions in and around wetlands and render regulatory decisions. Other activities may include monitoring approved projects for compliance with the terms and conditions of issued permits, providing enforcement of the local wetland regulations, and keeping maps of wetland areas that are available for review. The regulation of inland wetlands is an important component to the protection of estuarine quality as inland wetlands are often hydrologically connected to estuarine wetlands and waterways.

Environment Departments

Environment Departments are often established by the governing municipal board to oversee and coordinate all activities in the municipality having to do with the environment. These departments are charged with managing natural resources, protecting public health and balancing population growth, resource use and resource health. Environmental departments provide assistance and advice to a wide variety of elected and appointed boards having jurisdictions in environmental matters.

Planning and Zoning Boards or Commissions

Planning boards or commissions are statutorily empowered to carry out a variety of planning related functions, some of which are long-range while others pertain to the review of individual projects, proposals and activities. These authorities are conveyed to municipalities, but not required of them. Accordingly, while these powers are the backbone of local home rule, all procedures must be consistent with the requirements of state planning and zoning enabling statutes and are not universally



in place. These boards or commissions are the primary authorities for local coastal management planning and implementation. All significant development proposals are reviewed for conformance with local and state coastal programs.

Generally, planning or combined planning and zoning commissions prepare, adopt or amend master plans of development for a community; review municipal improvement projects and the subdivision of land.

Zoning Board of Appeals

Boards of Appeals are elected or appointed by the local legislative board and empowered to vary land use regulations where the strict application of such regulations would create unnecessary hardship (i.e., if the applicant is deprived of all economic uses or benefit, the hardship is unique but not self-created). In some municipalities, the boards may also hear and decide on applications for special permits.

Nonpoint Source Implementation

Local programs are discussed more fully in the PEP documents, *PEP Base Programs Analysis, Nonpoint Source Management Plan, Inventory*, June 12, 1995, as well as *Evaluating Town Capacity and Needs in Protecting the Peconic Estuary*, Columbia University, 1999. The nonpoint source document is particularly significant with respect to pollution loading, as it describes applicable 6217(g) management measures, and the extent to which they are implemented by local programs. The report discusses, in detail, issues such as local ordinances and management approaches for stormwater runoff, sanitary systems, and land use management controls (zoning, open space, clearing restrictions, etc.).

Legislative Bodies

NYS Legislative Commission on Water Resource Needs of Long Island

Since 1987, the NYS Legislative Commission on Water Resource Needs of Long Island has worked to prevent degradation of resources and their interdependent ecologies. The Commission's primary responsibilities are to make recommendations that lead to the preservation and protection of water resources, to initiate the enactment of legislation to those same ends, and to participate in ongoing dialogues to ensure the health of those waters.



Evaluation of Effectiveness

In general, most of the agencies and programs described above provide adequate capacity (statutory and regulatory authority, agency functionality, etc.) to support PEP management objectives. A few needs/deficiencies, potentially warranting “new” programs, are recommended, including:

- Optimizing farmer involvement in AEM initiatives by providing comfort levels, possibly via insurance programs.
- Promoting more progressive nonpoint source control measures, especially in sensitive nearshore areas and subwatersheds of embayments, dealing with sanitary system upgrades, innovative and alternative sanitary systems, septage management districts, and harbor protection overlay district ordinances.

While a few needs for “new” programs have been recommended, most of the programmatic analysis contained in this document, and in the CCMP, has resulted in identification of recommendations for improvements in existing programs. These improvements generally fall in the classes of:

- Needs to apply/tailor existing programs and mechanisms to further PEP recommendations (e.g., use mechanisms such as nitrogen guidelines to guide regional nitrogen load allocations).
- Needs to expand pre-existing programs to meet Peconic Estuary needs (e.g., tailor an agricultural environmental management program for nitrogen management needs to the conditions in Suffolk County, where nitrogen from fertilizers leaches readily from soil to groundwater, eventually reaching surface waters).
- Needs for additional financial and/or staff resources for implementation (e.g., additional staff at Suffolk County Soil and Water Conservation District and USDA Natural Resources Conservation Service to implement agricultural environmental management).

Recommendations for Improvements

Based on its programmatic inventory and evaluation, in terms of new programs, the PEP has recommended:

- Investigating the creation of a farm insurance program to optimize involvement in AEM initiatives.
- Evaluating the feasibility of progressive nonpoint source control measures.
 - Tax credits for sanitary system upgrades.
 - Innovative and alternative sanitary systems, and septage management districts.
 - Harbor protection overlay district ordinances.

Since these new programs are in the early stages of investigation, commitments have not been procured, and costs and responsibilities are unknown. The PEP Management Conference is the lead entity in evaluating feasibility of these programs.



Based on program needs, recommendations for improvements (or programmatic follow-up) include:

- Refine Water Quality Standards and Guidelines.
 - Integrate monitoring and modeling data, studies, and reports to evaluate the application of nitrogen guidelines for attaining and maintaining DO standards, optimizing eelgrass habitats, and for use in developing regional load allocation strategies and TMDLs.
 - Review and revise as appropriate the marine DO standards based on Long Island Sound Study efforts to develop area-specific DO targets and USEPA efforts to develop DO criteria for marine waters.
- Preserve Water Quality East of Flanders Bay
 - Develop and implement water quality preservation plans to protect existing water quality for waters east of Flanders Bay where water quality meets or exceeds established standards, criteria, or guidelines. This may be accomplished, in part, by land use and nonpoint source pollution control measures noted above and below.
- Implement a Quantitative Nitrogen Load Allocation Strategy for Entire Estuary
 - Initiate the development of load allocation targets and implementation strategies for nitrogen loading to the entire estuary, identify water segments to be included in New York State's 2002 303(d) list, and establish schedule for development of a TMDL, as needed.
- Control Point Source Discharges from STPs and Other Dischargers
 - Evaluate the appropriateness of applying for a "Discharge Restriction Category" to prevent new nitrogen discharges from point sources in the Peconic River and the western portion of the Peconic Estuary.
 - Consider a groundwater application of the point source nitrogen freeze in the Peconic River/Flanders Bay watershed (currently applied only to surface water discharges), based upon Nitrogen Management Work Group recommendations and TMDL work.
- Implement Nonpoint Source Control Plans
 - Ensure that the Section 6217(g) management measures of CZARA are appropriately implemented, in support of the overall nitrogen management plan.
 - Develop a regional implementation plan for agricultural nitrogen load reductions which would include promoting agricultural best management practices, expanding agricultural environmental management (AEM) strategies, and promoting organic farming among other initiatives. Four staff persons per year over the next 10 years are needed for implementation (estimate).
 - Develop a Long Island component to the New York State Agricultural Environmental Management (AEM) program. (\$1 million for program development).
 - Provide funding for increased local AEM development and implementation (\$1 million for implementation start up, from NYS Bond Act, Suffolk County ¼% Sales Tax, and other funding sources; long-term to be determined).
- Use Land Use Planning to Control Nitrogen Loading Associated with New Development



- Continue and expand aggressive open space preservation programs
- Review the Pine Barrens Land Use Plan “guidelines” (non-binding) for development in the Compatible Growth Area and develop proposals for additional “standards” (binding) for development based on Peconic River water quality protection goals.
- Evaluate nitrogen-loading impacts when reviewing Core Preservation Area hardship applications.
- Ensure that the public acquisition of private, vacant lands in Core Preservation Areas within the Peconic River ground watershed are given high priority.
- Utilize the strictest practicable standards when reviewing Peconic River development plans (e.g., require open space dedications, maximum practicable setbacks from the river, and natural landscaping to minimize fertilizer use).



Habitat and Living Resources

Description of Regulatory/Institutional Framework

Federal Agencies and Programs

National Environmental Policy Act

This Act established a national environmental policy and goals for the protection, maintenance, and enhancement of the environment, provided a process for implementing these goals within the Federal agencies, and established the Council on Environmental Quality to oversee Federal implementation of the Act. Under the Act, all Federal agencies must incorporate environmental considerations into their planning, decision-making, and actions through the preparation of environmental impact statements.

Coastal Zone Management Act

The Coastal Zone Management Act is administered by the National Oceanic and Atmospheric Administration (NOAA); however, the objectives of the law are to be achieved through state coastal management programs. The State of New York has such a program, and the actions of Federal agencies must be consistent with the states' programs. The Act established a national policy to preserve, protect, develop, and where possible, to restore or enhance coastal zones.

Magnuson-Stevens Fishery Conservation and Management Act

This Act was designed to conserve and manage all fishery resources within the U.S. Exclusive Economic Zone, with the exception of some species on the continental shelf outside of the U.S. Exclusive Economic Zone. This Act also established eight regional fishery management councils, which prepare Fishery Management Plans for the fisheries in their region. These plans must include measures for conservation and management that prevent overfishing while achieving optimum yield for each fishery. Amendments to the Act require the National Marine Fisheries Service describe, identify, conserve, and enhance "essential fish habitat", defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

Atlantic States Marine Fisheries Commission

The Atlantic States Marine Fisheries Commission has an Interstate Fisheries Management Program that was established by a state/Federal cooperative agreement with the National Marine Fisheries Service. This program was designed to establish priorities for Territorial Sea Fisheries Management, develop, monitor, and review management plans for high priority fisheries, recommend to states, Regional Fishery Management Councils, and the Federal Government, management measures that will benefit these fisheries, and conduct short-term research to assist in the preparation or revision of fishery management plans. Fishery management plans are now required to include essential fish habitat provisions.

Endangered Species Act

The Endangered Species Act is administered by the U.S. Fish and Wildlife Service (FWS) and NOAA's National Marine Fisheries Service (NMFS). This program is designed to protect and conserve all types of wildlife and plants -- both marine and terrestrial -- that are threatened or endangered with extinction. All Federal agencies must consult with the FWS and NMFS on activities that they authorize, fund, or carry out, which may impact any threatened or endangered species or its habitat. This is to ensure that actions will not jeopardize the species either directly or through adverse modification of its habitat.



Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) is administered by NMFS. This Act serves to protect and conserve marine mammals and their designated critical habitat. In addition, it establishes a moratorium on the taking and importation of marine mammals. This Act also provides for scientific, legal, and policy research to determine the best methods for protecting and conserving marine mammals. The porpoises and pinnipeds found in the Peconics are all covered under this law.

North American Waterfowl Management Plan

This Plan is administered cooperatively by the states and the FWS. It was established to address the serious decline of waterfowl populations throughout North America. The Plan identifies habitat conservation needs in specific regions, sets goals for restoration of waterfowl populations, and provides a framework for accomplishing local, regional, and international goals.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1934 authorizes the FWS to “provide assistance to and cooperate with Federal and state agencies to protect, rear, stock and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife.” Amendments passed in 1958 further allow the FWS to review proposed Federal actions that may affect stream, wetlands or other bodies of water and recommend ways to conserve fish and wildlife. It also allows the FWS to determine standards for water quality maintaining fish and wildlife, study methods of abating and preventing pollution and recovering useful products, and collect and distribute data on the results of the investigations.

Migratory Bird Conservation Act and Migratory Bird Treaty Act

The Migratory Bird Conservation Act of 1929 and the Migratory Bird Treaty Act of 1919 serve to protect migratory birds through prohibiting their takings, development of hunting seasons, restriction on weapons, numbers taken and acquiring areas to manage and protect migratory birds. These laws protect many of the waterfowl and migratory birds found within the Peconics.

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act is administered jointly by the Army Corps of Engineers (ACOE) and the U.S. Environmental Protection Agency (EPA). Section 404 requires and regulates permits for the discharge of dredged or fill material into surface waters, their tributaries, and adjacent wetlands. Through environmental impact statements, a permit applicant must demonstrate that 1) there are no practicable alternatives; 2) that threatened or endangered species will not be eliminated or water quality standards violated; 3) that no significant degradation of waters will result; and 4) that the impacts of any necessary discharge are minimized.

Section 103 of the Marine Protection, Research, and Sanctuaries Act

Section 103 of the Marine Protection, Research, and Sanctuaries Act is administered by the ACOE, in conjunction with the EPA, NMFS, and FWS. Section 103 is the only part of the Act that affects the Peconic Estuary. The purpose of Section 103 is to regulate the transportation and placement of dredged materials. Non-Federal projects in which dredged materials are transported or placed must be evaluated and permitted by the ACOE, and Federal projects must be evaluated. The EPA is responsible for development of environmental impact criteria upon which these evaluations are based, and for the identification of placement sites. Both the NMFS and FWS assist in the environmental review of activities covered by Section 103 of this Act.



Anadromous Fish Conservation Act

The Anadromous Fish Conservation Act of 1965 is administered by the U.S. Department of the Interior and the U.S. Fish and Wildlife Service. The Act is intended to conserve, develop and enhance anadromous fishery resources.

Rivers and Harbors Act

The Rivers and Harbors Act is administered by the ACOE. This Act was designed to prevent the deposition of obstructive and/or injurious materials within harbors or adjacent and tributary waters. This Act requires permitting for the movement or deposition of dredged, excavated, or other refuse material in harbors and their tributaries.

Coastal Wetlands Planning, Protection, and Restoration Act

The Coastal Wetlands Planning, Protection, and Restoration Act is administered by the FWS. Under this Act, coastal states can receive matching grants to establish programs for the conservation of wetlands. Projects funded include those in which wetlands are acquired, restored, and enhanced.

Federal Agriculture Improvement and Reform Act

The Federal Agriculture Improvement and Reform Act (FAIRA) of 1996 consolidated and simplified some of the existing conservation programs established under the Food, Agriculture, Conservation, and Trade Act of 1990. Implemented primarily by the U.S. Department of Agriculture (USDA), both acts encourage reducing soil erosion, retaining wetlands, and protecting other environmentally sensitive croplands.

Environmental Monitoring and Assessment Program

The Environmental Monitoring and Assessment Program is administered by EPA. The purpose of this program is to confirm the effectiveness of pollution control strategies. It does this through assessing and documenting the status and trends of various habitats in marine and non-marine systems. The monitoring and assessment of these habitats is standardized throughout the country, so as to ensure comparable spatial and temporal measurements.

National Wildlife Refuge System

Wildlife refuges are managed by the USFWS. The mission of this program is "to provide, preserve, restore, and manage a national network of lands and waters sufficient in size, diversity, and location to meet society's needs for areas where the widest possible spectrum of benefits associated with wildlife and wild lands is enhanced and made available." Goals of this program include preservation, restoration, and enhancement of plant and animal species in danger of extinction, perpetuation of migratory birds, preservation of natural diversity and abundance of plants and animals in refuges, and provision of recreational experiences to the public.

Coastal Barrier Resources Act

The Coastal Barrier Resources Act is administered by the FWS. The purpose of this Act is to protect ecologically sensitive coastal barriers through reduction or prevention of development. This Act designated specific barrier islands and spits as ineligible for either direct or indirect Federal financial assistance that would support development (including Federal flood insurance). Thus, private interests or state and local governments can only finance development.



Protection of Wetlands (Executive Order 11990)

Actions implemented within freshwater or coastal wetlands may be subject to the completion of a wetlands assessment and mitigation plan.

Floodplain Management (Executive Order 11988)

Any construction within the 100-year flood plain necessary to implement actions of the CCMP may necessitate the preparation of a flood plain assessment.

Land and Water Conservation Fund

The Land and Water Conservation Fund is administered by the U.S. Department of the Interior. It is designed so that there are sufficient outdoor recreation resources that are conserved, developed, and utilized for present and future generations. The Fund derives revenue from various sources such as Outer Continental Shelf oil and gas monies and motorboat fuel taxes, and appropriates this money to 1) states in the form of matching grants for outdoor recreation projects; and 2) Federal agencies for land acquisitions.

National Sea Grant College Program

The National Sea Grant College Program is a partnership between the nation's universities and NOAA chartered in 1966 by the National Sea Grant College Program Act. The program encourages the wise stewardship of marine resources through research, education, outreach, and technology transfer. The NOAA Office of Sea Grant administers the program and provides financial support to colleges, universities, and other research institutions through a matching fund program.

Fish and Wildlife Service's Coastal Ecosystem Program

The USFWS's Coastal Ecosystem Program aims to conserve fish and wildlife and their habitats and to support healthy coastal ecosystems. The Program's approach is to work in partnership with Federal, state, international, Native American, and local agencies; non-governmental organizations; and the private sector to develop and implement ecosystem-based policies and programs that protect and enhance coastal living resources. The emphasis of the Coastal Ecosystem Program is to have natural laboratories for long-term research and monitoring projects, as well as public education, so that comparative work can be accomplished through these sites.

Coastal America

Coastal America is an interagency partnership of 12 Federal agencies working together to protect, preserve, and restore coastal ecosystems that was established in 1992. It also includes state, local and tribal governments and non-governmental organizations. Coastal America also collaborates and cooperates in the stewardship of coastal living resources by working in partnership with other Federal programs and by integrating Federal actions with state, local and tribal efforts.

National Estuarine Research Reserve

The National Estuarine Research Reserve (NERR) was created in 1972 with the passage of the Coastal Zone Management Act. The NERR systems protect representative estuarine areas through a partnership between NOAA and state governments. Each estuarine reserve has research, education, and monitoring functions that include researching reserve environments, and tracking the status and trends in ecosystem health.



State Agencies and Programs

Environmental Quality Review Act

The Environmental Quality Review Act is administered by NYS DEC Division of Environmental Permits. This Act requires consideration of environmental impacts along with social and economic factors in all state and local agency decision making. Through this Act, all state and local government agencies must assess the environmental significance of actions that they have discretion to approve, fund or directly undertake. In cases in which an action may potentially have significant environmental impacts, an environmental impact statement must be prepared. This statement examines ways to reduce or avoid adverse environmental impacts related to a proposed action, and it includes analysis of reasonable alternatives.

Coastal Management Program

The Coastal Management Program is administered by NYS Department of State, Division of Coastal Resources and Waterfront Revitalization. This Program is responsible for coordinated and comprehensive planning for the use, protection, and development of coastal resources, and the exercise of full governmental authority over land and water uses in the coastal area. The Coastal Management Program is implemented through three components: 1) local Waterfront Revitalization Programs, which address coastal development; 2) review of Federal and state government actions to determine consistency with coastal management policies; and 3) support and involvement in coastal programs, projects, and activities, which implement coastal policies. A fourth component, the Coastal Nonpoint Pollution Control Program, has recently been added to develop and implement management measures for nonpoint source pollution. In addition, the Coastal Management Program contains the Significant Coastal Fish and Wildlife Habitats Program, which maps designated areas for their protection, preservation, and maintenance.

Marine Fisheries Management Programs

There are various fisheries management programs administered by NYS DEC Division of Fish, Wildlife and Marine Resources. It is the mission of these programs to manage and maintain the state's living marine, estuarine, and anadromous resources, and to protect and enhance the habitat upon which these resources depend, in order to assure that diverse and self-sustaining populations of these resources are available for future generations. Specific programs include investigation and management of shellfish, anadromous finfish, marine finfish, and crustaceans, the Peconic finfish and macroinvertebrate trawl survey, development of artificial reefs, and enhancement of access to these resources.

Shellfish Sanitation Program

The Shellfish Sanitation Program is administered by NYS DEC Bureau of Marine Resources. This program assures that shellfish harvested and sold in the state meet public health guidelines. This goal is achieved by testing the waters where shellfish are harvested and closing those waters that exceed levels of pathogen indicators that would be unsafe for human consumption. In addition, NYS DEC monitors and inspects all wholesalers to make sure that all shellfish are handled, processed, and shipped under sanitary conditions.

Freshwater Fish and Wildlife Management Programs

There are various wildlife management programs administered by NYS DEC Division of Fish, Wildlife and Marine Resources. These programs are designed to manage and maintain the state's freshwater fisheries and wildlife resources for the use and enjoyment of the public, and to protect and enhance the habitat upon which these resources depend. Some of these programs include: management of the waterfowl resource, including habitat restoration under the North American Waterfowl Management Plan,



monitoring and protection of endangered species and significant habitats, regulation of use of species through the process of setting hunting regulations, and biological surveys of wildlife species.

Endangered Species Program

The Endangered Species Program is administered by NYS DEC Division of Fish, Wildlife and Marine Resources. This Program studies species with declining population sizes and classifies them as "endangered," "threatened," or "of special concern." Overall, there are 52 endangered or threatened species in New York State. The Program identifies and acts to preserve habitats vital to the existence of these species. In addition, this program actively participates in efforts to restore populations of endangered species.

Water Quality Certification ("401 certification") Program

The Water Quality Certification Program is administered by NYS DEC Division of Environmental Permits, under program authority of the Division of Water. Under section 401 of the Federal Clean Water Act, any "discharge" to U.S. waters that requires a Federal permit must first obtain a 401 certification from the state. Therefore, this Program regulates water quality to insure that actions by Federal agencies do not compromise the water quality standards adopted by New York State. This objective is accomplished by requiring Federal agencies issuing permits or carrying out direct actions to first obtain a water quality certification from the state.

Nonpoint Source Water Pollution Program

The Nonpoint Source (NPS) Water Pollution Program is administered by NYS DEC Division of Water. Under section 319 of the Federal Clean Water Act, the U.S. EPA oversees this Program through grant administration, program approval, and periodic program evaluation. This Program is responsible for an Assessment Report, which reflects the current level of understanding of NPS problems in New York State, and a Nonpoint Source Management Program. The management program is designed to: identify approved management practices, establish watershed planning processes, recommend control measures needed to address each category of NPS pollution, identify potential sources of funding available to implement NPS control programs, and establish a procedure to ensure that Federal, state, and local programs are consistent with the state's NPS program. This Program was initiated in 1989, and is implemented through other existing programs and agencies, which incorporate management recommendations into their plans.

Point Source Control Program

The Point Source Control Program is administered by NYS DEC Division of Water. Under section 402 of the Federal Clean Water Act and New York State law, this Program regulates discharges from all point sources. This includes ensuring water quality standards are achieved. This Program is responsible for granting state pollutant discharge elimination system (SPDES) discharge permits. SPDES is the primary mechanism for controlling the discharge of conventional, non-conventional and toxic pollutants from point sources, and it is the mechanism through which sanitary, commercial, and industrial discharges of wastewater to surface and ground waters are regulated.

Tidal Wetlands Program

The Tidal Wetlands Program is administered by the NYS DEC Division of Fish, Wildlife and Marine Resources, and it consists of three parts (NYS Environmental Conservation Law, Article 25). The Tidal Wetlands Regulatory Program is designed, through the use of permits, to preserve and protect tidal wetlands and adjacent areas, and to prevent their despoliation and destruction. The Tidal Wetlands Acquisition Program purchases or otherwise obtains (e.g., easement, donation) tidal wetland areas that are deemed valuable. The state acquires these wetlands for the purpose of conservation, preservation, and



public use. The NYS DEC also has a program for restoring and enhancing tidal wetlands. In addition, all tidal wetlands in the state are mapped, inventoried, and their status is assessed.

Freshwater Wetlands Program

The Freshwater Wetlands Program is administered by NYS DEC Division of Fish, Wildlife and Marine Resources (NYS Environmental Conservation Law, Article 24). This Program protects and regulates activities in freshwater wetlands 12.4 acres or larger and their adjacent areas, and smaller wetlands if they are deemed locally important. Permits are required for activities such as construction, modification, expansion and restoration of structures, placement of fill, excavation, grading, drainage, and application of pesticides.

Protection of Waters Program

The Protection of Waters Program is administered by the NYS DEC Division of Fish, Wildlife and Marine Resources (NYS Environmental Conservation Law, Article 15). This Program regulates the following three categories of activities: 1) disturbance of the bed or banks of a "protected stream" or other watercourse; 2) construction and maintenance of dams; and 3) excavation and/or filling in "navigable waters" or the wetlands and estuaries adjacent and contiguous to any navigable waters.

Coastal Erosion Hazard Program

The Coastal Erosion Program is administered by the NYS DEC (NYS Environmental Conservation Law, Article 34). This Program identifies and maps coastal erosion hazard areas, establishes standards for the issuance of coastal erosion management permits, and regulates activities within these areas. Procedural requirements are also set up for local governments that wish to implement a local program.

Toxic Substances Assessment Program

The Toxic Substances Assessment Program is administered by NYS Department of Health Division of Environmental Health Assessment. After the NYS DEC tests finfish and shellfish for toxic substances, this Program interprets the results from a human health risk perspective. In the case that levels of toxic substances are above those which present a risk to human health, this Program issues consumption advisories.

New York State Marine Mammals; Harbor Seals

In addition to the Marine Mammal Protection Act (See Federal section above), the State of New York specifically protects harbor seals in New York water under NYS Environmental Conservation Law, Article 11, section 0107, by prohibiting the wounding or killing of harbor seals except as permitted. These animals are also protected under this law from being possessed, transported, bought, or sold, except as permitted.

Natural Heritage Program

The Natural Heritage Program is administered by NYS DEC Division of Fish, Wildlife and Marine Resources and the Division of Lands and Forests, with support from The Nature Conservancy. This Program was developed to gather information and store data on rare species and significant natural communities in New York State. Information and data collected includes distribution and abundance of species and habitats, as well as classification of communities.

Wild, Scenic, and Recreational Rivers Program

The Wild, Scenic, and Recreational Rivers Program is administered by NYS DEC Division of Lands and Forests (NYS Environmental Conservation Law, Article 15). This Program was developed to protect and preserve, in a free-flowing condition, those rivers of the state that possess outstanding natural, scenic, historical, ecological, and recreational values identified as being important to present and future



generations. Rivers that meet specific criteria are categorized as either wild, scenic, or recreational based on the appearance and amount of nearby development. After designation, construction of many structures in the river or adjacent areas requires a permit.

Open Space Conservation Plan

The Open Space Conservation Plan is administered by NYS DEC Division of Lands and Forests and the NYS Office of Parks, Recreation, and Historic Preservation. The purpose of this plan is to provide for the conservation, protection, and preservation of open space, natural, historic, and cultural resources, and the enhancement of recreational opportunities. Such open space and resources includes fields, forests, waters, and wetlands. The Open Space Conservation Plan strives towards this objective by purchasing or otherwise acquiring undeveloped open space and developing management strategies for these acquisitions.

New York State Pine Barrens Act

The New York State Pine Barrens Act delineates large, undeveloped parcels containing unique plant and animal communities around the Peconic River which are to be protected. This law provides for the protection of several communities exclusively associated with the barrens, such as the pitch pine/scrub oak forests and coastal plain ponds.

New York State Clean Water/Clean Air Bond Act

The New York State Clean Water/Clean Air Bond Act was approved by NYS voters in 1996 and provides \$1.75 billion for improving and restoring water bodies across the State. Open spaces of lands are also conserved with Bond Act money, as well as the closing of aging landfills, upgrading of sewage treatment plants, reduction of stormwater runoff, restoration of degraded habitats, and the clean up of contaminated properties.

Local Level

There are a wide variety of local programs in place to protect, preserve and enhance the habitats and living resources of the Peconic watershed. These were discussed in detail in Columbia University's report entitled "Evaluating Town Capacity and Needs in Protecting the Peconic Estuary". This report evaluated the existing programs enlisted to protect habitat and living resources for all six east-end towns (Brookhaven, East Hampton, Riverhead, Shelter Island, Southampton and Southold) and determined their ability to monitor and evaluate threats to the estuary. Each Town has developed their own laws, zoning regulations and environmental programs to address habitat and living resources protection that often go beyond those of the New York State. For example, Southampton adopted a wetlands law in 1993 that intends to achieve a "no net loss" of wetlands, and to encourage a net gain. A more detailed description of each Town's programs and ability to meet the needs of the PEP CCMP actions are found in the report by Columbia University.



Evaluation of Effectiveness

In general, the agencies and programs described above provide excellent mechanisms to protect many of the habitats and living resources in the Peconic Estuary. Many of these programs also provide a means to monitor habitats, water quality and living resources, as well as allowing for the enhancement and restorations. However, the Peconic Estuary Program Natural Resources Subcommittee and the PEP Management Conference have identified several areas where existing laws and programs do not sufficiently protect the natural resources or require strengthening for protection into the future. The PEP makes the following recommendations:

Recommendations for Improvements

- Although many of the habitats in the Peconic Estuary are offered some level of protection through existing regulations by the Federal, state and local governments, there are assemblages of aquatic and terrestrial habitats and living resources that are increasingly threatened by human activities because the regulations do not adequately protect them. For example a continued loss of inter-tidal and beach habitats from shoreline hardening is expected since NYSDEC regulations classify bulkheads as “generally compatible with the environment” above mean high water, provided that there are no tidal wetlands in the vicinity. While these regulations may sufficiently protect wetlands, they offer only limited, or no, protection of the beach habitats which are of great importance to many nesting shorebirds (e.g., piping plovers) and horseshoe crabs which lay their eggs in these areas. Similar examples are found in other aquatic and terrestrial environments. While it is generally recommended that NYS strengthen its tidal wetland regulations, an alternative is proposed. It is recommended that the areas within the Peconics that are of very high ecological quality (e.g., providing important spawning, breeding, nursery and feeding habitats for a diversity of rare, keystone and commercially important species) be identified and mapped as Critical Natural Resource Areas. Once these Critical Natural Resource Areas are identified and adopted, they should be given an extra level of protection through increased coordination and rigorous implementation of existing regulations; and new protection mechanisms should be developed where needed. A full implementation strategy to protect Critical Natural Resource Areas should be developed and implemented by the Peconic Estuary Program and all regulatory authorities.
- Eelgrass has been identified as a critical underwater habitat for bay scallops and finfish. Eelgrass beds, however, are only loosely protected under the NYSDEC tidal wetlands regulations, to a depth of only 6 ft. and by Protection of Waters (NYS ECL; Article 15). No other regulations exist to protect this important habitat from the increasing threats of propeller scarring, dredging and shading from docks and piers. It is recommended that a full review of current policies that protect eelgrass beds be undertaken and that the PEP develop recommendations for their increased protection, possibly through inclusion as a Critical Natural Resources Area.
- There is an increasing need for dredging in the Peconics for both commercial and recreational purposes, which can result in negative impacts to the habitat and living resources in the estuary. Dredging is regulated at the Federal and state levels, but the existing regulations may not always offer the best protection of habitats due to conflicting programmatic concerns. It is recommended that a “dredge summit” be convened for the Peconic Estuary that addresses specific concerns such as: impacts to shorebird nesting, demersal fish spawning and benthic communities. The “dredge summit” should develop regional management recommendations to minimize impacts to the critical habitat and living resources of the estuary.



- As mentioned above in the example for Critical Natural Resource Areas, shoreline hardening structures such as bulkheads and rock revetments are considered “generally compatible with the environment” above mean high water, provided that there is no tidal wetland vegetation in that location. While State regulations are protective of wetlands, they offer only limited protection of beach habitats and when bulkheads are installed above mean high water, they may not allow for the landward migrations of tidal wetlands with sea-level rise. Additionally, docks and piers are also listed as “generally compatible with the environment”, which leads to a fragmentation of tidal marsh and aquatic habitats, as well as a shading of eelgrass beds. It is recommended that the PEP adopt a policy of “no net increase” in shoreline hardening structures for the Peconic Estuary, develop recommendations to reduce impacts from shoreline hardening structures, encourage the strengthening of existing policies and regulations to reduce impacts from bulkheads at all levels of government, and promote “softer” vegetated alternative shoreline protection solutions as well as incentives to remove existing bulkheads.
- There are a number of aquatic and terrestrial habitat restoration opportunities in the Peconic Estuary that have been identified by the Towns and local agencies. These include: coastal grasslands, beaches, dunes, fish and wildlife migratory corridors, tidal wetlands, freshwater wetlands, submerged aquatic vegetation, coastal forest communities and intertidal flats. There are also various sources of funding available at the Federal, state and local levels to implement restoration efforts. However, there is no single agency that identifies or coordinates restoration projects in the Peconics. It is recommended that the PEP convene a Habitat Restoration Workgroup to develop and implement an estuary-wide habitat restoration plan. This plan should identify and list priority habitats to be restored, develop restoration criteria for selection of restoration sites and identify sources of funding to implement and monitor all restoration efforts in the Peconics.
- Tidal wetlands have been extensively ditched in the past for mosquito control. Ditching fragments tidal marshes and can impact their ecological functions. While no new ditching is currently allowed in the Peconic Estuary, tidal wetland regulations do allow for the maintenance of existing ditches through rotary-ditcher machines. Advances in alternatives to ditching for mosquito control management such as Open Marsh Water Management (OMWM) have proven effective. There have been some efforts to restore and control mosquitoes in tidal marshes in the Peconics with OMWM, but they are often limited in scope and not well coordinated. It is recommended that the PEP work cooperatively with Suffolk County Vector Control and other agencies, towns and groups to encourage and develop priority areas for OMWM in the Peconics.
- Aquaculture and transplanting of shellfish have the potential to be beneficial or harmful to the water quality and living resources in the Peconic Estuary depending on the type, scale and location of culturing/transplanting activities. The NYSDEC is responsible for the permitting of aquaculture activities in the Peconics, but Suffolk County is responsible for developing an aquaculture plan. No comprehensive plan exists for aquaculture in the Peconic Estuary and this has resulted in uncoordinated management and planning of these activities. It is recommended that the PEP assist in the development of a Regional Aquaculture Plan for the Peconic Estuary that is mutually beneficial to the estuary and the culturing/transplanting facilities and does not impact natural stocks of shellfish or finfish.
- Artificial reefs can also be beneficial or harmful to the habitats and living resources in the Peconic Estuary depending on their type, scale and locations. The State has an Artificial Reef Plan that was developed in the 1980s, but it is limited in its overall considerations of potential impacts to marine mammals, benthic communities or changes to the species compositions in the area. It is



recommended that PEP evaluate the use of artificial reefs and develop recommendations to minimize the impact on resources by these structures, particularly in Critical Natural Resource Areas.

- There has been increasing usage of the Peconic Estuary by sea turtles and marine mammals. Current activities that may harm them include boating, dredging, large-scale aquaculture projects, or poorly designed artificial reefs. Under NYS ECL Article 11, Section 0107, it is illegal to injure or cause the death of harbor seals. It is also illegal to buy, sell, transport, or have possession of these animals. The law was implemented a number of years ago when the harbor seal was the only pinniped found in NY waters. Currently, there are five species of seals that are found in these waters, of which three have become fairly common. In order to protect these species as well as other marine mammals, this law would need to be expanded. PEP should work with the Towns, County, and State to review uses of areas which have been identified as sea turtle and marine mammal feeding areas and consider what restrictions may be necessary to be more protective of these species and their food resources.
- Measures are needed to counteract the effects of increasing human populations and development of the lands and waters of the watershed surrounding the estuary. Although the East End Towns are developing Local Waterfront Revitalization Plans, which can enhance public access and protect habitats and living resources, proper planning is needed to ensure that access points are coupled with the right kind of space to accommodate different uses. PEP should support maintaining a balance between the needs and opportunities for public access and requirements for sustaining living resources. One local plan that has been used successfully in the estuary is the Harbor Protection Overlay District (HPOD). The Town of East Hampton created the HPOD to address development on waterfront property and imposes restrictions on newly developed or redeveloped waterfront property. A number of these restrictions are particularly useful in the protection of living resources, such as requirements that the shoreline be maintained with a natural buffer made up of native vegetation. The PEP should encourage and assist other Towns in adopting similar planning measures.
- Monitoring involves the multi-year collection of data on living resources and water quality to understand the natural variability of populations over time as well as changes in those populations that result from human influences. While there are several different on-going monitoring programs in the Peconics (e.g., SCDHS Water Quality Program, NYSDEC Juvenile Finfish Trawl Survey, Cornell Cooperative Extension eelgrass monitoring, NYSDEC Endangered Species Program, etc.), there is a need to coordinate these programs to fully evaluate the health of the Peconic ecosystem and manage it based on sound data collection and analysis. There is also a significant need for basic ecological research in the Peconic Estuary, to help understand and guide the management of the natural resources that exist. It is therefore, recommended that the PEP develop and seek funding to implement a research and monitoring plan for the habitats and living resources of the Peconic Estuary.



Pathogens

Description of Regulatory/Institutional Framework

Federal Agencies and Programs

National Pollution Discharge Elimination System (NPDES)

On November 16, 1990, EPA issued National Pollution Discharge Elimination System (NPDES) permit application regulations for stormwater discharges. The National Pollutant Discharge Elimination System (NPDES) program requires certain activities obtain authorization (via a permit) to discharge pollutants via stormwater runoff to surface waterways. In New York, this requirement is covered under two General Stormwater Permits through the State Pollutant Discharge Elimination System (SPDES) program. One permit covers activities associated with construction activities (>five acres in size) and the second covers the remaining activities listed in the NPDES regulations. Unless covered by a separate individual SPDES permit, the only other alternative for dischargers that need a permit is one of the general permits. The general permit requires the development and implementation of a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in use of pesticides or street salt, or frequent catch-basin cleaning). The plan need not be submitted to the NYSDEC unless asked, but must be kept on-site and continually updated. The NYSDEC may request to see these plans and may require changes in practices if adverse impacts on receiving waters have, or may have occurred).

Phase II of the USEPA Storm water regulations were finalized in October 1999. This set of regulations contains important changes and requirements for construction activities and certain municipal separate storm sewer systems serving populations less than 100,000 and construction activities that disturb areas between one and five acres. These regulations will potentially have a significant impact on stormwater management in the Peconic Estuary. NYSDEC is currently evaluating the program changes necessary to comply with the new regulations.

Clean Water Act Section 319 Nonpoint Source Programs

New York State has developed a program for the control of sources of pathogen indicators to the Peconic Estuary. The Clean Water Act (CWA) Section 319 Nonpoint Sources Management Program, forms the basis for this management program. The 1987 amendments to the CWA established a national program to control nonpoint sources of water pollution. Under Section 319, States address this pollution by: 1) developing nonpoint source assessment reports and 2) adopting and implementing nonpoint source management programs. Section 319 also provides for the issuance by EPA of grants to states to assist them in implementing the management programs that have been approved by the EPA. New York has an approved Nonpoint Source Management Program that, among other objectives, attempts to address diverse sources of pathogen indicators.

The NYSDEC Nonpoint Source Management Program was finalized and approved by EPA in January 1990. The plan addressed specific requirements of the Clean Water Act, Section 319. NY developed a process of ongoing assessment of waters impacted by nonpoint source pollution and identifies BMPs to be used to reduce their effects. Programs for the control of general sources of nonpoint source pollution were also presented.



NYSDEC has developed several nonpoint source documents. Statewide guidelines for stormwater management for new development and for erosion and sediment control have been developed by NYSDEC for use by local planning officials, building inspectors, and developers. Municipalities have been encouraged to use these guidelines in the review of local development projects. In addition, NYSDEC has developed Management Practices Catalogues for: 1) agriculture; 2) silviculture; 3) urban/stormwater runoff; 4) road/right-of-way maintenance; 5) leaks, spills, and accidents; 6) resource extraction; 7) onsite waste disposal; 8) construction; and 9) hydrologic/habitat modification.

Coastal Management Plan Nonpoint Source Control Program

The reauthorization of the Federal Coastal Zone Management Act (CZMA) was passed on November 5, 1990. A major provision of the Act (Section 6217) is the requirement for a new Coastal Zone Nonpoint Source Management Program in each state. These programs were to be developed over the 30 months following EPA publication of final technical guidance in May 1992. These programs are applicable in the entire coastal zone exclusive of the areas subject to the new stormwater regulations.

The new nonpoint source programs are jointly approved by NOAA and EPA, and must be incorporated into states' Clean Water Act Section 319 programs. The coastal zone nonpoint source programs are based on nonpoint source pollution management measures, which are essentially systems of best management practices (BMPs). EPA published draft management measures guidance in May of 1991, and published final guidance in May 1992. The management measures are keyed to different land uses (sources) and specify practices to be carried out to reduce and/or prevent nonpoint source pollution. Demonstration of water quality impairment is not required for implementation of the management measures; rather, the approach is technology-based (like effluent guidelines).

The issues addressed by the Management Measures Guidance include 1) agriculture, 2) forestry (silviculture), 3) urban runoff, 4) wetlands, 5) boats and marinas, and 7) hydromodification. Pathogens from confined animal feeding operations (CAFO), onsite sewage disposal systems, urban runoff, and boats and marinas are addressed in the guidance. Management practices suggested to control pathogens in urban runoff include detention/retention ponds, biofiltration and infiltration devices. Management practices identified to remove pathogens from onsite sewage disposal systems include periodic septic tank pumping, septic system inspections, and installation of intermittent sand filters with a leaching fields for existing developments. For new developments, wastewater separation with a holding tank for blackwater and conventional system for grey water has been recommended. Marina siting, design and operation, and maintenance and management measures are also presented in the guidance. Wastewater collection to prevent pathogen contamination of marina waters can be performed with marina-wide collection (pump-out) systems implemented as portable/mobile systems or dedicated slipside systems.

The State's modified Coastal Management Plan (CMP) must contain "enforceable" policies based on local ordinances, state laws or regulations. Section 6217(b) of the CZMA Reauthorization also provides for the identification of critical areas immediately adjacent to coastal areas where land uses may contribute to future impairment. In these areas, the law provides for additional management measures that are land use oriented, such as siting and density requirements. The focus of this section of the law is on land use controls.

In New York State, the development of the Coastal Zone Nonpoint Management Plan falls under the joint jurisdiction of the Department of State (DOS) and the NYSDEC which together have the authority for implementing section 6217(b) of the Coastal Zone Act Reauthorization Amendments of



1990. NYSDOS submitted the New York State Plan to NOAA in July 1995 and has been approved and has been incorporated it into the State's Nonpoint Program (Clean Water Act section 319).

Total Maximum Daily Load Program

EPA's Total Maximum Daily Load (TMDL) Program comes from Section 303(d) of the Clean Water Act (See: Nutrients Section of Base Programs Analysis). There remain waters in the nation that do not meet the CWA national goal of "fishable, swimmable" despite the fact that nationally required levels of pollution control technology have been implemented by many pollution sources. CWA Section 303(d) addresses these waters that are not "fishable, swimmable" by requiring the state to identify the waters and to develop total maximum daily loads (TMDLs) for them, with oversight from EPA.

Clean Vessel Act

Congress passed the Clean Vessel Act (CVA) in 1992 to help reduce pollution from vessel sewage discharges. The Act established a five-year Federal grant program administered by the U.S. Fish and Wildlife Service (FWS) and authorized \$40 million from the Sport Fish Restoration Account for use by the states. Federal funds may constitute up to 75% of all approved projects with the remaining funds provided by the states or marinas. Grants are available to the states on a competitive basis for the construction and/or renovation, operation and maintenance of pumpout and portable toilet dump stations. Currently, states submit grant proposals, by May 1 of each year, to one of seven Fish and Wildlife Service regional offices for review. The Service's Division of Federal Aid then convenes a panel including representatives from the Service's Washington Office of the Division of Federal Aid, the National Oceanic and Atmospheric Administration (NOAA), EPA, and the U.S. Coast Guard. The panel reviews, ranks and makes funding recommendations to the Director of the Fish and Wildlife Service. The Director gives priority consideration to grant proposals that provide installation and/or operation of pumpout and dump stations under Federally approved state plans.

Pursuant to the CVA, the Sport Fish Restoration Program sets aside money for pump out units for marinas; money comes from an excise tax built into sales of certain fishing or boating gear (money is administered by FWS and sent back to the state agencies for projects that would benefit recreational fishing and boating).

As noted above under Clean Water Programs, Section 312 of the Clean Water Act authorizes the EPA, individual states and the U.S. Coast Guard to work together to provide states with the opportunity to protect its citizens and its aquatic habitats through Vessel Waste No Discharge Area designations and national standards for marine sanitation devices on boat toilets or heads. The availability of pumpout stations and/or the importance of the waterbody for human health and recreation or the aquatic ecosystem bring to bear on a state's request for a Vessel Waste No Discharge Area designation. A graphic pumpout symbol is placed at docks and marinas to show boaters where a pumpout facility is located. In some cases, small boats may be modified to receive these wastes and can visit boats to provide this service. Enforcement of Vessel Waste No Discharge Areas is the responsibility of the U.S. Coast Guard; the Coast Guard may delegate this responsibility to the state.

There are three distinct kinds of Vessel Waste No Discharge Area designations that may be available to an interested state. These are: to protect aquatic habitats where pumpout facilities are available, to protect special habitats or species, and to protect human drinking water intake zones.

State Agencies and Programs



Surface Water and Groundwater Classifications and Standards

The NYSDEC Division of Water classifies water quality standards for coliforms through the NYS Water Quality Regulations (Title 6, Chapter X, Part 703 of Water Quality Regulations). These standards have been established for total and fecal coliform counts, and are applied throughout the NYS waters, including the Peconic Estuary.

Transportation Efficiency Act

The Transportation Efficiency Act is implemented by New York State Department of Transportation (NYSDOT) and funded by NYSDOT capital budget. These funds can be used to improve water quality by preventing or remediating road runoff.

Vessel Waste No Discharge Area Designations

Per Section 312 of the CWA, EPA, individual States and the U.S. Coast Guard work together to provide states with the opportunity to protect citizens and aquatic habitats through Vessel Waste No Discharge Area designations and national standards for marine sanitation devices on boat toilets, or heads. Section 312 of the CWA helps protect human health and aquatic environment from disease-causing microorganisms that may be present in sewage from vessels and boats. These microorganisms can include bacteria, protozoans and viruses.

Bathing Beach Monitoring Programs

NY's coliform standards for beach water quality are specified in Sub Part 6-2 of the New York State Sanitary Code (NYSSC). The NYSSC, as revised on March 30, 1988, allows local health departments the option of utilizing either total or fecal coliform as a water quality indicator. The New York State monitoring guidelines are described in the NYSSC Subpart 6-2.15. No state requirements have been made for the sampling frequency and it is up to the local health department in each county to design a monitoring plan. As a result, each county has a slightly different sampling strategy.

Since sources of pathogens may be different during rainfall, samples are specified as either taken in "wet" or "dry" periods. A sample is considered "wet" if (1) it has rained 48 hours prior to sampling, or if (2) more than 0.4 inches of rain has accumulated within a 24 hour time span, or if (3) more than 0.2 inches of rain has fallen in a two-hour period.

In addition to closures caused by regularly monitored indicator levels, some areas are automatically closed following rainfall events or as a result of sewage treatment plant malfunction. These closures are made as a precaution against predicted elevated coliform levels and pathogen-related human health risks. This type of automatic closure is referred to as an administrative closure, and does not require indicator sampling. In the case of emergency closures, sampling is necessary after the closure to determine if the water quality has rebounded to certified criteria.

The Suffolk County Department of Health Services has recommended suspension of swimming at enclosed bay beaches after significant rainfall events. The definition of a significant rainfall varies based on the local hydrology, soil type, topography, and land use. Therefore, the threshold amount required to trigger a closure varies for each area.

Shellfish Monitoring Programs

The New York State Shellfish Sanitation Program monitors shellfish harvesting areas and the shellfish industry to protect public health. New York State is a participating member of the Interstate Shellfish Sanitation Conference (ISSC) which uses the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish (1997).



The National Shellfish Sanitation Program (NSSP) was established by the U.S. Public Health Service in 1925 to protect the public health from contaminated shellfish. In 1968, the U.S. Food and Drug Administration began administering the NSSP. The NSSP carries out its mandate by providing states with detailed procedures and protocols as highlighted in the Guide for the Control of Molluscan Shellfish. These are implemented by the New York State Department of Environmental Conservation (NYSDEC) Shellfish Sanitation Program. The New York State Shellfish Sanitation Program conducts the following activities in shellfish harvesting areas: water quality monitoring for bacteria indicative of potential pathogenic contamination; conducting detailed pollution source surveys to identify potential sources of pathogens; restricting shellfish harvesting consistent with the results of such monitoring and surveys, and enforcing such restrictions.

The New York State Shellfish Sanitation Unit classifies all shellfish growing areas for harvesting in the New York State Marine District. New York State defines shellfish as oysters, scallops, mussels and clams. There are seventy-five individual shellfish growing areas in New York State. Approximately thirty shellfish growing areas are located within the Peconic Estuary.

The Shellfish Sanitation Unit classifies all growing areas using the guidelines established in the National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish. These guidelines require the establishment of water sampling stations to effectively evaluate all potential pollution sources that may affect a growing area. On average, the NYSDEC Shellfish Sanitation Program collects and analyzes from 10,000 to 15,000 bacteriological water quality samples each year. All certified and selected uncertified areas (used for transplant and conditional harvest) are sampled and evaluated.

New York State uses the NSSP Systematic Random Sampling (SRS) Method of water sample collection and the Total Coliform Standard to evaluate shellfish growing areas. SRS requires that water sample collection be scheduled sufficiently far in advance to support random collection with respect to environmental conditions. Samples are collected under wet and dry weather conditions in warm and cold weather months. Surface and bottom temperature and salinity measurements are also collected at selected stations in each Peconic growing area. SRS samples are collected at each station a minimum of six times per year on an ebbing tide. Following the collection of thirty SRS water samples the area is evaluated to determine proper classification for shellfish harvesting.

The Shellfish Sanitation Unit has a policy to temporarily close harvesting shellfish growing areas that are affected by greater than 3.0 inches of rainfall within a continuous 36-hour period. The affected growing areas will remain closed until water sampling documents an improvement in water quality supporting the reopening.

NYSDEC Shellfish Sanitation, in cooperation with the NYS Department of Health and the NYS Department of Agriculture and Markets, has been very effective at controlling outbreaks of shellfish-related, food-borne disease. Controls on the quality of the shellfish consumed are achieved not only through proper management of harvesting areas but also through sanitary inspection of facilities and review of records and tags from shellfish wholesalers and shippers throughout the State. The NYSDEC Shellfish Inspection Unit carries out the latter activities. Sanitary inspection of food service establishments is carried out by the Department of Health and inspection and review of shellfish retailers is done by the Department of Agriculture and Markets.

New York's Shellfish Transplant Program is administered by the NYSDEC Bureau of Marine Resources, Shellfish Management Unit. The primary goal of the Transplant Program is to provide the opportunity for utilization of shellfish resources that are presently unusable. Shellfish harvested in the transplant program are relayed from uncertified to certified waters and may be reharvested from



the cleansing area after 21 days under specified conditions. Following adequate cleansing the clams can be marketed.

Some of these transplants are carried out within the estuary but a large segment of the New York Transplant Program involves the transfer of hard clams from Raritan Bay in New York Harbor to near shore waters in the Peconics. Transplanted clams from this area have accounted for an increased percentage of the total hard clam harvest from the Peconics in the last decade.

Shellfish regulations are enforced by NYSDEC Environmental Conservation Officers as well as County Marine Police, Town Bay Constables and Harbor Masters. Towns also assist in collection of water samples and in obtaining information for shoreline surveys. For a full description of all local-level pathogens reduction programs and shellfish management programs see Columbia University's report, "Analysis of Town Capacity and Needs in the Peconic Estuary".

New York State Clean Water/Clean Air Bond Act

The New York State Clean Water/Clean Air Bond Act was approved by NYS voters in 1996 and provides \$1.75 billion for projects including improving and restoring water bodies across the State. Open spaces of lands are also conserved with Bond Act money, as well as the closing of aging landfills, the clean up of contaminated properties, the reduction of stormwater runoff, and the upgrading of sewage treatment plants.

Regional Level

SCDHS Bathing Beaches and Swimming Pools Program

In order to protect beach goers from the human health risks associated with pathogens, the Suffolk County Department of Health Services (SCDHS) Bureau of Marine Resources monitors for pathogen indicators at public beaches. When water quality parameters fail to meet the established human health criteria, beaches are closed.

***Pfiesteria piscicida* and *Alexandrium tamarense* Monitoring Programs**

The unusual dinoflagellate, *Pfiesteria piscicida*, has been implicated in major fish kills in the brackish coastal waters of North Carolina and several areas within the Chesapeake Bay. It has also been implicated in human health effects, the severity of which are apparently dependent on the length of contact with the organism, or an airborne toxin released by the organism. *Pfiesteria* normally occurs in non-toxic forms unless triggered to develop into a toxic form; the exact conditions triggering toxin production are poorly understood.

Preliminary studies by SCDHS in 1998 showed the organism to be present at seven of the sixteen sites sampled within Suffolk County and at two of the three sites sampled within the Peconic Estuary.

In the summer of 1999, the NYSDEC and the Nassau and Suffolk County Health Departments (SCDHS) and the Town of Hempstead undertook a comprehensive monitoring effort to assess the marine waters of the state for the presence of *Pfiesteria* cells. Water samples were tested for *Pfiesteria* along with a suite of other parameters, including dissolved oxygen, water temperature, and salinity. The test, using a molecular probe in the laboratory, detects the presence of *Pfiesteria* but not the toxicity. Water samples are shipped to Dr. Parke Rublee of the University of North Carolina where they are analyzed for *Pfiesteria*.

The SCDHS is currently testing for the presence of *Pfiesteria* at fifteen sites, three of which are located in the Peconic Estuary. This project is meant to provide a comprehensive temporal analysis



as samples are being collected from each of the fifteen stations on a biweekly basis from April to October, 2000. Differential phytoplankton counts and water quality analysis will be conducted in the lab. This monitoring is a cooperative effort with the NYSDEC and is being coordinated with funds from the U.S. EPA.

Paralytic shellfish poisoning (PSP) red tides caused by the organism *Alexandrium tamarense* have been a problem mainly in the northern New England states. The organism produces a neurotoxin that can be concentrated by shellfish which when consumed by humans can result in PSP. In a four year monitoring study, from 1986 to 1989, SCDHS found that a spring bloom of *A. tamarense* consistently occurred in Reeves Bay and also noted blooms in Terry's and East Creeks in 1989, the one year in which they were investigated. No other stations in the Peconic Estuary were sampled. The SCDHS Bureau of Marine Resources is currently estimating the concentration of *Alexandrium* at seven sites in the Peconic Estuary. The investigation entails the placement of mussels (*Mytilis edulis*) at the study sites, and their collection at specified intervals for PSP toxin analysis. The present study is limited to the Peconic Estuary.

Local Level

Harbor Protection Overlay Districts

One local plan that has been used successfully in the estuary to protect water quality and habitats, and reduce pathogens, is the Harbor Protection Overlay District (HPOD). The Town of East Hampton created the HPOD to address development on waterfront property and imposes restriction on newly developed or redeveloped waterfront property. A number of these restrictions are particularly useful in the protection of living resources, such as requirements that the shoreline be maintained with a natural buffer made up of native vegetation. Such restrictions can potentially reduce pathogen loadings into the estuary, particularly within poorly flushed areas as tidal creeks. For additional information on local government pathogen reduction programs see Columbia University's report, "Analysis of Town Capacity and Needs in the Peconic Estuary".

Evaluation of Effectiveness

In general, the agencies and programs described above provide an excellent ability to protect humans from pathogen contamination of shellfish or bathing waters in the Peconic Estuary. Many of these programs also provide a means to monitor and reduce pathogens through stormwater improvements, sewage treatment plant upgrades and restorations of degraded habitats that help to filter these pathogens. In addition, new regulations may prove helpful at reducing nonpoint sources of pathogens into the estuary, however, these are currently being evaluated and have not yet been fully implemented. The Peconic Estuary Program has identified several areas where existing laws and programs do not adequately address the reduction and management of pathogens in the estuary and thus, make the following recommendations.

Recommendations for Improvements

- It is recommended that existing stormwater management regulations continue to be used to control pathogen loadings and other forms of nonpoint source pollution. It is also recommended that an evaluation of the ability of general stormwater permits to regulate pollution from activities



in the national stormwater regulations be performed for the Peconics. The development of new regulations may be necessary for further reductions in pathogen loadings.

- Controlling stormwater runoff from non-waterfront property and vacant lands can be accomplished through a variety of land use regulations, such as protective zoning, transfer of development rights to limit density, and standards for stormwater discharges from lands developed or redeveloped in the future. Local legislation that is highly protective of the coastal zone, such as the East Hampton Harbor Protection Overlay District, has proven very effective on a relatively discrete, enclosed body of water entirely within local jurisdiction. However, in order for such a measure to be protective of a regional body of water such as the entire Peconic Estuary, this type of legislation must be enacted on a system-wide basis. Therefore, it is recommended that an evaluation of existing model land use regulations that eliminate or minimize new sources of stormwater runoff in to the estuary be performed. For example, a review of the East Hampton Harbor Protection Overlay District (HPOD) legislation and the results of its implementation would be a good starting point. If effective, the PEP should encourage the adoption of similar regulations in other East End towns and villages to eliminate or minimize new sources of stormwater runoff. The PEP should also recommend controlling the impacts of waterfront development through a prohibition on all new non-water-dependent commercial development.
- Construction sites of all types and sizes can be significant sources of pollutants to stormwater runoff because the natural vegetation and land forms which would normally slow and absorb runoff have been removed. The Clean Water Act requires stormwater permits for construction activities on sites over 5 acres. These permits contain a requirement for the permittee to develop a sediment and erosion control plan for the project. Developing official guidelines for sediment and erosion control plans would ensure that construction sites of all sizes would have access to information about appropriate BMPs for controlling runoff into the Peconic Estuary. These guidelines should be incorporated into recommendations for stormwater plans required for general stormwater permits or they could be required by town planning boards for incorporation into site plans. State Building Codes should also be expanded to include provisions for sediment and erosion control measures.
- One way to reduce pathogen loadings to the estuary system is to remediate stormwater runoff. A number of projects aimed at minimizing or treating stormwater runoff have been implemented throughout the Peconics, but their overall effectiveness needs to be evaluated before the technologies are fully endorsed for other locations in the estuary. It is also recommended that information on ongoing, successful stormwater remediation projects is shared among the NYS DOT, Suffolk County Department of Public Works, and towns and villages in a timely fashion. Monitoring support following the implementation of management actions, providing ambient coliform loading data, helping to evaluate sources of coliform bacteria, and assessing localized impacts of runoff, particularly on shellfish beds and bathing beaches, is also recommended.
- Develop a “Regional Stormwater Management Plan” to evaluate and recommend technologies to remediate stormwater runoff in the Peconic Estuary.
- Wastewater treatment for most of the residences, businesses, and institutions in the watershed of the Peconics is serviced by onsite disposal systems (OSDS), e.g., septic tanks or cesspools. In some areas, these systems are decades old and have not been properly maintained. Systems that have not had the solids pumped regularly and whose leaching fields have been compromised by



clogging may eventually release inadequately filtered fluids that contain high concentrations of pathogens. Once released to the surface, these fluids can be carried into the estuary via stormwater. Since identifying these failing systems requires cooperation of individual homeowners (e.g., dye testing), it is recommended that inspection and repair/replacement of OSDS under certain circumstances be mandated. PEP recommends that we follow the State of Massachusetts approach to managing OSDS for inspections. PEP should also provide a means to obtain funding for repairing and upgrading OSDS for failing systems. Another potential alternative is to investigate the need for and feasibility of establishing an OSDS (septic system) district(s) to provide homeowners access to low-interest loans available through the State Revolving Fund to repair and upgrade malfunctioning OSDS.

- One of the ways to reduce the potential for pathogen loadings in marina and mooring areas from human sewage is to minimize boater discharges. Boats on which people stay for extended periods of time represent a particular concern because of the amount of waste generated on these vessels. There is currently legislation that requires that marinas that dock houseboats/barges have a functioning pumpout station. This law needs to be rigorously enforced. The use of shoreside restrooms and the use of Type III marine sanitation devices (MSD) on boats (which have holding tanks), combined with pumpout facilities at marinas, would minimize the potential for release of pathogens into the water through untreated wastes and wastes from boats with Types I and II marine sanitation devices. The Federal Clean Vessel Act (CVA) provides money to the states to develop a plan for siting and constructing pumpout facilities at docks and marinas in an effort to reduce the potential contamination of coastal waters with human sewage from boats. The Act also provides grant money to be administered by the states for subsidizing the construction of these facilities once the need has been identified at specific sites. All funds from the CVA have currently been obligated; it is not anticipated that additional funding will be available through this legislation. Therefore, PEP recommends that other sources of funds be identified and allocated to provide boaters with more pumpout facilities. It is also recommended that in general, PEP promote the use of shore-based toilets, holding tanks on boats, and pumpout stations, especially in areas of heavy boat traffic or environmentally sensitive areas. Marinas should encourage their patrons to use shore toilet facilities when berthed at a dock, particularly if they remain overnight.
- Through the Clean Water Act, water bodies may be designated as "Vessel Waste No Discharge Areas." The discharge of untreated vessel waste is prohibited within the three-mile jurisdiction of State coastal waters and navigably connected waters. However, treated waste from approved Marine Sanitation Devices (MSDs) can be discharged in these waters. Within No Discharge Areas, vessels are prohibited from discharging both treated and untreated waste into surface waters. Since such a program may lead to localized reductions in pathogens it is recommended that the Peconic Estuary Program develop an agreement on the Peconics for a No Discharge Area.
- PEP recommends using administrative and regulatory measures to control pollution from boaters and marinas and promote the use of best management practices to control pathogen loadings from marinas and boatyards.
- Disinfection of effluent from sewage treatment plants is essential to prevent the spread of disease. Disinfection can be accomplished by a variety of methods, all of which have been proven effective under specific conditions. There are concerns about the use of chlorine as a disinfectant because chlorine may not effectively eliminate certain viruses from effluent. In addition, chlorine may have toxic effects on living organisms when it becomes complexed in seawater with organic compounds. Therefore, PEP should ensure adequate disinfection at sewage treatment plants and encourage all sewage treatment plants to use ultraviolet disinfection.



- An important step in reducing pathogens in the estuary is to identify their sources. Therefore, it is recommended that PEP identify and assess the major nonpoint source and stormwater inputs and quantify loadings of pathogens to local harbors in the Peconic Estuary System. Since high coliform counts have also been observed in relatively undeveloped embayments, it is further recommended that PEP seek funds to develop a DNA “library” of coliform bacteria isolated from feces of animals, including humans. This knowledge can potentially be used to identify loading pathways and, thus, the means by which to remediate those loadings. Additionally, PEP should perform land cover analyses for the study area that can be used to determine stormwater runoff loadings. This analysis should include tabulation and mapping of existing land cover types and analysis of land cover changes over time. Finally, nonpoint source control plans for specific embayments for each nonpoint source category associated with potential pathogen contamination (such as stormwater runoff, onsite disposal systems, and marinas/boating) through the “Regional Stormwater Management Plan” and sub-watershed management pilot projects for each Town should be developed.
- PEP should identify projects in the Peconic Estuary watershed that are fundable under the Transportation Efficiency Act and NYSDOT capital budget that will improve water quality by preventing or remediating road runoff, as well as those that may be fundable under New York Clean Water/Clean Air Bond Act.
- It is recommended that the water quality sampling programs run by the NYSDEC Shellfish Sanitation Program and the SCDHS Bureau of Marine Resources for monitoring pathogens in shellfish beds and public beaches be fully maintained and expanded where necessary. In addition to sampling for coliforms, monitoring for *Pfiesteria piscicida* and paralytic shellfish poisoning organisms should be funded for the Peconic Estuary.



Critical Lands Protection Strategy

Description of Regulatory/Institutional Framework

Federal Agencies and Programs

United States Fish and Wildlife Service

Through the Division of Habitat Conservation, the U.S. Fish and Wildlife Service (USFWS) works to conserve coastal resources. The Division's Coastal Program works in partnership with Federal, state, and local governments, and private organizations and individuals to conserve fish, wildlife, and their habitats in the coastal areas. The Coastal Program implements on-the-ground restoration in high-priority estuarine and coastal watersheds around the country.

The USFWS National Coastal Wetlands Conservation Grant Program was established in 1990 by the Coastal Wetlands Planning, Protection, and Restoration Act. Through this program, which complements the Service's other coastal conservation efforts, matching grants are provided to coastal states for the acquisition, restoration, or enhancement of coastal wetlands. Grant funds for the program are derived from excise taxes on motorboat and small engine fuels and certain fishing equipment. About \$10 million in grants are awarded annually through a nationwide competitive process based on ranking factors developed by the Service. The program's emphasis on encouraging partnerships, supporting watershed planning, and leveraging ongoing projects ensures that the use of limited funds results in maximum benefits.

National Park Service

There are many programs within the National Park Service which protect critical lands. The Land and Water Conservation Fund, one such program, provides a system for funding Federal, state and local parks and conservation areas. It gives states and localities incentives to plan and invest in their own park systems.

Farmland Protection Policy Act

This act was created to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses, and to ensure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with state and local governments as well as private programs and policies, to protect farmland. If any projects in the CCMP would convert significant agricultural land to non-agricultural uses, consultation with the USDA – Natural Resources Conservation Service may be necessary.

State Agencies and Programs

New York State Open Space Conservation Plan

Released in 1998 by the New York State's Department of Environmental Conservation and the Office of State Parks, Recreation, and Historic Preservation, this is the current State-wide plan for open space acquisition and protection. The plan identifies sites that are priorities for protection and preservation of farmland, historic and archaeological resources, water quality, natural and scenic environments, and open space/recreational opportunities. This plan was updated in the summer of 2000.



New York's Clean Water State Revolving Fund (CWSRF)

This fund provides low-interest rate loans to municipalities to carry out projects that reduce or prevent water pollution. As the loans are repaid, money is available to be used again for new loans. The CWSRF program, in existence since 1990, has made over \$4.3 billion in loans. The CWSRF program funds projects involving construction of wastewater treatment facilities that reduce or prevent point source water pollution. Projects that reduce nonpoint source pollution are also eligible for CWSRF financing. Such projects include restoration of riparian vegetation, wetlands and other water bodies; land purchase or conservation easements for water quality protection such as for wellheads or watersheds; and certain USEPA designated estuaries projects, such as aquatic habitat restoration and protection.

New York State Environmental Protection Fund

This fund provides approximately \$30 million per year for open space preservation. It is funded primarily through real estate transfer taxes. Decisions regarding the use of these funds are made according to the New York State Open Space Conservation Plan.

New York State Clean Water/Clean Air Bond Act

This Bond Act provides \$150 million for State Open Space conservation projects undertaken by either the NYS Department of Environmental Conservation or Office of Parks, Recreation, and Historic Preservation and farmland preservation projects administered by the Department of Agriculture and Markets. An additional \$50 million is dedicated to municipal parks and historic preservation projects administered through Office of Parks, Recreation, and Historic Preservation; this also includes funds for land acquisition.

Regional Level

Peconic Land Trust

The Peconic Land Trust works with landowners to protect eastern Long Island's scenic vistas, water quality and productive farmland. The Trust assists landowners with the available options for land conservation, including an outright donation of land to a blend of conservation measures including the sale of appropriate portions or the development rights on the property.

The Nature Conservancy

The mission of The Nature Conservancy is to preserve plants, animals and natural communities by protecting the lands and waters they need to survive. The Conservancy has protected more than 11 million acres of habitat in the United States and nearly 60 million acres in Canada, Latin America, the Caribbean, Asia and the Pacific.

Local Level

Suffolk County Farmland Preservation Program

This program, the first of its kind in the United States, was created in 1977 for the purpose of acquiring development rights to working farms. The easement acquired eliminates all development rights other than those necessary for agricultural production, and establishes oversight and approval of new farm structures with the County Farmland Committee. Since the inception of the program, approximately \$40 million in general obligation bonds have been spent by Suffolk County to preserve 7,000 acres of farmland.



Suffolk County Open Space Program

This program was created in 1986 and funded through general obligation bonds initially at \$60 million. Subsequent appropriations have raised expenditures to \$84 million. Approximately 5,000 acres have been acquired by the County to date. It is designed to acquire lands under development pressure that cannot be clustered, rezoned, or partially developed. Lands acquired are managed generally as passive open space.

Suffolk County Drinking Water Protection Program

This program is funded with one-quarter cent of the sales tax, which has been generating approximately \$35 million annually depending on the economy. The County has acquired 12,000 acres, mostly in the Pine Barrens. Since the inception of the program in 1987, over \$220 million has been spent on acquisitions. The program expires in 2001. The program has three components:

12.5.A requires that acquisitions must relate directly to drinking water supply anywhere in Suffolk County, generally in one of the Special Groundwater Protection Areas (SGPAs). There are seven designated SGPAs within the deep aquifer recharge areas of Suffolk County. The bulk of the money continues to pay for debt service on acquisitions made in the 1989-91 time frame.

12.5.D is a revenue sharing component based on population and is set aside by each town. The towns can elect to spend all or a portion on landfill costs, but Brookhaven and the five eastern towns are still requesting their yearly shares be spent on land acquisition.

12.5.E is the residuary or leftover, which voters in 1996 mandated be spent totally for land acquisition. It is divided into two segments: one-third goes to the four western towns and Shelter Island on a population basis and can be spent to acquire any properties which are authorized by the County Legislature; two-thirds goes to the other, or so-called Pine Barrens towns, on an undifferentiated basis to be spent on Drinking Water-related parcels.

Suffolk County Community Greenways Program

Authorized by referendum in 1998, this program is funded at \$62 million. In 1999, the County Legislature authorized the Open Space component (\$20 million) principally for drinking water protection parcels, stream tributaries, greenbelt, and habitat enhancement, which comprises about 1000 acres scattered throughout Suffolk County. Parcels have been targeted for acquisition and negotiations are proceeding. Individual authorizations are also proceeding for lands to be used for Active Recreation (\$20 million available), where the County buys the land and a town, village or community group is required to design, build and maintain the recreation improvements. Golf courses are specifically excluded. In early 2000, the Legislature will authorize the Farmland component (\$20 million), for the purchase of development rights to active farms anywhere in the County, provided another level of government commits to 30% of the cost of acquisition. This program should be able to preserve another 2000 acres of farms. Two million dollars are set aside for the construction of a natural history interpretive center.

Suffolk County Land Preservation Partnership

This funding program from general obligation bonds calls for the acquisition of land for various purposes, not including active recreation, in partnership with a town or village primarily. All associated costs are split 50-50, and the land can be divided or held in common ownership as the partners choose. Development rights and conservation easements can also be acquired under this program, funded thus far at approximately \$9 million in County dollars.



Suffolk County Sales Tax Extension Program

This program, authorized by referendum in 1999, will extend the sales tax starting in 2001 and ending in 2013. The program will be funded annually depending on the economy and sales tax revenues. It is broken into the following five separate and dedicated accounts:

- **Sewer rate relief** (projected total \$300 million)
- **Tax relief** (projected total \$270 million)
- **Farmland** for the continued purchase of development rights (projected total \$62 million)
- **Drinking Water and Open Space** for land acquisitions, including the Peconic Estuary and the South Shore Estuary Reserve (projected total \$114 million)
- **Water Quality** to fund wetland cleanups and rehabilitation, stormwater runoff cleanups, demonstration projects, and other environmental improvements (projected total \$95 million)

Review of Tax Lien Properties for Environmental Value

The Suffolk County Planning Department reviews all tax lien parcels for environmental evaluation after the redemption period has expired to determine if the County should retain these parcels for open space/park/municipal purposes or sell them at auction. This procedure was first initiated by Suffolk County nearly 15 years ago. In 1999 alone, Suffolk County transferred over 350 acres into its Department of Parks, Recreation and Conservation.

Additional information on Suffolk County's open space programs can be obtained over the Internet on the Suffolk County Planning Department homepage at http://www.co.suffolk.ny.us/planning/acq_progs.html.

Town Community Preservation Fund Project Plans

In November 1998, the voters of the five East End Towns approved a referendum that added a 2 % tax to certain real estate transfers in their communities. Revenues generated by the tax go into a Community Preservation Fund in the Town in which the transaction occurred for the purpose of protection and acquisition of open space and historic properties. In each of the Town's Community Preservation Fund Project Plans, parcels have been identified for protection through fee simple acquisition or other means such as conservation easements.

When the program was conceived, it was estimated the transfer tax would generate approximately \$10 million annually until the year 2010 when the program either expires or is renewed. After the first several months of tax receipts, it appears that \$10 million may be an underestimate of the potential in this program. For instance, transfer taxes in the Town of Southampton in January, 2000 were close to \$2 million.

Evaluation of Effectiveness

Although there are many agencies and organizations acting on behalf of land protection and, at a quick glance, there seems to be enough money for land protection available, land values are high and escalating, the population of eastern Suffolk County continues to grow and the demands for the existing funds are great. Land protection measures would be more effective with increased funding and a focused list of land protection priorities.



Recommendations for Improvements

The PEP recommends that a Critical Lands Protection Plan be developed which will prioritize the land available for development in the Peconic Study Area “through the lens” of habitat and water quality protection. This Plan will also estimate the funds and funding sources needed for this protection.



Toxics

Description of the Regulatory/Institutional Framework

Federal Laws, Agencies and Programs

Clean Water Act

Please see Clean Water Act description in the Nutrients section.

Clean Vessel Act

Please see Clean Vessel Act description in the Pathogens section.

Clean Air Act

The Federal Clean Air Act's primary mechanism for achieving clean air is through State Air Quality Implementation Plans. These plans encompass many different elements, including regulations limiting emissions from small and large stationary sources, both new and existing, and strategies dealing with emissions from mobile sources such as vehicle inspection programs. EPA's primary responsibilities are to assist and oversee the development of these plans, and once in place, to ensure their implementation. Because of the large number of responsibilities delegated to the states, Section 105 of the Act established a mechanism to fund a portion of these activities. These resources are used to fund both the base programs run by the states and special outputs which are specified by EPA. The special outputs are negotiated with the states and are in accordance with national objectives. The use of these funds and the accomplishment of specific objectives contained in the grants are closely tracked by EPA.

A special category of air emissions is made up of airborne toxic compounds. EPA is developing a national program to implement the air toxics portion of the Clean Air Act and emissions are expected to be reduced over the course of a 10-year period as controls for various categories of sources are developed. In addition, the Clean Air Act establishes National Emission Standards for Hazardous Air Pollutants (NESHAPs) under Section 112 of the Act, and EPA provides technical and financial support to state agencies for the development and implementation of air toxics programs. EPA has established emissions standards for 7 pollutants, including mercury, and another 189 hazardous air pollutants will be regulated under the 1990 Clean Air Act Amendments.

Resource Conservation and Recovery Act (RCRA)

This Federal statute was enacted in 1976 to ensure the proper management and disposal of hazardous and non-hazardous solid wastes and treatment, storage, and disposal facilities. In 1984, the Hazardous and Solid Waste Amendments (HSWA) were authorized by Congress to strengthen RCRA. The 1984 Amendments require an applicant to:

- I. construct land disposal facilities in accordance with Minimum Technology Requirements, such as double liners and leachate collection and detection systems;
- II. construct and operate treatment and storage tanks in accordance with the Federal regulation promulgated July 14, 1986 which mandated secondary containment;
- III. identify and address any contamination at all solid waste management units; and
- IV. certify to waste minimization.



The HSWA permit also requires the applicant to initiate a corrective action program to address any environmental releases of hazardous waste or constituents at solid waste management units. A corrective action program consists of:

- I. RCRA Facility Assessments to identify releases or potential releases requiring further investigation;
- II. Interim Corrective Measures to take immediate action in response to releases;
- III. RCRA Facility Investigations to fully characterize the extent of releases;
- IV. Corrective Measure Studies to determine the need for and extent of remedial measures. This step includes the selection and implementation of appropriate remedies for all problems identified.

These 4 activities ensure that a facility will adequately identify all contamination and provide corrective action as necessary to protect human health and the environment.

The current Federal Solid Waste Management Program is an outgrowth of the Resource Conservation and Recovery Act of 1976. The Hazardous and Solid Waste Amendments of 1984 and the Municipal Solid Waste Task Force within EPA have guided Federal solid waste program development. In February 1989 a final report of the Task Force, entitled "The Solid Waste Dilemma: An Agenda for Action," set forth the current Federal initiatives in solid waste management.

Comprehensive Environmental Response, Compensation and Liability Act ("Superfund")

"Superfund" was established in December 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC 1901 et seq.). The purpose of this program is to provide funding for the cleanup of sites contaminated with hazardous wastes. The Act authorized EPA to provide long-term remedies at hazardous waste sites, and established a \$1.6 billion fund, raised over 5 years from special industry taxes and general revenues, to finance remedial activities. In 1986, Congress reauthorized Superfund by enacting the Superfund Amendments and Reauthorization Act (SARA), increasing the fund to \$8.5 billion and strengthening the remedial process.

The sites eligible for receiving Superfund monies are listed on the National Priorities List (NPL), which is used by EPA to set priorities for cleanup of the sites. A priority site can be remediated in several ways:

- I. The responsible parties, i.e., site owners and operators as well as generators and transporters, can remediate it voluntarily;
- II. The responsible parties can be forced to remediate it by legal and administrative actions; or
- III. Superfund monies can be used to finance the remedial action. If there is difficulty in getting the responsible parties to act, EPA will proceed under Superfund and will seek recovery of costs through legal action at a later date.

National Oil and Hazardous Substance Pollution Contingency Plan

Prevention and cleanup of oil and hazardous substance spills are the focus of Federal programs administered by the U.S. Coast Guard and EPA. The National Oil and Hazardous Substance Pollution Contingency Plan was developed pursuant to the provisions of Section 311(c)(2) of the Clean Water Act of 1972 as amended. The National Plan is also required by Section 105 of the Superfund Act.



The National Plan calls for the establishment of a nationwide network of regional contingency plans. The purpose of these local contingency plans is to provide for a coordinated and integrated response by the concerned Federal, state, and local agencies in the event of a spill. The plans provide for the standardization of procedure and policy among agencies, and encourage the development of capabilities by both local governments and private interests to handle and prevent pollution discharges.

Additionally, Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) requires state and local level emergency planning efforts. SARA requires industries to notify local governments of potential chemical hazards present in the community.

Pollution Prevention

Pollution prevention has become a key notion for environmental progress in the last decade. Pollution prevention is a multi-media approach with its primary goal being the avoidance of waste and pollution generation, followed by source reduction and environmentally sound recycling. The ultimate goal is to avoid shifting pollutants from one media to another by reducing the need for treatment. EPA has 4 strategic objectives by which the pollution prevention goal can be met:

- Develop a multi-media approach;
- Support regional, state, and local multi-media prevention programs;
- Build consensus for a National Agenda on Prevention; and,
- Establish data strategy to develop indicators, evaluate progress, and target opportunities.

The Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act (CZMA) of 1972 established a national policy to preserve, protect, develop, and where possible, to restore or enhance, the nation's coastal zone. The Act also encouraged the states to exercise their responsibilities in the coastal zone through the development and implementation of management programs, the preparation of special area management plans, and the participation and cooperation of the public, local and state governments, interstate and regional agencies, and Federal agencies in programs affecting the coastal zone. The U.S. Department of Commerce is the Federal lead agency charged with the responsibility of implementing the Act; however, the Act provides that the objectives of the law are to be achieved through the development and administration of approved state coastal management programs. The Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) augmented the original Act by authorizing Federal matching grants for assisting coastal states in developing management programs for the land and water resources of their coastal zones, particularly for nonpoint source pollution control.

Like their state counterparts, Federal agencies operate a number of programs that affect the wise use and protection of coastal resources. The CZMA, as amended, requires the actions of Federal agencies to be consistent with the policies of a state's Coastal Management Plan (CMP). Federally conducted or supported activities (including development projects), activities requiring Federal licenses or permits, Federal financial assistance to state and local governments, and exploration, development, and production activities on the Outer Continental Shelf which require a Federal license or permit are all subject to CZMA requirements and must be consistent with the New York CMP.

To ensure that Federal agencies comply with the CZMA provisions, the U.S. Department of Commerce adopted regulations (15 CFR Part 930) which established procedures for the Federal consistency process. These regulations set up separate review procedures for each of the above-mentioned items.



Coastal Zone Act Reauthorization Amendments of 1990

The 1990 amendments to the Coastal Zone Management Act (CZMA) require that each state develop a nonpoint source pollution control program. Please refer to the Pathogens section for more information on the Coastal Zone Act Reauthorization Amendments of 1990.

Pesticides are a primary agricultural nonpoint source pollutant. The NPS Management Measure for states to follow under CZARA is:

- To reduce the contamination of surface water and ground water due to the application of pesticides;
- Evaluate pest problems, previous pest control measures, and cropping history;
- Evaluate the leaching potential at the site. Take steps to prevent further contamination if needed;
- Use integrated pest management (IPM) strategies (apply pesticides only when an economic benefit to the producer will be achieved and apply pesticides efficiently and at times when runoff losses are unlikely);
- When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;
- Calibrate pesticide spray equipment; and
- Use anti-backflow devices.

The practices and concepts that can be used to implement this measure on a given site are those commonly used by states and the U.S. Department of Agriculture (USDA) for general use on agricultural lands. When this measure is implemented by using the necessary mix of practices for a given site, there should be a relatively small negative economic impact on the operator's net costs and farm income, and in some cases the impact will be positive. Many of the practices that can be used to implement this measure may already be required by Federal, State, or local rules, or may otherwise be in use on agricultural fields. Since many producers may already be using systems that satisfy or partly satisfy the intent of this management measure, the only action that may be necessary will be to determine the effectiveness of the existing practices and implement additional practices, if needed. Use of existing practices will reduce the time, effort, and cost of implementing this measure.

Other nonpoint sources of toxics addressed under CZARA include: road, highway and bridge construction sites, operation and maintenance, and runoff systems; general construction sites, onsite disposal systems; pesticide and toxic substance uses in developed areas; and marinas and recreational boating.

Toxic Substances Control Act

The Toxic Substances Control Act institutes comprehensive procedures for the testing and control of chemicals believed to present unreasonable risks and injuries to human health and the environment. This includes: assisting states in developing and maintaining toxic substances enforcement programs; sponsoring cooperative surveillance, monitoring and analytical procedures; encouraging regulatory activities within the states; and supporting and promoting the coordination of research projects relating to the effects, extent, prevention and control of toxic chemical substances or mixtures. Under the Toxic Substances Control Act and FIFRA (see Federal Insecticide, Fungicide, and Rodenticide Act, below), the sale, use or distribution of certain toxic substances has been banned or reduced.

Federal Insecticide, Fungicide, and Rodenticide Act



The Federal Insecticide, Fungicide, and Rodenticide Act supports and promotes the coordination of research projects relating to human and ecological effects from pesticides, pesticide degradation products and alternatives to pesticides. FIFRA authorizes EPA to control pesticides that may threaten ground water and surface water. FIFRA provides for registration of pesticides and enforceable label requirements, which may include maximum rates of application, restrictions on use practices, and classification of pesticides as "restricted use" pesticides (which limits use to certified applicators trained to handle toxic chemicals). This Act also provides for assisting states in developing and maintaining comprehensive pesticide enforcement programs; sponsoring cooperative surveillance monitoring and analytical procedures; and encouraging regulatory activities within the states. Under FIFRA and TSCA (see Toxic Substances Control Act, above) the sale, use or distribution of certain toxic substances has been banned or reduced.

Organotin Antifouling Paint Control Act of 1988

The Organotin Antifouling Paint Control Act of 1988 prohibits the use of bottom paint containing tributyltin on vessels less than 82 feet long in order to control toxic substances in the water to help protect fish and other aquatic life.

Environmental Quality Incentives Program (EQIP) under the 1995 Federal Farm Bill

Financial incentives for voluntary compliance by private growers with the CZARA pesticide management measure and for Integrated Pest Management (IPM) strategies may be available through the 1995 Federal Farm Bill's Environmental Quality Incentives Program (EQIP). The Suffolk County Office of the United States Department of Agriculture (USDA)-Natural Resources Conservation Service (NRCS) would need to be involved in the preparation of any EQIP proposal.

Safe Drinking Water Act

The Safe Drinking Water Act, as amended, in addition to establishing tap water criteria and ensuring the safety of public water supplies, contains other provisions to protect groundwater and sets controls on the injection of fluids into underground sources of drinking water. This Act also includes the wellhead protection program, Sole Source Aquifer Program, and source water protection program.

The National Environmental Policy Act

The National Environmental Policy Act (NEPA), (42 U.S.C. 4321 et seq.), was signed into law on January 1, 1970. The Act established national environmental policy and goals for the protection, maintenance, and enhancement of the environment, provided a process for implementing these goals within the Federal agencies, and established the Council on Environmental Quality (CEQ) to oversee Federal implementation of NEPA.

NEPA contains a Declaration of National Environmental Policy which requires the Federal government to use all practicable means to create and maintain conditions under which people and nature can exist in productive harmony. NEPA also requires Federal agencies to incorporate environmental considerations into their planning and decision-making through a systematic interdisciplinary approach. Specifically, all Federal agencies are to prepare detailed statements assessing the environmental impact of, and alternatives to, major Federal actions significantly affecting the environment. These statements are commonly referred to as Environmental Impact Statements (EISs). Federal agencies are also required to lend appropriate support to initiatives and programs designed to anticipate and prevent a decline in the quality of human living and the world environment.



National Oceanic and Atmospheric Administration (NOAA)

The U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) has specified "Effects Range" values for toxics in sediments to indicate contaminant concentrations at which bottom dwelling organisms may be adversely affected, and as an indicator of overall ecosystem health. While these NOAA Effects Range values are not sediment quality criteria for regulatory purposes, they provide a benchmark for evaluating sediment contaminant measurements.

The two NOAA guideline values, ER-L (effects range-low) and ER-M (effects range-median) delineate three concentration ranges for a particular chemical. The concentrations below the ER-L value represent a minimal effects range, a range intended to estimate conditions in which effects would be rarely observed. Concentrations equal to and above the ER-L, but below the ER-M, represent a possible effects range within which effects would frequently occur. At concentrations equal to and above the ER-M, contaminant-induced effects are likely. (See Long, et al, 1996)

NOAA Mussel Watch Program

NOAA created the National Status and Trends (NS&T) Program in 1984 to address national concerns over the quality of the coastal marine environment, including chemical contamination. The Mussel Watch portion of the NS&T program was formed in 1986 to measure concentrations of a broad suite of trace metals and organic chemicals in surface sediments and the whole soft parts of mussels and oysters.

The U.S. Food and Drug Administration

The U.S. Food and Drug Administration (FDA), the lead Federal agency responsible for risk management of foods in interstate commerce, has set levels for contaminants which, when exceeded in fish and shellfish tissues, can prevent these products from entering the marketplace. (State and local agencies are responsible for protecting consumers of local fisheries products. State-issued consumption advisories for chemicals in sportfish and game are based on FDA levels and other factors.)

Presidential Memorandum on “Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds”

A Presidential Memorandum of April 26, 1996 addresses “Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds” which is to be followed by all executive departments and agencies.

State Laws, Agencies and Programs

Among the state agencies having authority and directly involved in coastal affairs and toxic substance management are the New York State Department of Environmental Conservation, the New York State Department of State, and the New York State Department of Health. The DEC has the principal responsibilities for the management and protection of environmental quality and the natural resources of the coastal zone. The DOS is the lead agency in New York for coastal zone management activities and also conducts a program of planning assistance to local communities. The DOH has responsibilities including protecting humans from toxic substances in drinking water and sportfish.

New York State Department of Environmental Conservation (DEC)

The DEC, in planning, developing and managing the state’s water resources undertakes studies for the protection, conservation and development of state waters and establishing standards for quality and uses, permitting of wastewater discharges, and the control of dredging and filling of navigable waters.



The Division of Solid and Hazardous Materials regulates and monitors hazardous waste facilities and transporters, encourages waste reduction and proper disposal of household hazardous waste and regulates the use of pesticides. The Division requires hazardous waste generators and facilities treating the waste to submit waste reduction plans that must be approved by the Department.

State Pesticide Use Program

Under the Pesticide Use Program, NYSDEC regulates the sale and use of restricted and general use pesticides in order to prevent the unsafe or excessive application of pesticides. This program is implemented through certification of pesticide applicators and backed up by examinations to ensure that only knowledgeable, qualified people are permitted to handle and apply these chemicals. A certification required by commercial applicators if they handle and apply restricted or general use pesticides, and by private applicators (e.g., farmers) if they plan to use a restricted use pesticide. It has been estimated that 50% of the commercial pesticide applicators on Long Island may be operating without the required approvals. While pesticides have not been identified as impairing water quality or living resources, the potential for misuse or unintended off-site impacts exists, particularly from uncertified applicators.

Freshwater Wetlands Law

The State's Freshwater Protection Law prohibits the use of pesticides and herbicides on or in the vicinity of wetlands and associated waterbodies. However, many residents may be unaware of this law.

The Division of Hazardous Waste Remediation is responsible for the superfund program that involves regulation of inactive hazardous waste sites.

The Division of Water is charged with maintaining water quality in all of the state's waterbodies and managing water resources.

The Division is the lead for establishing water quality standards, regulates wastewater treatment and associated discharges, monitors water quality, oversees the state's nonpoint source management program, and protects groundwater aquifers.

The New York State Water Quality Standards classify waters in the state according to their best usage and specify chemical specific numeric criteria. In addition to specific chemicals in the State Water Quality Standards, a NYSDEC Technical and Operational Guidance Series document establishes guidance values for additional substances.

The New York State Pollutant Discharge Elimination System (SPDES) was established by the New York Environmental Conservation Law and regulates discharges to the land, groundwater, and surface waters of the state. Such discharges include effluent from: public and private sewage treatment plants; industrial discharges; land application of sludge, septage, and industrial wastes; discharges into municipal wastewater treatment plants which are regulated under the industrial pretreatment program; and underground injection. This program was delegated to New York under the CWA, through which the state assumed the permitting functions of the National Pollutant Discharge Elimination System.

State Pollutant Discharge Elimination System program permits are written to ensure that these discharges do not cause or contribute to the violation of ambient water quality standards. Under Phase I of the SPDES stormwater program, permits are required to be issued for municipal separate



storm sewer systems serving large or medium-sized populations (greater than 250,000 or 100,000 people, respectively), and for stormwater discharges to surface waters associated with industrial activity, including certain types of marinas. At the present time, nine establishments in the Peconic Estuary Program Study Area have been issued SPDES stormwater general permits.

Permits also are issued on a case-by-case basis if the U.S. Environmental Protection Agency (USEPA) or the State determines that a stormwater discharge to surface water contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. No permits of this type have been issued, to date, in the Peconic Estuary Study Area.

Discharges to ground waters include sanitary wastes from residences and commercial establishments and non-contact cooling waters. There are no permitted discharges of wastewater from industrial activities to groundwater in the Peconic Estuary Study Area (aside from a permit at Brookhaven National Laboratory [BNL]). Businesses, which generate wastewater containing toxic substances, dispose of such wastewater by containing the limited volumes on-site, and then removing them by approved hazardous waste handlers/transporters for treatment off-site. This method is often referred to as "hold and haul".

A marina is required to obtain a SPDES stormwater discharge permit if vehicle maintenance activities, such as vehicle (boat) rehabilitation, mechanical repairs, painting, fueling, and lubrication or equipment cleaning operations are conducted at the marina. SPDES permits apply only to the point source discharges of stormwater from maintenance areas at the marinas.

Marinas not involved in equipment cleaning or vehicle maintenance activities are not covered under the SPDES stormwater program. Likewise, a marina that has no point source discharges of stormwater is not regulated under the SPDES stormwater program, regardless of its classification and the types of activities conducted. In addition, some marinas are marine service stations that are not regulated under the SPDES stormwater program. These types of marinas are primarily in the business of selling fuel without vehicle maintenance or equipment cleaning operations.

Sewage treatment plant (STP) effluents are subject to disinfection to limit the discharge of pathogens. The most common method of disinfection is chlorination. Chlorinated discharges to surface waters are of concern because, in systems like the Peconics which contain high levels of organic matter, chlorinated compounds can be formed which, although short lived, can be quite toxic to aquatic organisms. The complexity of the reactions of chlorine in the environment increases the difficulty of assessing its impact. Increased attention is being given to addressing the possible need to limit all uses of chlorine as a means of reducing the input of chlorinated compounds into the environment.

The water quality certification program is authorized by the New York Environmental Conservation Law and the CWA Amendments of 1977 (33 U.S.C.1251, Section 401). All projects requiring Federal permits for the discharge of dredged or fill material into state waters or wetlands also require a State Water Quality Certification. The purpose of this certification is to insure that all such activities are consistent with New York State water quality standards and management policies.

The **Division of Fish, Wildlife and Marine Resources** protects promotes and provides for the use of fish and wildlife resources by maintaining and protecting the resources and their habitats, including managing the living marine resources of the state. This includes assessing environmental impacts on marine resources, administering the tidal wetlands and excavation and fill regulatory programs, coordinating state participation in the National Estuary Programs, recommending standards and classifications for marine waters, certifying shellfish waters for harvesting, administering



shellfish management programs, assessing principal fishery stocks and developing recommendations for effective management of species.

The **Division of Air** controls air pollution by regulating, permitting, and monitoring sources, and developing and implementing strategies to meet the requirements of the Federal Clean Air Act.

The **Division of Regulatory Affairs** coordinates permit reviews, assesses environmental impacts of proposed projects, reviews regulations and issues permits. The Division also administers the State Environmental Quality Review Act which requires all levels of government (state and local) to assess the environmental significance of actions which they have discretion to approve, fund, or directly undertake.

The **Division of Construction Management** approves and manages engineering plans and construction activities for sewage treatment plants in the state.

The **Bureau of Spill Response** controls petroleum and chemical bulk storage and responds to spills.

New York State law includes provisions for preventing spills of petroleum. These provisions require all facilities with a minimum capacity of 1,100 gallons to be registered, set forth standards for the handling and storage of petroleum, and set forth standards for new and substantially modified underground and aboveground storage facilities. Owners and operators must notify NYSDEC of any spills. Another State program addresses the requirements for the bulk storage of other hazardous substances, including the registration of storage tanks, spill reporting procedures and specifications for the sale and delivery of such substances.

New York State Department of State Coastal Management Program

In New York State the Department of State administers the Coastal Management Program (CMP). The CMP provides for the preservation, protection, development and use of the state's coastal and inland waterways. The program has many aspects: policies covering land use planning, development of recreation, commercial, and industrial water dependent properties, maintenance of fish and wildlife habitats, stabilization of beaches and dunes, and waste discharge from vessels and on-shore facilities. The CMP's jurisdiction extends from the limit of the state's territorial waters to a line generally 500 to 1000 feet inland.

The CMP requires reviews of projects having some form of Federal involvement in coastal areas for consistency with local, state, and Federal environmental statutes and programs. The CMP provides technical and financial assistance to local municipalities to prepare Local Waterfront Revitalization Plans. These plans promote revitalization of coastal areas while protecting their integrity.

Existing state programs and requirements (including those under the State Navigation Law) are in place to address: pollution from boat cleaning at marinas; liquid material disposal at marinas; solid waste disposal at marinas; and petroleum control at marinas.

New York State Department of Health

The Department of Health enforces compliance with the Public Health Law and the State Sanitary Code. In the area of water resources, the Department establishes drinking water quality standards and establishes regulations for the sanitary control of water supplies. The Health Department sets guidance for seafood and wildlife consumption to protect human health. The Department also assists DEC in developing water and air human health standards and in overseeing public health interests for the inspection and remediation of inactive hazardous waste sites.



Fish, Shellfish and Wildlife Consumption Advisories

The State routinely monitors contaminant levels in fish and game and issues advisories on eating sportfish and game because some of these foods contain chemicals at levels that may be harmful to human health. These advisories are updated yearly, and provide information on how to minimize exposure to contaminants and reduce whatever health risks are associated with exposure.

Local Programs and Laws

Suffolk County Sanitary Code

Suffolk County sanitary code requirements (Article 12) are more stringent than state requirements. The County law went into effect in 1980 and addresses all underground and aboveground tanks storing fuels, solvents, and chemicals, virtually anything that could contaminate groundwater or surface water. New underground tanks are required to have secondary containment and be constructed of non-corrodible materials, and must have leak detection and overflow protection systems. All existing facilities had to be brought up to new construction standards by 1990.

The County law exempted existing tanks from the replacement requirement that were under 1100 gallons and used for the storage of heating oil for on-premises use. However, new tanks of this type must be made of non-corrodible materials. The Financing chapter of this CCMP includes several recommendation regarding incentives for private homeowners to address this potential threat to groundwater and surface water.

Organic solvents used as septic system cleaners may hinder effective septic system operation by destroying useful bacteria that aid in the degradation of waste, resulting in disrupted treatment activity and the discharge of contaminants. In addition, since the organic chemicals in the solvents are highly mobile in the soils and toxic (some are suspected carcinogens), they can easily contaminate ground water and surface waters and threaten public health. State and County laws restrict/prohibit the sale and distribution of illegal disposal system products in Nassau and Suffolk counties. This includes deodorizers and drain cleaners as well as cesspool additives. However, sewage system cleaners may still be used by unsuspecting residents.

East Hampton Harbor Protection Overlay District

The Town of East Hampton, recognized that those who own property bordering on the Town's harbors (including flag lots, flag strips, and flag access strips) derive many benefits from proximity to these waters and therefore have a special responsibility to help protect them. The Town has established a Harbor Protection Overlay District (HPOD) whereby all lots in this district are subject to special requirements for maintaining or protecting wildlife habitats, and surface water quality to protect aquatic life. This includes:

- Requiring new parking lots and driveways to have “unimproved” surfaces or be constructed of one or more of the following: poured concrete, hot plant asphalt, rapid curing cut-back asphalt or quartz gravel;
- Requiring that runoff from new paved roads, parking lots and driveways be managed on-site;
- Requiring that fuel tanks be double walled fiberglass if installed below ground or include specified containment provisions if installed elsewhere;
- Requiring that swimming pools: be constructed or installed with a system to reduce the use of chlorine, such as an ozonator, ionizer, or ultra violet disinfectant system; have drywells constructed for evacuation of water from the pool; not be drained anywhere but



to the dry well; and not be cleaned by means of an acid wash unless the acids used are neutralized prior to discharge from the swimming pool, and

- Allowing the use of wood treated with copper chromated arsenate (CCA), ammoniacal copper quat (ACQ), or creosote in tidal waters only when it can be shown that no reasonable alternatives to using these treated woods exists.

Suffolk County Vector Control

The Suffolk County Department of Public Works maintains vector control ditches (mosquito ditches), and typically applies sprays for larval control of mosquitoes. Problem areas are monitored to determine effective treatments. The primary insecticide used is Bti (bacillus thuringiensis var. israelensis); in some areas, methoprene is used.

Local “Stop Throwing Out Pollutants” (STOP) Programs

Each of the towns have STOP (“Stop Throwing Out Pollutants”) or HAZMAT (HAZardous MATerial) Programs, or which include collections for proper disposal of oil, paints, solvents, boat and auto products (antifreeze, polishes, etc.), cleaning chemicals, and lawn and garden chemicals. Some programs have specified collection dates and locations (East Hampton); others collect materials on specific days (Shelter Island (Saturdays), Southold (Tuesdays and Thursdays)).

Construction Site Chemical Waste Disposal

All of the towns have some program or ordinance to address the disposal of chemical waste from construction sites, although they are quite varied. Although Brookhaven and Riverhead require contractors to submit plans for waste disposal at the construction site, they lack sufficient enforcement strength to ensure these plans are being followed. East Hampton has indirect ordinances for this action, but regulations are not uniform and disposal is handled on a case by case basis.

Road, Highway and Bridge Construction and Operation and Maintenance

All towns except Shelter Island have programs or ordinances to address both road construction and maintenance chemical storage and disposal, although they are quite varied. East Hampton and Riverhead have reported success in allocating staff and resources to addressing this potential source of toxics.

Evaluation of Effectiveness

General: In general, most of the agencies and programs described above provide adequate capacity (statutory and regulatory authority, agency functionality, etc.) to support PEP management objectives. A few needs/deficiencies, potentially warranting “new” programs, initiatives, or efforts are recommended.

Monitoring: Many agency programs and resources, when available, are effective and useful. There is a significant amount of data that has been collected since the initiation of the PEP that still needs evaluation.

Regulatory Sites of Concern: Existing Federal/State/local programs are effective at addressing toxic contamination at Superfund sites, other hazardous waste sites, and permitted facilities, including those that discharge to groundwater and surface water. Remedial investigations, feasibility studies, and clean up, in particular are complex and often take significant time to complete. Adequate monitoring and evaluation needs to take place following remedial actions to ensure the remedy is effective. Attention needs to be



paid to permitted facilities that use or discharge toxic substances and enforcement action used when necessary.

Chlorine: Alternatives to chlorine for disinfection at Sewage treatment Plants (STPs) are effective, but not all effluents are suitable for all alternatives. Where chlorine is used, ambient water quality standards for the protection of aquatic life for chlorine need to be attained.

Pesticides: FIFRA is an effective means of banning or restricting the use of pesticides of concern, as is the state mechanism. The state has an effective pesticide certification program for commercial applicators, as well as provisions to eliminate or reduce pesticide use near wetlands. The development/establishment of a Long Island Pesticide Management Plan should be pursued, as should enforceable programs under CZARA. The County's IPM pesticide free golf course initiative is worthwhile, as is the Federal Presidential Memorandum regarding landscaping at Federal installations. Additional demonstrations and cooperative efforts with the agricultural community to reduce or eliminate pesticide use should be pursued. Overall IPM programs need to be developed and implemented, and opportunities to expand markets for organic produce investigated.

Construction Sites, Roads: At present, on State funded projects, there are programs to effectively manage toxic chemical use at construction sites, including road construction, and roadway operation and maintenance. There are also existing statewide pesticide management, spill management, and solid and hazardous waste disposal requirements. In the absence of statewide requirements addressing remaining toxic concerns at these sites, there is a need to pursue local requirements applicable at these sites. Requirements also need to be enforced, and education/outreach efforts with industry/trade groups pursued.

Developed Areas: Public facilities should set the example in terms of conducting and implementing pollution prevention opportunity assessments and environmental management reviews. Stormwater runoff at marinas and boatyards may need further evaluation and management. The Town of East Hampton's Harbor Protection Overlay district is effective at addressing a number of potential sources of toxic substances, including: materials for roads, driveways and parking lot surfaces and management of runoff from these surfaces; fuel storage tanks; swimming pools; treated woods; and other activities. Certain onsite disposal system products are banned, but retail establishments may still sell them to unsuspecting customers. Additional research and investigations are needed regarding the placement of treated lumber in the marine environment. Natural shoreline and non-toxic structures should be encouraged, consistent with PEP's overall policy no net increase of shoreline hardening structures. Guidelines should be developed to address the disposal of treated lumber following demolition. The Federal government's efforts to eliminate the use of the gasoline octane booster, MTBE, should continue. Structurally sound home heating oil tanks currently exempted from current replacement requirements still present a potential threat to groundwater and ultimately surface water resources. Voluntary and incentive based programs should be developed to encourage replacements and upgrades of these tanks.

Pollution Prevention: More aggressive pollution prevention programs should be established and implemented, particularly for industries/establishments that use, generate or discharge toxic substances. Existing town "Stop Throwing Out Pollutant" type programs are necessary and should continue. Mosquito control programs should first encourage good housekeeping methods of control. The use of pesticides should be reduced to the maximum extent practicable that still adequately protects human health.

Dredged Materials: Existing programs at the Federal and state level are adequate for ensuring that applications and permits for dredged material are evaluated with respect to toxics.



Recommendations for Improvements

Monitoring: Many existing programs and resources at the Federal (especially USEPA, NOAA, USGS), state (especially NYSDEC, NYSDOH) and local agency (SCDHS) should be accessed to the maximum extent possible and supplemented with specially funded projects. Monitoring should include not only chemical specific analyses but also evaluations of overall toxicity. In particular, sediments, biota and groundwater should be evaluated, as well as surface waters, dredged materials and soils. New and emerging topics, issues and concerns need to be addressed, including potential endocrine disruptors, historic and present marinas and boatyards as possible areas of contamination and any locally identified areas of concern.

Regulatory Sites of Concern: Federal and state regulatory agencies need to focus on meeting deadlines associated with cleanups and permitting actions under hazardous waste laws. Facilities that use or discharge toxic substances need to be inspected and monitored, as should sites being remediated under hazardous waste laws. Enforcement should be used as necessary.

Chlorine: Consistent with human health protection needs and based on the suitability of the effluent, the use of chlorine for disinfection at Sewage Treatment Plants (STPs) should be eliminated. Where alternatives to chlorine are not effective and chlorine continues to be used, discharge permits must ensure that the ambient water quality standards for the protection of aquatic life for chlorine be attained.

Pesticides: EPA and the State should restrict or ban all pesticides that are detected at levels of public health or environmental concern in groundwater or in the estuary. The State should continue to ensure the proper certification of commercial pesticide applicators; the public should be educated about using commercial applicators that are properly certified. The state should enforce the provisions of the State Freshwater Wetlands Law to reduce or eliminate the use of pesticides in the vicinity of wetlands. The Long Island Pesticide Management Plan should be developed/established, as should enforceable programs under CZARA. The concepts behind Suffolk County's integrated pest management/pesticide free golf courses should be applied to all public lands and golf courses. The Federal Presidential Memorandum regarding landscaping at Federal installations should be adhered to and a similar policy enacted for other owners of public lands. Additional work is needed with the agricultural community to demonstrate/identify opportunities for reducing pesticide applications. Integrated pest management programs need to be developed and implemented to reduce or eliminate overall pesticide use. Opportunities for expanding markets for and production of organic produce should be investigated. Collection of unneeded and unwanted pesticides, particularly from agribusinesses and commercial landscapers, should be carried out on a regular basis.

Construction Sites, Roads: For state funded construction projects, including road, highway and bridge construction, and road, highway and bridge operation and maintenance, existing programs are adequate to control toxics. While there are other existing Statewide pesticide management, spill management, and solid and hazardous waste disposal requirements, other toxics may not be addressed on private projects or projects funded at the local level. Requirements applicable on state funded projects should be applicable at all project sites. Until such time as statewide requirements are adopted, uniform programs equivalent to those applicable at state funded projects should be enacted at the local level. Requirements also need to be enforced, and education/outreach efforts with local government/industry/trade groups pursued. Similarly, adequate management programs are in place at the state level for runoff management systems for roads, highways and bridges. Similar program



requirements need to be adopted for application at the local level, and until such time as they are adopted, local programs should be enacted or voluntary cooperation pursued. The desired and enforceable measures to be implemented are as follows:

Road, Highway and Bridge Construction Site Chemical Control: Limit the application, generation and migration of toxic substances, and ensure the proper storage and disposal of toxic materials.

Road, Highway and Bridge Operation and Maintenance: Incorporate pollution prevention procedures into the operation and maintenance of roads, highways and bridges to reduce pollutant loadings.

Road, Highway and Bridge Runoff Systems: Develop and implement runoff management systems for roads, highways and bridges to reduce runoff pollutant concentrations and volumes; identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures); and establish schedules for implementing appropriate controls.

Developed Areas: Public facilities should set the example in terms of conducting and implementing pollution prevention opportunity assessments (PPOAs) and environmental management reviews (EMRs). PPOAs and EMRs should be conducted and implemented at all public facilities, beginning with Federal installations. Priorities should include facilities handling toxic materials. Stormwater runoff at marinas and boatyards may need further evaluation and management, due to materials used and disposed of at these facilities and their proximity to estuarine waters. The Town of East Hampton's Harbor Protection Overlay District is effective at addressing a number of potential sources of toxic substances, including: materials for roads, driveways and parking lot surfaces and management of runoff from these surfaces; fuel storage tanks; swimming pools; treated woods; and other activities. In Suffolk County, certain onsite disposal system products are banned, but retail establishments may still sell them. Retail establishments should be regularly inspected to enforce the ban on the sale of these illegal OSDS products and an education/outreach effort initiated for these establishments and consumers. Additional research and investigations are needed regarding the placement of treated lumber in the marine environment. Natural shoreline and non-toxic structures should be encouraged, consistent with PEP's overall policy no net increase of shoreline hardening structures. Guidelines should be developed to address the disposal of treated lumber following demolition. The Federal government's efforts to eliminate the use of the gasoline octane booster, MTBE, should continue. Structurally sound home heating oil tanks currently exempted from current replacement requirements still present a potential threat to groundwater and ultimately surface water resources. Voluntary and incentive based programs should be developed to encourage replacements and upgrades of these tanks.

Pollution Prevention: More aggressive pollution prevention programs should be established and implemented, particularly for industries/establishments that use, generate or discharge toxic substances. Existing town "Stop Throwing Out Pollutant" type programs are necessary and should continue. Mosquito Control programs should first encourage good housekeeping methods of control. The use of pesticides for mosquito control should be reduced to the maximum extent practicable that still adequately protects human health.

Dredged Materials: Existing programs at the Federal and state level are adequate for ensuring that applications and permits for dredged material are evaluated with respect to toxics. Permits and applications should be critically evaluated with respect to their potential to cause adverse toxic effects to the Peconic Ecosystem, and particularly to pelagic and benthic organisms and their food chains, including humans. The EPA and the U.S. Army Corps of Engineers have identified the likely need to continue



marine placement of dredged material in the Long Island Sound area. In 1999, the EPA in cooperation with U.S. Army Corps of Engineers issued a notice of intent to prepare an environmental impact statement to consider the potential identification of one or more placement sites for Long Island Sound dredged material. The EPA and the Corps have decided to consider the use of four existing sites and their identification as dredged material placement sites under Section 102(c) of the Marine Protection, Research and Sanctuaries Act. Other alternatives will also be evaluated, including other open water placement sites and other placement and management options. Identification of a site does not itself result in placement of any particular material, it serves only to make the identified site a placement option available for consideration in the alternatives analysis for each individual dredging project in the area. The PEP participants consider it unlikely a placement site will be proposed within the PEP study area, but the PEP should continue to participate in the EPA/Corps efforts to identify potential placement sites for Long Island Sound dredged material.



Post-CCMP

Description of Regulatory/Institutional Framework

Three alternative frameworks were considered for post-CCMP management:

- Continuation of Existing Management Conference Structure (*Policy Committee; Management Committee; Citizens, Technical and Local Government Advisory Committees; and Program Office*);
- Formation of a Regional Advisory Commission (*formal, non-regulatory commission of East End town and village representatives*);
- Modification of the Pine Barrens Maritime Reserve Commission (*Modification of the Pine Barrens Maritime Reserve Act as a mechanism to involve State, County, and local governments in a regional implementation process*)

State Agencies and Programs

Pine Barrens Maritime Reserve Act

Through the Pine Barrens Maritime Reserve Act, the New York State Legislature declared that the Long Island Pine Barrens should be protected in a comprehensive plan adopted by the state and individual local governments. The Long Island Pine Barrens encompasses over one hundred thousand acres in the county of Suffolk and overlies the largest source of pure groundwater in New York. The Pine Barrens are interconnected to the Peconic Bay system by the Peconic River, the longest groundwater river in New York.

The Act calls for a state supported regional comprehensive land use plan providing for the preservation of the core preservation area, protection of the Central Pine Barrens area and for the designation of compatible growth areas to accommodate appropriate patterns of development and regional growth. The legislature intended that the comprehensive regional land use plan would include provisions for private landowners whose property is located within the Central Pine Barrens area. The landowners will be afforded an opportunity to receive benefits from the plan such as transferable development rights, conservation easements, rights and values transfers, purchase of development rights and/or fee acquisition with monetary compensation.

A Long Island Pine Barrens Maritime Reserve Council was established to help local governments and the state coordinate the efforts of all municipal, county, state and Federal agencies involved in the management of the preserve. The Council was also charged with overseeing and preparing a comprehensive intergovernmental management plan for the Long Island Pine Barrens maritime reserve for state and local governments to adopt.

Evaluation of Effectiveness

The existing Management Conference Structure has been successful in integrating concerns and building consensus in an often complex and contentious process. For the foreseeable future, the Management Conference has recommended continuation of the existing management structure, at least until a different approach is sanctioned by the Policy Committee.