

PART II - DESCRIPTION OF THE NEW YORK STATE
COASTAL MANAGEMENT PROGRAM

SECTION 1

INTRODUCTION

New York State's coast is recognized as one of the State's greatest assets. It is unique, for it contains a variety of natural, recreational, industrial, commercial, cultural, aesthetic and energy resources of local, statewide and national significance. Unfortunately, the coast is severely threatened by competing demands. The resources of the State's Coastal Area are increasingly subject to the pressures of population growth and economic development, which include requirements for industry, commerce, housing, recreation and energy production. These demands result in the loss of living marine resources and wildlife, the diminution of open space areas, shoreline erosion, permanent adverse changes to ecological systems, and a loss of economic opportunities.

To address these coastal problems and provide a means for resolving them, the New York State Department of State has prepared, in cooperation with the Federal government, other State agencies, the State Legislature, local governments and the interested public, a statewide Coastal Management Program. This proposed Program has three major parts:

The first establishes the boundaries of the Coastal Area within which the Program applies.

The second describes the organizational structure to implement the Program.

The third provides a set of statewide policies enforceable on all State and Federal agencies which manage resources along the State's coastline.

New York State's Coastal Management Program

The New York State Legislature has, over the years, enacted legislation and established programs for protecting the State's valuable natural and man-made resources. The proposed Coastal Management Program is built upon these existing laws and programs. However, during the development of the Program, it was found that additional legislation was needed: (1) to protect shoreowners and their property from the damages caused by severe erosion, (2) to provide a method to accomplish coastal management objectives through coordination of existing programs and by developing a consensus among all levels of government and the private sector to achieve these objectives, and (3) to establish enforceable policies for State and Federal actions in the coastal area. In 1981, the New York State Legislature passed and Governor Carey signed into law two bills which will enable New York to meet these requirements -- The Coastal Erosion Hazard Areas Act (Article 34 of the Environmental Conservation Law) and the Waterfront Revitalization and Coastal Resources Act (Article 42 of the Executive Law).

The Waterfront Revitalization and Coastal Resources law establishes a balanced statewide approach for encouraging development in the coastal area while protecting natural coastal resources. The law establishes boundaries for the State's Coastal Area by adopting a map which defines the area within which the Coastal Management Program will apply. It provides a set of policies which address significant coastal issues. State agencies will use the Department of State's review procedures and the existing State Environmental Quality Review Act (SEORA) process to abide by these policies in their decisions.

The Act's coastal policies encourage the development and use of existing ports and other areas where infrastructure and public services are adequate. They also encourage facilitation of public access to coastal locations for recreational purposes. Certain policies affirm the need to protect and appropriately revitalize or develop such natural and man-made resources as fish and wildlife habitats, agricultural lands, other open space areas, and scenic and historic resources. One policy concerns protection of natural and man-made features from damage caused by flooding and erosion.

Optional Local Waterfront Revitalization Programs

The new law offers local governments the opportunity to participate in the State's Coastal Management Program on a voluntary basis. Localities are encouraged to prepare and adopt local waterfront revitalization programs which in turn, would provide more detailed implementation of the State's Program through use of existing broad powers such as those covering zoning and site plan review. With a waterfront revitalization program approved by the Secretary of State, a locality may take advantage of certain tangible benefits. ~~First, the Department of State is empowered to provide technical and financial assistance for the preparation and implementation of local programs. Secondly, State agencies' actions must be consistent with approved local programs to the maximum extent practicable. Thirdly, if a State's Coastal Management Program is amended to include the approved local program, Federal agencies will be required to adhere to this program to the same degree which is required of State agencies.~~

Public Participation

The core of the State's public involvement is the New York State Citizen's Advisory Committee. The advisory body is made up of representatives from the five coastal regions of the State. The Committee met regularly during the development of the Program to review technical reports, make recommendations on its content and legislative proposals and assist in public participation activities.

The Coastal Management Program has also been shaped by comments and suggestions from a wide variety of interest groups. This was a deliberate attempt to involve people and groups who are interested in and potentially affected by the Program. The Department of State actively sought input from the public and local interest groups, including local government, in developing the State's Coastal Management Program. In all, over one thousand meetings were held during the Program's development. At a very early stage in its preparation, a series of sixteen public meetings were held at various points along the coast, to solicit public comments on the general approach. The initial draft document and the proposed legislation derived from this input. The draft Program, in turn, was aired publicly, at a series of eight public hearings held in all areas of the coast during the spring of 1979.

Based upon comments received at these hearings, the proposed legislation was substantially revised and introduced in the Legislature in May of 1979. Informational bulletins were at that time forwarded to all members of the public who had registered at the hearings, to update them, and demonstrate that their concerns were reflected in the proposed legislation.

In the fall of 1979, further hearings were held by the State Legislature, and following additional bill revisions, in the spring of 1980, the Department sent further informational bulletins to the interested public.

In response to further comment by public interest groups, the proposed legislation was again substantially revised and re-introduced in the 1981 legislative session where it was overwhelmingly approved. The Governor signed this legislation into law in July, 1981.

The State's proposed Coastal Management Program and Draft Environmental Impact Statement (CMP-DEIS) were distributed to interested agencies and organizations (See Part VII of this document). In July, 1982, hearings were held in Buffalo, Albany and New York City to receive additional public comment. This document contains responses to all comments received on the CMP-DEIS (See Part IX) as well as appropriate revisions.

Program Development

The Department of State relied heavily on local, county, regional and State agencies in the preparation of the Coastal Management Program. Under numerous contracts, State and local agencies analyzed coastal resources and provided recommendations which helped to shape the Program and ensure the necessary coordination.

To aid in the preparation of the Program, New York's coast was divided into five coastal regions. Advisory documents were prepared for each region:

New York City - prepared by the Department of City Planning, City of New York.

Nassau-Suffolk prepared by the Long Island Regional Planning Board.

St. Lawrence River-Eastern Ontario Area - prepared by the St. Lawrence-Eastern Ontario Commission.

Hudson River Valley (including the Westchester County shore of Long Island Sound) - prepared by the New York State Department of State.

Great Lakes West - prepared by the New York State Department of State.

These regional reports were used in the preparation of the Coastal Management Program. Many of the recommendations on policies, boundaries, special areas of concern, and implementation have been incorporated into the State's Program and will provide a framework for developing coastal programs at the local level.

SECTION 2

COASTAL REGIONS OF NEW YORK: RESOURCES AND CONCERNS

Introduction

New York is unique among the coastal states. No other State encompasses three distinct coastal environments within its borders: the marine environment of Long Island and New York City; the tidal estuarine environment of the Hudson River; and the freshwater environment of the Great Lakes-St. Lawrence region. This richness of resources brings with it, however, a distinct complex of problems.

There are no common solutions for these three coastal environments. Both the Great Lakes-St. Lawrence and the Long Island regions, for example, are faced with serious erosion problems along portions of their coast; however, climatic conditions, land configuration, soil structure, and shoreline recession rates in each region differ so that solutions proposed for one region are not transferable to the other. Changing water levels mark both the freshwater environment of the Great Lakes-St. Lawrence and the marine environment of New York City-Long Island, but extreme tidal fluctuations and period differentials between freshwater inflow and outflow create additional concerns. While these problems may seem at times insurmountable, New York's Coastal Management Program provides an opportunity to devise ways not only to preserve but to enhance the environment in which its residents live and work. Distinctive characteristics and principal concerns of the State's three different coastal environments are identified in the following discussion.

Marine Coast of Long Island and New York City

Long Island

Long Island is a detached segment of the Atlantic Coastal Plain, separated from the mainland on the north by Long Island Sound and from Manhattan on the west by the narrow East River and New York Harbor. The Atlantic Ocean completes the Island's salt water encirclement. The Island is 120 miles long, varies in width from 20 miles to less than a mile, and is surrounded by a shoreline (including barrier islands) of approximately 1,475 miles, 46% of New York State's designated coastline.

The last continental ice sheets retreated from Long Island and elsewhere 10,000 years ago, leaving behind unconsolidated, highly erodible glacial materials. Since then, rising sea levels have shaped the Island's rough outline. Today, littoral forces of wind, wave, and tide constantly reform the coast. About once every two years, storms cause moderate damage to properties along the shoreline, and approximately three times a century a catastrophic storm rips over the Island. In a few hours severe storm conditions can alter the shore as much as normal conditions do in a hundred years. Thus, shoreline recession is a variable process, depending mostly on the frequency and severity of storms.

The north shore of Nassau County erodes at a rate of one half foot to a foot per year, and Suffolk County's north shore erodes at an even faster rate. Despite such vulnerability, people have continued to build all along this fragile shoreline. In order to protect shorefront property, it has been the practice to construct jetties, groins and seawalls and to nourish beaches. These measures, however, tend to be effective only in a limited area and may actually cause serious problems in adjacent areas.

West of Port Jefferson is a highly irregular configuration of deep harbors and bays separated by peninsulas projecting into Long Island Sound. Sand and gravel eroded from the peninsulas have been deposited as spits (e.g., West Beach on Eaton's Neck) and bay mouth bars (e.g., Old Field Beach at Port Jefferson). East of Port Jefferson, a line of uninterrupted bluffs rising as high as 130 feet extends all the way to Orient Point. Erosion rates of these bluffs range from 0.8 to 5.2 feet a year.¹

The Island's south shore includes two distinct physiographic features: an eastern headlands section on the Island's south fork and an off-shore barrier complex. The eastern headlands section, extending 33 miles westward from Montauk Point to Southampton, is characterized by truncated hills of varying heights and steepness. Fronted by narrow beaches of gravel and coarse sand, these headlands have suffered severe erosion.

The barrier complex stretches parallel to Long Island for 73 miles west from Southampton to the Nassau County-New York City boundary. Fire Island National Seashore and Jones Beach State Park and other recreational areas are found on these formations. Consisting of ocean beach, irregular sand dunes and bayside tidal lagoons, these narrow islands are continually subject to the action of waves, wind and westward longshore currents. Most important, these barriers receive the brunt of severe storms and protect the bays and "mainland" from storm damage.

¹Lee E. Koppelman, et. al, The Urban Sea: Long Island Sound (New York, 1976), p. 50.

In addition to the loss of land through erosion, valuable land resources on Long Island have been absorbed in the rapid population expansion from west to east. Although Suffolk County remains today the most productive agricultural county in New York State in terms of value of products sold, most of the farmland in Nassau and western Suffolk Counties has been developed, either for residential, commercial, and industrial purposes, or utilized for transportation services.

The salt marshes and meadows of Long Island are highly productive fish and wildlife habitats. They also serve as pollutant filters and as natural buffers dissipating the energy of storm waves. However, during the period 1954-1964, these multiple values were often overlooked as 8,200 acres of marshland in Nassau and Suffolk Counties were filled in for residential, recreational, industrial and related development. This ten-year period saw somewhat greater losses in Nassau County (33 percent of the total 1953 acreage) than in Suffolk County (17 percent of the total).²

Increased development has also put added stress on the Island's groundwater aquifer, its sole source of potable water. Since the aquifer is vast and continually replenished, the overall quantity and quality of Long Island's underground water supply is satisfactory. However, a greater demand for water from the western end of the aquifer has created an east-west imbalance in the system. Failing septic tanks in natural aquifer recharge areas threaten to elevate nitrate concentrations in the groundwater.

Stormwater runoff is another development-related problem affecting the groundwater supply. Recharge basins have been built throughout Long Island to retain this runoff and filter it back into the aquifer. Now, trace levels of toxic chemicals from lawns, roads, parking lots, industrial sites and other areas have been detected in some parts of the aquifer. Stormwater may require treatment to remove those chemicals.

Although the overall condition of Long Island's marine surface water is good, human uses of the coast cause localized degradation. Surface waters in and adjacent to highly developed areas are impacted by nitrates and BOD (biochemical oxygen demand) from municipal sewage treatment plants. These point sources of pollution contribute over 70% of the total internal loading of nitrogen in such areas as Manhasset Bay, Hempstead Harbor and Hempstead Bay in western Nassau County, and Flanders Bay in

²Long Island Regional Planning Board, Fourteen Selected Marine Resources Problems of Long Island, New York: Description Evaluations (Hartford, 1970), p. 37.

eastern Suffolk County. Generally, sewage treatment plant effluents are not considered a major source of bacterial (coliform) contamination of surface waters, unless the plants are outmoded, as in Hempstead Bay. There are relatively few industrial discharges to surface waters on Long Island, and those that do occur (e.g., in Glen Cove Creek) have only localized impacts.

For certain areas, non-point sources of pollution carried by stormwater runoff, streamflow, and groundwater underflow are the major contributors of pollutants to surface waters. Areas where non-point sources are the major contributors include Oyster Bay and Port Jefferson harbors on the north and Great South Bay and Moriches Bay on the south. On-site sewage disposal systems (septic tanks and cesspools), landfills and scavenger waste treatment facilities, and fertilizers contribute directly to surface water quality by contaminating streams and groundwaters with nitrates and other soluble pollutants. Urban stormwater runoff contributes coliform bacteria to most surface waters and has necessitated the closing of large areas to shellfishing. Wastes from waterfowl populations and domestic animals on the Island's east end are collected in runoff and further degrade surface waters. Finally, development-related erosion, dredging and dredge spoil disposal add particulates and other pollutants to coastal waters. In addition to local point and non-point sources, pollution from New York City also affects the quality of Long Island's surface waters.

Offshore, a potential for additional pollution exists with Outer Continental Shelf oil exploration and related activities. Based on United States Geological Survey estimates, there is a 59% chance of one to four spills of greater than 1,000 barrels over the life of North Atlantic field operations. Tankers using the Nantucket to Ambrose traffic lanes could endanger the Island's barrier beaches as well.

Water quality problems may also affect the Island's important commercial fishing industry. Total landings of fish (finfish and shellfish) reached a peak of 31,000 metric tons in 1938, continued high for a decade, and declined steadily to about 15,000 metric tons in the late 1970's. This decline may have been caused by a combination of factors such as deteriorating water quality, overfishing, manmade environmental changes, and natural fluctuations.

Nonetheless, the water surrounding Long Island continues to be a permanent or seasonal home for a wide variety of finfish and shellfish. Although certain species of finfish are present throughout the year, seasonal migrants tend to dominate the fish population. The important deepwater species are found primarily on the southern side of the Island and also in the vicinity of Block Island Sound, Montauk Point and Georges Bank. Of all

shallow water species landed in 1978, hard clams accounted for the greatest tonnage and dockside value. They were found primarily in Great South Bay. Oysters and scallops were harvested primarily in the Gardiner-Peconic Bay area.

Not only do the vast expanses of water surrounding Long Island support commerce, they also constitute an extensive recreational resource serving residents of the entire New York metropolitan region. Public access, as well as good water quality, is essential to the enjoyment of coastal waters. The Fire Island National Seashore, seventeen State parks, and numerous county, town and private recreational areas provide access to coastal waters. In Nassau County, despite great development pressures, extensive lands have been set aside for recreation uses: 3,234 acres are Federally-owned, 5,261 State-owned, and 5,315 county-owned. In Suffolk County, where development pressures have been less, there was an opportunity to bank many more acres of parkland in anticipation of growth: 3,391 acres are Federally-owned, 18,545 State-owned and 14,787 county-owned.³ Still, the Island will require additional recreational capacity over the next 25 years, not so much to meet new demand as to relieve current pressures.

New York City

Each of New York City's boroughs is situated on an island, with the exception of the Bronx which is part of the continental land mass. The topography of these islands range from abrupt rocky outcroppings in linear patterns, such as those found in northern Manhattan, to steep slopes of unconsolidated glacial material in random clusters which level out on the edges of the island, finally ending in wetlands and beaches.

Throughout the City's history, its land has been intensively used. Surface conditions have been radically altered by excavation, filling, construction and paving. The extent of wetlands has been significantly reduced and natural drainage patterns altered in many cases as filling activities extended the City's land area. Yet, with all these alterations, the general physiography remains predominantly as it was determined by geological formation and other forces.

The Hudson River flows along Manhattan's western shore carrying water from the distant Adirondack Mountains. It is a tidal estuary, as are all the straits surrounding this island. Fresh water laden with nutrients mixes with salt water in these estuaries to create an ideal environment for a wide variety of

³Long Island Regional Planning Board, Nassau-Suffolk Regional Element Report, (Hauppauge, 1978) p. 18.

plant and animal species. Jamaica Bay, an estuary with associated wetlands, is a major spawning ground for finfish and crustaceans as well as a habitat for at least 200 species of birds.

New York Harbor is naturally divided into several parts. The Lower Bay at the entrance to the Atlantic Ocean is connected, via the Ambrose Channel, to the Upper Bay which in turn meets the Hudson River. Forty-two channels run throughout the Harbor. These channels require constant maintenance. Unfortunately, adverse environmental impacts have been associated with the processes of dredging spoil disposal, particularly when the dredged materials are polluted.

During dredging operations, sediments are resuspended and mixed with water, thereby increasing the potential for immediate release of contaminants into surrounding areas. When the dredged sediments or spoils are deposited at an open water disposal site, contaminants may be released slowly into the overlying water column for several years. Because of this threat, the Federal government is phasing out the disposal of polluted dredge spoils in open waters.

Alternate methods for dredge spoil disposal must be developed for the New York City region. These methods include inland disposal and placement behind diked enclosures. However, the shortage of available and suitable onshore disposal sites and the potential leaching of contaminants from such areas into adjacent ground and surface waters make these alternative methods expensive and hazardous.

Other important adverse impacts may result from dredging and disposal activities in New York City's waters. These include changes in bottom topography, local water circulation patterns, and flushing, erosion and sedimentation rates. Biological effects, such as the loss of the aquatic habitats mentioned above, may result from the physical and chemical impacts of dredging.

The potential for oil and hazardous spills is high in New York Harbor due to the substantial amount of commercial shipping. This possibility is compounded by the location of numerous oil and other bulk storage facilities along the City's and New Jersey's waterfronts. While the development of offshore oil and gas production and new energy facilities may contribute to the revitalization of some deteriorating shorefront areas in New York City, the chances for spillage multiply.

Floating debris in the Hudson River and New York Harbor is another serious problem. The debris comes from decaying piers and bulkheads, abandoned ships, and vegetation. It is estimated that the River and the Harbor annually receive over 600,000⁴ cubic feet of debris which poses a threat to commercial shipping and recreational craft.

The Port of New York has been the nation's foremost maritime center since the Erie Canal opened in 1825. For many years, the volume of foreign cargo grew tremendously; and industries, associated with or dependent on water transportation, developed along Manhattan's shores.

However, the heyday of New York's port has passed. People and commerce have moved from inner city to suburb, leaving many underutilized, sometimes abandoned, sites along Manhattan's waterfront. New methods of production, increased reliance on the truck for product distribution, need for more space, antiquated physical plants, deteriorating neighborhoods, and spiraling property taxes compounded by the financial incentives provided by suburban counties and other states, are among the reasons for the reduction in manufacturing and commercial activity along New York's waterfront. Revitalization of these areas is the most effective way to encourage economic development without at the same time consuming valuable suburban and rural open space.

Some deteriorating waterfront areas might be redeveloped to meet the recreational needs of New York's seven million residents. Much of the City's outdoor recreation is based on structured activities, with opportunity for less structured relaxation provided along the southern shore in Gateway National Recreation Area and at other smaller sites in all five boroughs. Here, good water quality allows for such activities as swimming and fishing. However, a great many of the City's residents lack adequate means of transportation to outlying parks, are barred from their immediate shore by private development and forced to crowd into the more accessible facilities. Development of recreation sites in deteriorated waterfront areas closer to densely populated residential centers would relieve crowding at existing facilities, provide easier access, and at the same time contribute to an improved economic climate.

More important than inadequate recreation resources for the people of New York City are the basic problems of solid waste disposal, and water and air pollution. Partially treated sewage is discharged into adjacent waters, however new treatment facilities are under construction and existing plants are scheduled for upgrading.

⁴Bruce Howlett Inc. New York City and Hudson River Waterway Use Study (Brewster, New York 1977) p. III-71

Urban stormwater runoff and combined sewer outflows significantly affect the quality of coastal waters in the New York City.

While many of the critical environmental and economic problems besetting New York City affect areas well beyond its boundaries, the City's vast natural and cultural resources are a boon and creative stimulus not only to the immediate region, but also to the State, the Nation and beyond.

Hudson River Estuary

The Hudson River estuary is a long arm of the sea, extending 150 miles inland. Its present geologic form dates from the period after the last glacier. As the glacier melted, rising seawater moved in and flooded the old course of the river. Today, because it is so large a tidal and navigable river, the Hudson is unique in the northeastern United States.

As an estuary, two major characteristics of the Hudson are its tidal action and its salinity. Up to Troy, the River's flow reverses with the tide, the mean tidal range at Albany being 5.3 feet. The limit of salt water intrusion in the Hudson varies. It is primarily determined by the interaction of the tidal force, which pushes salinity up the estuary, and the freshwater inflow, which flushes the estuary seaward. The limit, therefore, changes with the seasons; during spring runoff, freshwater inflow is greatest and salt water extends not far beyond Yonkers; while in the winter, salt water can extend nearly to Poughkeepsie, a distance of seventy miles.

The history of the Hudson River reflects a strong relationship between the natural environment and the economy. Access to the River, water transportation, fisheries, agriculture and the scenic quality of the area have been major factors in the development of the Valley. These factors, plus the proximity of large population centers, some of which depend on the river as a source of water supply, continue to make the Hudson a unique economic and environmental resource for the State, and therefore, are the major concerns of the Coastal Management Program for the Hudson Valley.

The Hudson is an important link in the State's transportation network, being navigable for ocean-going vessels as far as Albany. Beyond Albany, the State Barge Canal provides a system for shallow draft vessels which connects the Port of New York with the Great Lakes and the St. Lawrence River. The Port of Albany is the most diversified of the upstate New York ports. It is a significant economic force in the Hudson Valley because of its location at the center of a large market area with excellent highway and railroad access, a 12-month operating capability, and a strong commitment from both the State and the Albany-Rensselaer

business community to see to it that the Port realizes its potential as a shipping and industrial center. Between the Port of New York and the Port of Albany, the Hudson River serves a limited but important group of water-related industries including petroleum, sand and gravel, cement, and gypsum. Without access to the River, these industries would operate at an economic disadvantage. In general, the region benefits from the lower cost of water transportation as compared to land routes. In some cases (particularly gypsum and gravel), the cost savings of water shipment are directly responsible for the location of those industries along the Hudson.

In the mid-eighteenth century, rail lines were built along both sides of the Hudson. For almost the entire length of the east shore, and for half the length of the west shore, these railroads were built directly on the River's edge. Thus, railroads have severely limited access to the Hudson. However, the railroad must also be seen as essential to economic life in the State. It should also be noted that while the railroads have limited physical access, they have also served to prevent other development of the shore which might have had greater adverse impact on the quality of the coast.

The Hudson River is inhabited by an extraordinarily rich variety of fish species. Some of the best known are diadromous forms, those fish which spend part of their life cycle in fresh-water and part in salt water. Among the important diadromous species are the American eel, shad, alewife, striped bass, and sturgeon. Two species of sturgeon, shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus*) are found in the river. The former is a listed endangered species. Indeed, the River is one of the major spawning grounds for several commercially significant Atlantic species, particularly striped bass. In the past, commercial fishing in this estuary was a viable industry. However, fishing activity has been reduced because of the sharply increased pollution, the unpredictability of the catches, and changing social conditions. While the quality of its waters has improved through treatment of municipal wastes, past discharges of toxic wastes still contaminate the River. Because of this toxic pollution, all commercial fishing in the River below Troy is banned except for shad, goldfish, and large sturgeon. Within this estuary and its immediate environs, there are many important wildlife habitats, particularly the numerous wetlands which are used by migratory waterfowl and other forms of wildlife.

The Hudson Valley is an important fruit growing area. Orchards in Columbia, Ulster, Dutchess and Orange counties account for more than a fifth of the value of fruit grown in New York State. Most of this production occurs close to the River. It is found there because of the way the Hudson and the surrounding landforms have influenced the microclimate. The area's greatest concentration of orchards is found in southern Ulster County and northern Orange County. Microclimate and soil conditions make these orchards among the most productive in New York. It is in this area also that the Hudson Valley's best vineyards and wineries are found. This is a small but significant industry with a long

history and a strong potential for growth. The agricultural land in the Hudson Valley is under pressure for conversion to other uses. However, reflecting a local concern for preserving farmland, most of the important coastal agriculture now lies within agricultural districts.

The Hudson Valley coastal region is one of the most outstanding scenic attractions of the United States. Its scenery includes the dramatic vertical rise of the Palisades at the lower end, beautiful views of the Catskills along its upper reaches, the magnificent Hudson Highlands which rise straight from the water's edge, long stretches of farms and historic estates, and a scattering of urban waterfronts. The outstanding scenic resources of the Hudson Valley inspired one of the most significant and first truly American schools of painting. Most of the scenic area in the Hudson River Valley is in public ownership, notably that land owned by the Palisades Interstate Park Commission. In the Highlands, much scenic land is either in State parks or occupied by the U.S. Military Academy. However, significant areas of these scenic resources are not in public ownership and are not protected.

Because the Hudson River can provide large amounts of water for cooling purposes, energy production facilities have been located along its banks. Numerous proposals for additional facilities, mostly nuclear, have been made and have engendered much controversy over their potential impact on existing industry, fisheries, agriculture, and the scenic quality of the region.

Great Lakes - St. Lawrence Region

The Great Lakes - St. Lawrence area has the most diverse shoreline of New York State's three coastal environments. Although the area has problems common to the State's other coastal regions, there are additional concerns unique to this area, which includes the State's second and third largest cities and its principal heavy industrial center. Its borders encompass the vast freshwater bodies of Lake Erie, the Niagara River, Lake Ontario, St. Lawrence River and internationally renowned scenic resources of Niagara Falls and the Thousand Islands.

The mainland coast of the Great Lakes area extends for over 700 miles. When 340 miles of island shoreline - located mostly in the two rivers - are added to this mainland frontage, New York's Great Lakes - St. Lawrence coastline comprises about one-third of the State's entire coast. The greater areal extent is represented by its waters - approximately 4,000 square miles. Onshore, the area of the 78 communities which are located along the coast totals almost 3,000 square miles.

The coastal lands lie in the Erie-Ontario Plain and in the St. Lawrence Marine Plain, areas of generally low relief broken only by drumlin formations along sections of eastern Lake Ontario.

Despite the absence of significant variations in the relative altitude of landforms along the coastline, there are many prominent topographic features which give the area a unique character. In addition to Niagara Falls and the Thousand Islands, which attract millions of visitors each year, those features include: the Genesee River gorge; embayments, such as Braddock Bay, Sodus Bay and Henderson Bay; and the area's only dunes which stretch for five miles along the eastern shores of Lake Ontario.

A particularly significant topographic form are the bluffs found along a substantial portion of the coasts of Lake Erie and from Niagara to Oswego County on Lake Ontario, rising in many places to over 120 feet in height. These bluffs provide superb vantage points for sweeping views of the coast, an amenity which is prized by tourists as well as shoreline residents. However, the bluffs also severely limit access to the shores and to the waters of the coast. This means that the multifaceted relationships between land and water found in other regions are lacking along much of this Great Lakes coast. Because of the single dimension of the coastal experience in most of these bluff areas, and the lack of viewing points further inland owing to the flat land configuration, connection with the coastal waters fades quickly as one moves away from the shore's edge. Another characteristic of the Great Lakes coast is the scarcity of wide beaches, even when the lakes are at their average levels. This is due principally to the absence of suitable beach-building materials.

The waters of the area's lakes, rivers and tributary streams constitute one of the State's most valuable fisheries. Because of previous over-exploitation, water pollution, destruction of habitats and introduction of certain non-native fish, many valuable species, such as lake sturgeon (*Acipenser fulvescens*) and Atlantic Salmon, became virtually extinct. In recent years, because of intensely focussed fishery management practices such as the salmonid stocking program, many species highly prized by fishermen have been on the increase. Numerous fish habitats of significance are located throughout the area and include: Cattaraugus Creek; Strawberry Island in the Niagara River - a major spawning ground for muskellunge; Eighteen Mile Creek in Niagara County which serves as a spawning habitat for salmonids, northern pike and smallmouth bass; Oak Orchard Creek in Orleans County; Braddock Bay, a major wetland complex which supports bass and perch populations; the embayment habitats of Wayne and Oswego counties; the renowned fishery in the Salmon River; the northern pike fishery which extends from Henderson Harbor through the Thousand Islands; Chaumont Bay which provides not only sport but commercial fishing opportunities; and, Cranberry Creek Marsh on the St. Lawrence River. The area's fishing resources not only offer fine recreation to the residents of the coastal communities but contribute to the region's economic life by attracting large numbers of sports fishermen from both the United States and Canada.

The Great Lakes - St. Lawrence region has a wide array of opportunities for waterfowl hunting, or simply observation of hundreds of species including such rare birds as bald eagles, double-crested cormorants and red phalaropes. Of special note is the location of much of the area in the "flyway" used by thousands of migrating birds each year. These important fish and wildlife resources are located not only in rural communities but in or near urban centers such as Buffalo and Rochester.

Unfortunately, these valuable natural resources continue to be subjected to intense pressures. Toxic substances released into the area's waters have been found in certain Lake Ontario fish. Wetlands, streams and other habitat areas are endangered by development which directly interferes with the life cycle of species or lowers water quality below that necessary for their optimum production. In many places, access to harvest or to observe those species is limited.

Erosion is a regional problem, but it is more severe on Lake Ontario and on sections of the St. Lawrence River, because the shorelands there are composed mainly of vulnerable glacial soils. As the land is undercut, buildings gradually topple onto the beaches or into the water. Many structures, built at great expense to protect the shore, prove to be inadequate; in some cases they have caused erosion of adjacent lands. The financial losses incurred directly and indirectly by both public and private interests are substantial.

The Great Lakes - St. Lawrence area differs from the Hudson River and the marine coast in one important respect -- its waters are not subject to tidal movements. However, the levels of Lake Erie and Lake Ontario respond first to inflows not only from their own drainage basins but also from Lake Michigan, Lake Superior and Lake Huron, whose waters eventually reach the sea through the St. Lawrence River. Water levels are also affected by the speed with which waters can flow down from Lake Erie and Lake Ontario. In the case of the former, the depth of Niagara River's existing channel limits the rate of outflow. Because Lake Erie in recent years has been at a level higher than the long-term average, studies are under way to determine the feasibility of changing the Niagara River's channel configuration to allow more water to escape from the Lake. On the other hand, Lake Ontario's outflow channel, the St. Lawrence River, was modified in 1958 so that the Lake's water level could be managed for three purposes: to allow deep draft ships to enter Lake Ontario from the sea; to provide for the operation of hydro-electric power plants; and, to permit a greater outflow from the Lake. In 1973, a severe storm, occurring during a period of very high water level, caused extensive damage to shoreline properties. Since then, coastal residents, fearful of the continuing high levels, have criticized the International Joint Commission for failing to take their interests into account.

Recreation is a major concern in the area, not only as to the extent of the resources but also their quality and the public's accessibility to them. State, county and local governments and the private sector are all suppliers of such resources. Forty State parks line the shores, placed to take advantage of such features as: scarce wide sand beaches on low-lying lands, as at Lake Erie State Park, Evangola State Park, Hamlin Beach and Selkirk Shores; areas of high scenic quality, as can be viewed from the cluster of State parks around Niagara Falls and the river gorge; and the unique juxtaposition of land and water in the Thousand Islands region where several State parks are sited. County and municipal parks and facilities, and those owned by private interests, add considerably to the region's total number of recreational resources. Despite this abundance, a number of problems remain. In the urban areas of Buffalo and Rochester, there are still pressing needs for swimming, boating and fishing opportunities. In some instances, resources exist, but because of poor water quality, swimming is precluded. In Buffalo and in other places, highways block access to shorelands, thereby reducing the opportunities for residents to enjoy their coastal resources.

The anticipated expansion of interest in boating will impose greater demands on existing facilities in the region which are not sufficient to satisfy needs in many areas, particularly on Lake Erie and Lake Ontario where the fisheries are attracting great attention. More harbors of refuge are required, because of the larger number of smaller craft being used by fishermen and the dangerous storms which can arise very quickly on both lakes.

The residents of the Great Lakes - St. Lawrence area also share a major concern with those of other coastal regions - how to bring new life to the often abandoned, and run-down, waterfront sections of their communities, both large and small. This concern reflects a growing recognition of the unrealized economic and social potential of ports and harbors, such as Buffalo, Rochester, Oswego and Clayton, which served in the past as mainsprings for the area's development. The challenge is to revitalize those waterfront locations in a balanced way and thus restore them to their historic role as major contributors to the well-being of the region.

SECTION 3

COASTAL BOUNDARIES

Introduction

The Coastal Management Program has established statewide boundaries in accordance with the requirements of the Coastal Zone Management Act of 1972, as amended, and its subsequently issued rules and regulations. This was not a simple task; New York is unique among the coastal states in the diversity of its "coastal areas" and "coastal waters." As indicated previously, the State's Coastal Area is comprised of distinct sectors: Long Island, a land mass fronting on the Atlantic Ocean, which exhibits strong land and water interrelationships; New York City, where the intensity of land and water uses is the greatest in the State; the Hudson River Valley, with a unique estuary that extends 150 miles into upstate New York; and the Great Lakes - St. Lawrence River region, which contains a vast non-tidal freshwater coastal system.

The Coastal Zone Management Act and the Federal rules and regulations pertaining to it define a number of general and specific requirements that must be followed in determining statewide coastal management boundaries:

1. A determination of the inland boundary necessary for the management program to control shorelands, the use of which have a direct and significant impact on the coastal waters;
2. A determination of the extent of the territorial sea, or, where applicable, of State waters in the Great Lakes;
3. An identification of all federally-owned land or lands which are held in trust by the Federal government, its officers and agents in the coastal area and over which the State does not exercise any control as to use;
4. An identification of tidal and saline waters, transitional and inter-tidal areas, salt marshes, wetlands, and beaches; and,
5. A process for consultation with adjoining coastal states so as to minimize the possibility of incompatible uses occurring at boundary junctures.

Both State and local agencies provided input to the definition of New York's Coastal Area. Regional and municipal planning agencies mapped in sketch form an initial coastal boundary, employing guidelines developed by the Department of State. The Department of Environmental

Conservation, under contract with the Department of State, proposed a statewide boundary determination process based upon work performed during the initial phase of the program by the various agencies. The Department of State summarized the initial boundaries which were developed and recommended by the local agencies. The recommended boundaries were delineated on maps at a scale of 1:24,000.

Boundary Criteria

Following this preliminary work, the Department of State adopted a set of boundary delineation criteria which were in accord with the Federal requirements and also recognized a variety of State and local concerns. These criteria, outlined below, were employed in defining the final coastal boundary:

1. Utilize a one-tier boundary rather than a multiple-tier concept. Despite proposals by several jurisdictions for a multiple tier approach to boundary definition, the single tier boundary was adjudged to provide for simpler administration.
2. Conform with the nearest cultural feature or political boundary. Employment of recognizable or known land-marks such as a road, railroad, utility right-of-way, or municipal boundary as the onshore feature to delineate coastal boundaries permits speedy determination as to whether a particular parcel of land lies within the defined coastal boundary. Unless otherwise indicated, the shoreward side of a road, railroad or other right-of-way is to be considered the boundary line.
3. Include all land and water uses directly impacting coastal waters. The boundary encompasses all those "land and water uses of direct and significant impact on coastal waters" specified in the Coastal Zone Management Act.¹ Such impact is defined as that which changes the physical, chemical, biological, littoral, or aesthetic characteristics, or the socio-economic values of coastal waters to the extent that the character, use or availability of its resources and/or the environmental quality standards of the coastal waters are so adversely affected that they can only be maintained or restored at high cost to society.

¹Coastal Zone Management Act of 1972, as amended, Section 304 (1)

4. Include any specially designated management areas. These comprise State parks along the shore, and areas for which a local waterfront revitalization program has been approved by the Secretary of State, and areas designated as estuarine sanctuaries.
5. Include tidal and saline waters, wetlands, islands and beaches. The State's Coastal Area includes all coastal waters which, as defined by the Waterfront Revitalization and Coastal Resources Act, include "lakes Erie and Ontario, the St. Lawrence and Niagara rivers, the Hudson river south of the federal dam at Troy, the East and Harlem rivers, the Kill von Kull and Arthur Kill, Long Island sound, and the Atlantic ocean, and their connecting water bodies, bays, harbors, shallows and marshes." All barriers and other islands situated in these waters are within the coastal boundary. Also, significant portions of creeks, streams and rivers which are tributaries to these coastal waters are found within the Coastal Area.
6. Exclude present federally-controlled lands. The Federal legislation specifies that such lands be identified and then excluded from the boundary. All Federal lands and facilities situated in New York's Coastal Area are listed in Appendix D. Major land holdings are delineated on the Coastal Area maps.
7. Provide buffer areas, where appropriate. Where desirable for aesthetic or other reasons, a landward buffer area of up to 1,000 feet from an identified political/cultural feature is provided, where otherwise the feature itself would serve as such boundary.
8. Coordinate boundary lines with those of adjacent states. Such action is necessary to avoid incompatible use conflicts at the juncture of New York's coastal boundary with those of Connecticut, New Jersey, and Pennsylvania. Throughout the development of New York State's Coastal Management Program, discussions were held and information was exchanged with officials from neighboring coastal states regarding the location of the coastal boundaries. It was determined that no major conflicts would arise due to any differences in the location of the inland boundaries at the borders of the respective coastal states.
9. Incorporate, to the greatest extent possible, local agency recommendations. Preliminary boundary proposals made by local agencies provided a basis

for final boundary determination, although some modifications were made to incorporate one or more of the preceding criteria.

Special Accommodations

The following were additional concerns, reflecting existing State policies and local circumstances which were recognized in the final landward boundary delineation:

1. Agricultural lands - The boundary was extended inland to include certain areas of coastal dependent agriculture where that use was very intensive, covered a large contiguous area and there was a clear inland boundary, i.e., a change in land use.
2. Viewsheds - Efforts were made to include within the boundary those avenues of visual access to the shore from public viewing points such as roads and public recreation areas. The ridgeline that defined the limits of what could be seen, for example, from the Hudson River or its shore was used to include the most scenic areas, primarily the Hudson Highlands and the Palisades.
3. Power Plant Sites - All existing steam-electric generating facilities of 50 megawatts or more, all sites for which application has been made to the State Siting Board to construct such a facility and all hydroelectric facilities, if coastal waters are used for cooling or generation purposes, were included within the coastal boundary. If a site for which application has been made is rejected by the State Siting Board, the boundary will be re-evaluated according to the boundary criteria listed above.
4. Historic Sites - Those historic sites which have a close association with the history of New York's coast were included. Also included were small coastal villages with historic relationships to the coastal waters.
5. Industrial areas - All areas of coastal-dependent industrial activity and areas with known potential for such development were included, primarily areas zoned industrial and located adjacent to existing coastal dependent industrial areas.
6. 100 Year Flood Line - The area encompassed by this line, as identified by the Federal Emergency Management Administration under the National Flood Insurance Program, is the area most directly

affected by the dynamics of the coastal process. Where the 100 year flood plain is clearly coastal related, it is included within the boundary. This flood line is a significant boundary determinant on many of the downstream segments of creeks, around embayments and along the shoreline itself.

- 7 Coastal Recreation Areas - Those recreation areas that are not State parks but are on or near the coast were included within the boundary. These areas include municipal and county parks and beaches, fishing and boating access sites, and campgrounds.

It should be noted that the above were not rigidly applied; in some areas additional specific information from counties, citizen groups, and other sources was used in determining boundaries.

Figures 1-4 illustrate the application of the boundary criteria and special accommodations at various locations in the State's Coastal Area.

New York State Coastal Area

Landward Boundary

Generally, boundary proposals made by local government agencies form the basis for the delineation of New York's landward coastal boundary. Understandably, modifications were necessary where local recommendations did not satisfy the criteria established for the statewide approach. Where a local agency could not agree on a boundary proposal, the Department of State developed the boundary line in accord with the indicated criteria.

As a result of the above process, the landward boundary of New York State's Coastal Area varies from region to region. Generally, the following conditions prevail:

- The inland boundary is approximately 1,000 feet from the shoreline of the mainland.
2. In urbanized and other developed locations along the coast, the landward boundary is about 500 feet from the mainland's shoreline or less than 500 feet at locations where a major roadway or railroad line runs parallel to the shoreline.
3. At locations where major State-owned lands and facilities and electric power generation facilities abut the shoreline, the boundary extends inland to include such lands and facilities.

In the Long Island region, the State's Coastal Area includes all barrier and other islands which are situated in coastal waters. On the mainland, the landward boundary is generally 1,000 feet from the shoreline, however, at major tributaries and headlands it extends several thousand feet inland. Along the Long Island Sound coast of Westchester County, the boundary extends 1,000 to 8,000 feet inland.

In New York City, this boundary extends 500 to 1,000 feet inland at most locations. However, on Staten Island and along major tributaries, such as the Bronx River, Newtown Creek and Flushing Creek, the landward boundary is several thousand feet from the mainland's shoreline.

Throughout most of the Hudson River Valley region, the landward boundary is generally 1,000 feet, but at some locations over 10,000 feet, from the River's shoreline. The latter occurs at places which are exceptionally scenic (for example, Hudson Highlands) or have significant agricultural and recreational lands.

Finally, the Coastal Area in the Great Lakes region of the State is about 1,000 feet inland from the shoreline. However, in many of the urbanized and developed areas of the coast (for example, Buffalo, Rochester, Oswego, Alexandria Bay and Ogdensburg) and at several locations where State highways and rail lines parallel the shoreline, the boundary extends 500 feet or less inland.

Seaward Boundary

The Federal requirements regarding the seaward boundary are explicit. The State's Coastal Area must include all coastal waters that are within its territorial jurisdiction. In accordance with these requirements, the Department of State has established the following seaward boundaries:

- o Great Lakes - St. Lawrence Area - Beginning at the Lake Erie Pennsylvania/New York line, the boundary follows the international boundary through Lake Erie, the Niagara River, Lake Ontario and the St. Lawrence River to that point where the St. Lawrence River leaves the United States.
- o Atlantic Ocean Area - Beginning at the New York/New Jersey line, the boundary follows the State boundary in the Hudson River, Upper Bay, Arthur Kill and Raritan Bay to the three-mile limit of the territorial sea in the Atlantic; follows the New York/Rhode Island boundary in Block Island Sound and the New York/Connecticut boundary within Long Island Sound.

Mapping

As indicated above, a set of maps, presenting the entire Coastal Area of New York State at a scale of 1:48,000, has been filed with State agencies. Additionally, appropriate copies of these maps have been filed with the clerks of coastal counties, cities, towns and villages. These maps show the location of the State coastal boundary and major areas of excluded Federal lands.

New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area

1" = 40,000
1" = 4,000 feet

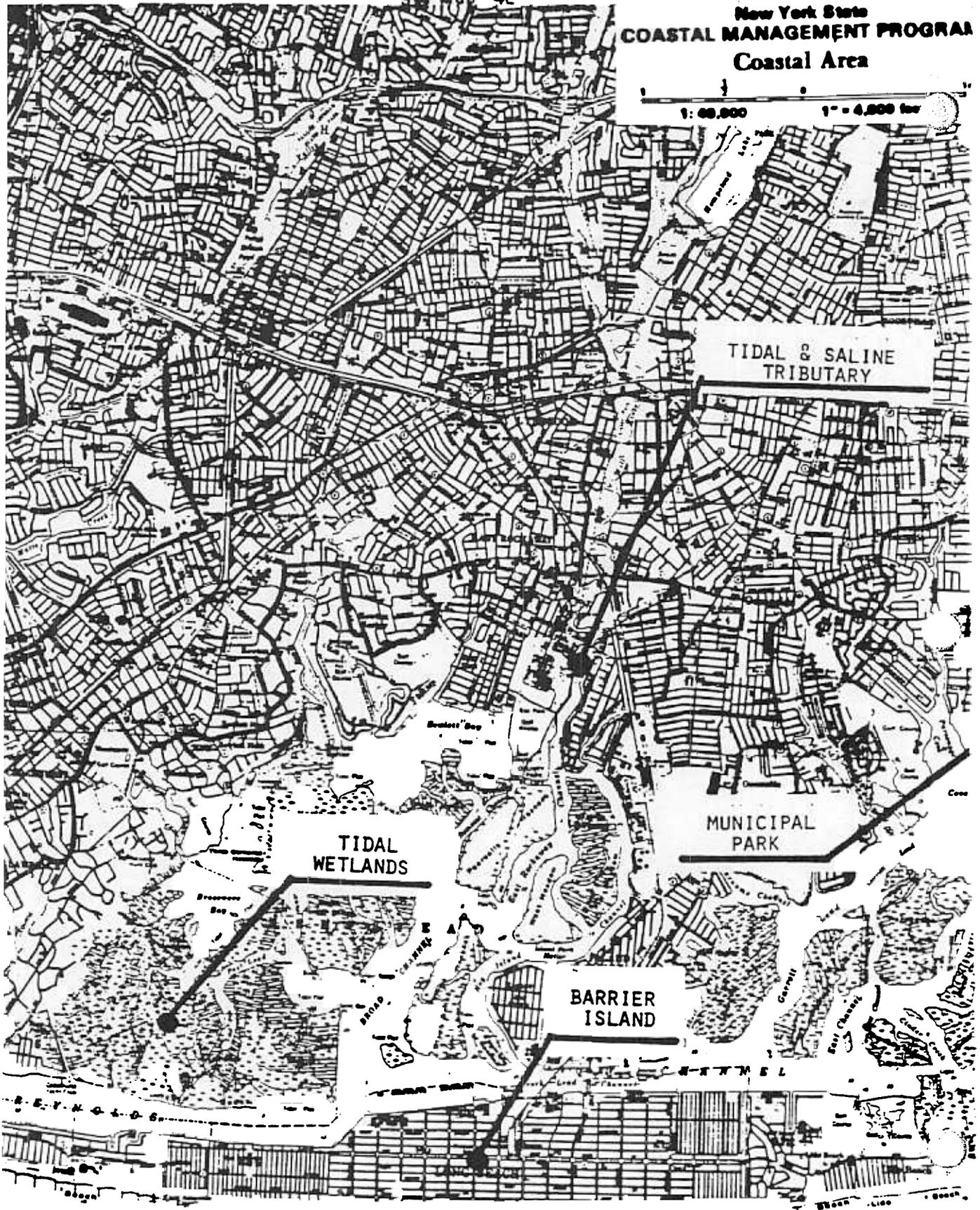


FIGURE 1 APPLICATION OF BOUNDARY CRITERIA
II - 3 - 8

New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area

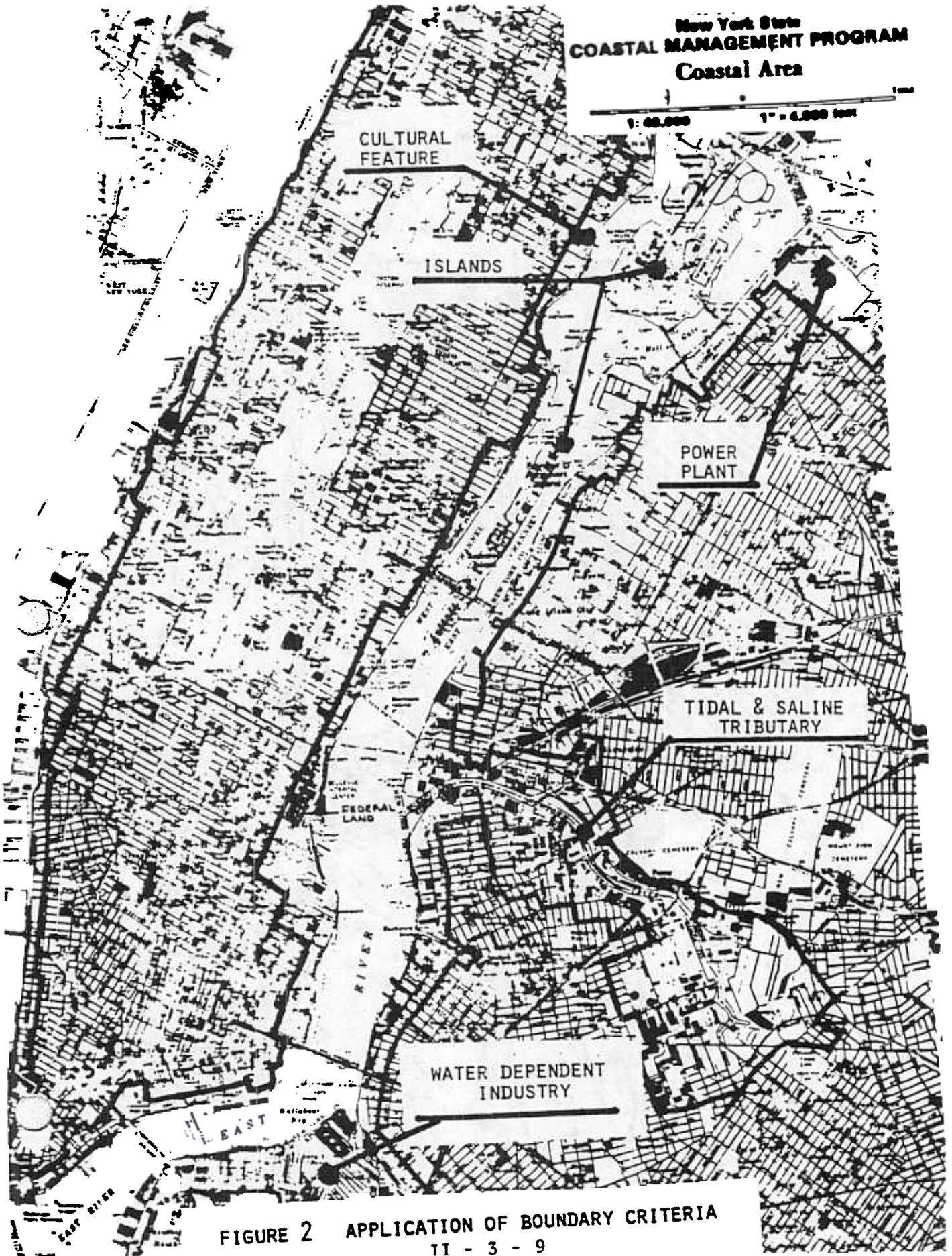


FIGURE 2 APPLICATION OF BOUNDARY CRITERIA
11 - 3 - 9

New York State
COASTAL MANAGEMENT PROGRAM
Coastal Area

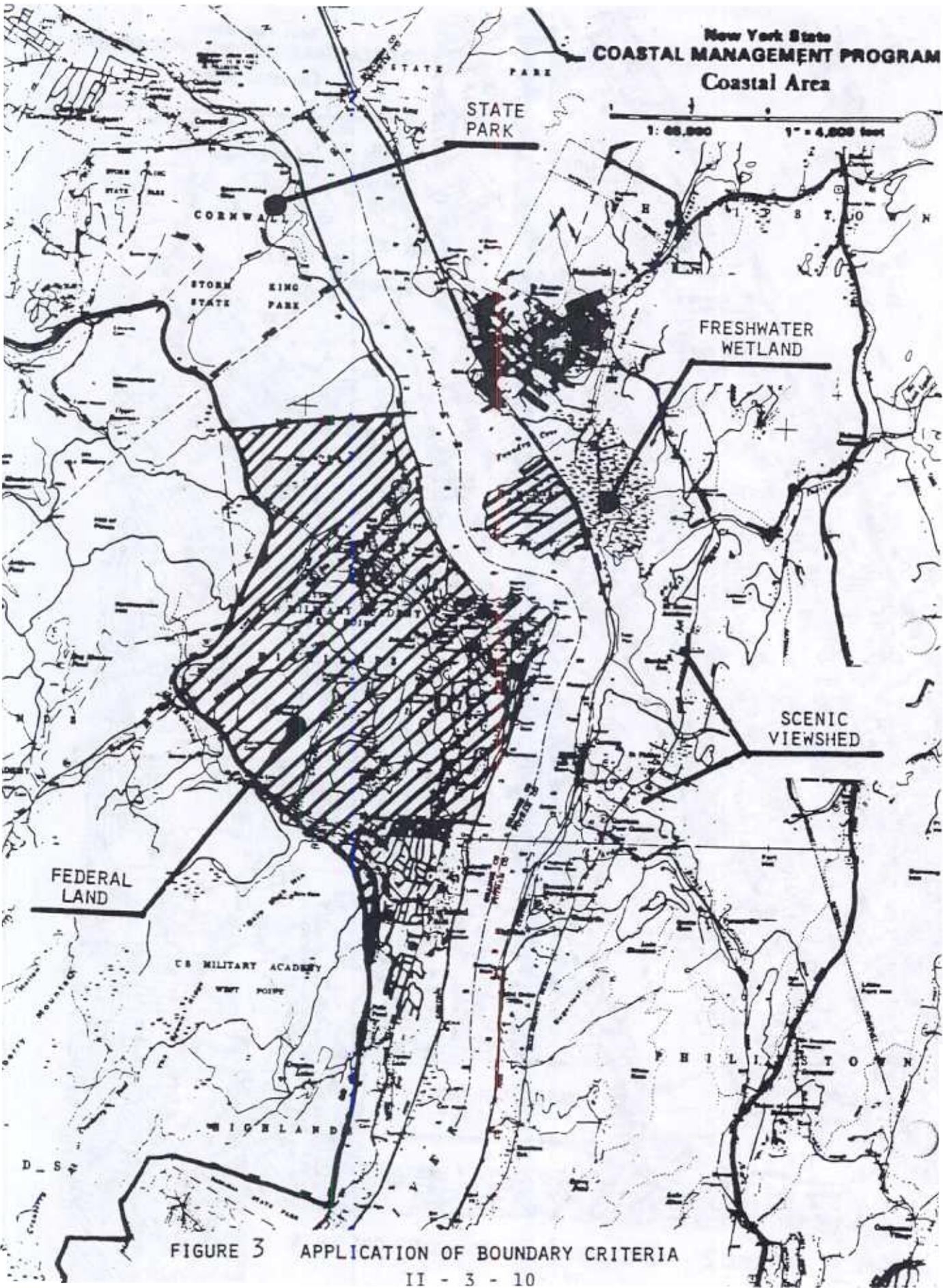


FIGURE 3 APPLICATION OF BOUNDARY CRITERIA
II - 3 - 10

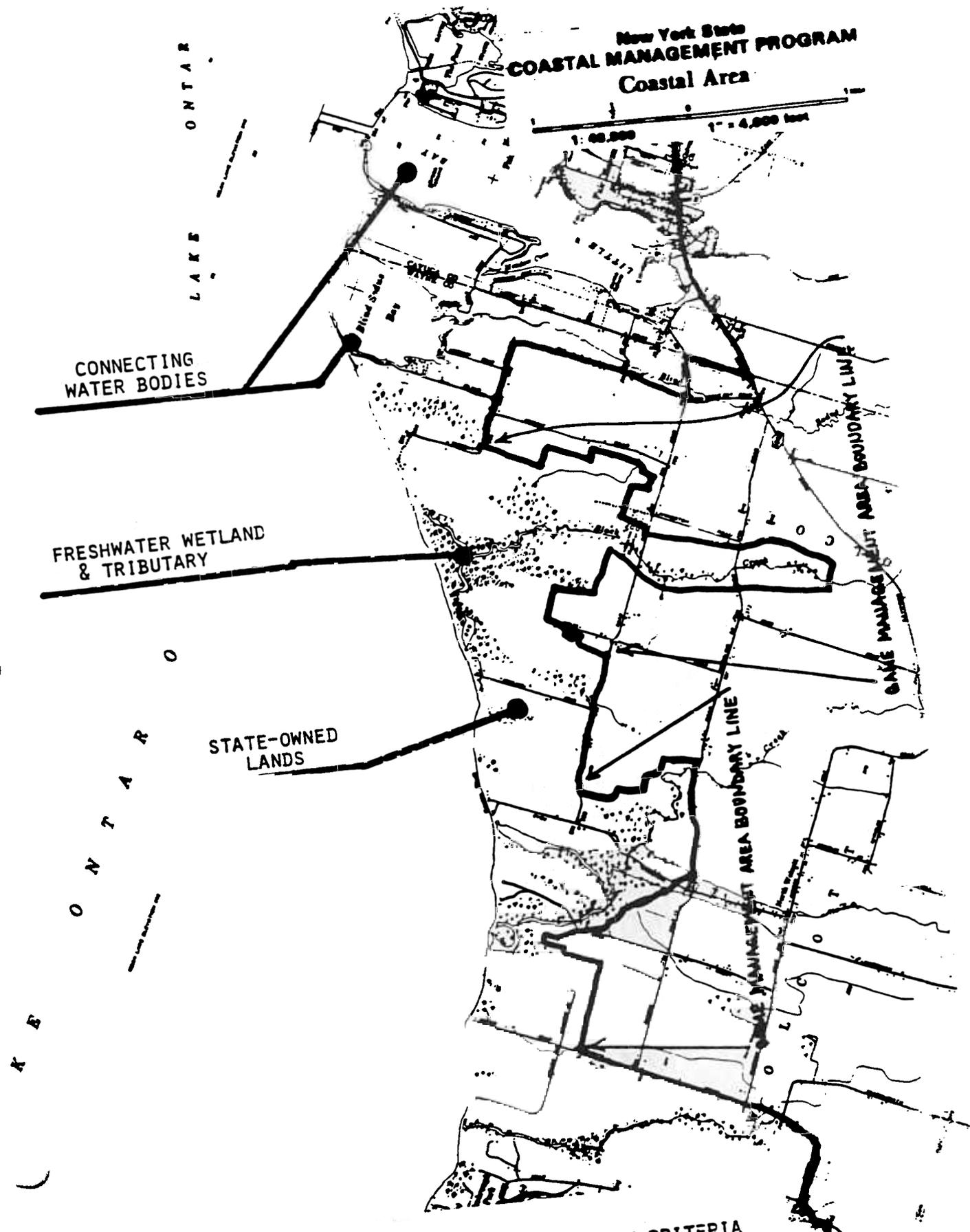


FIGURE 4 APPLICATION OF BOUNDARY CRITERIA

SECTION 4
PROGRAM MANAGEMENT

Introduction

New York State's Coastal Management Program must perform two major roles in order to achieve its overall purpose. One is to coordinate existing programs, activities, and decisions affecting the State's coast. The second is to advocate specific desired coastal activities. These two functions are supported by regulations promulgated by the Federal Office of Coastal Zone Management which require a State's program to satisfy the following criteria:

1. The management program must contain policies relating to resource protection, land use and development, and governmental processes (15 CFR 923.3).
2. The State must have sufficient legal authority to carry out and assure compliance with the program's policies (15 CFR 923.40, 923.41 and 923.43).
3. The State must indicate the organizational structure that is to be used to implement and administer its program (15 CFR 923.46).
4. A single State agency must be designated to administer the management program (15 CFR 923.47).

This section addresses all of the above-listed criteria. However, the criteria pertaining to program policies and legal authority are discussed in some detail in Section 6.

In the development of New York State's Coastal Management Program, several determinations were made in response to the above Federal requirements:

1. New York State would, to the greatest extent possible, rely upon existing laws and programs to implement the Program's objectives.
2. In July, 1981, two bills -- the Waterfront Revitalization and Coastal Resources Act and the Coastal Erosion Hazard Areas Act -- were signed into law. This legislation filled gaps in existing laws and programs, thus enabling the State to have an approvable Program.
3. Comprehensive review processes, such as the Environmental Quality Review (Environmental Conservation Law, Article 8) and Siting of Major Steam Electric Generating Facilities (Public Service Law, Article VIII), would be used to determine an action's consistency with the Program's policies.

4. Local governments would be encouraged, to develop and implement waterfront revitalization programs, thus participating in the State's Coastal Management Program.

The above factors were important in shaping the basic framework of New York State's Coastal Management Program, particularly the State's response to the Federal requirement as to the method for ensuring compliance with the Program's policies. New York State must clearly demonstrate that the entities (e.g., State agencies) responsible for the implementation of its Coastal Management Program will exercise their authorities in conformance with the Program's policies.

The Coastal Zone Management Act of 1972, ~~as amended, requires that one of three techniques (or any combination of the three) be used to ensure compliance with a State's coastal policies. New York State's Coastal Management Program utilizes the first two techniques identified by the Act, but primarily, the second technique, "direct State land and water use planning and regulation", because New York already has many regulatory, capital construction and other programs in effect at the State level which address coastal concerns.~~ There are two ways of operating a coastal management program under this technique: 1) to adopt comprehensive legislation that addresses all coastal concerns and requires State agencies to comply with the law's policies; or 2) to "network" existing programs so that when taken together they result in a comprehensive and unified approach for managing coastal land and water uses. New York's Coastal Management Program employs the networking approach, and compliance with coastal policies is ensured by the consistency provision of Article 42 of the Executive Law and the proposed regulations which implement this requirement.

For specific parts of the State's Coastal Management Program, the first technique will be utilized. Essentially, this technique involves implementation by local governments of State-established standards, criteria and procedures. New York State has enacted several laws for the protection and management of particular resources and areas -- freshwater wetlands, coastal erosion hazard areas -- which authorize the use of this technique. In each case, the State has established criteria and standards that have been or must be incorporated into these local programs prior to implementation by a local government. The State must review and approve such programs and is responsible for assuring that the programs are implemented in accordance with the established criteria and standards. Where non-compliance is found, the State may withdraw its approval of the local programs.

Where local implementation is not approved, the State will continue to rely upon the second technique.

Management Role of State Agencies

Most State agencies will have a role in the implementation of the Coastal Management Program. The extent of their involvement will vary due to the nature and, in some instances, the geographic jurisdiction of the programs that they operate. Their participation will involve the promotion and coordination of activities which occur within or affect the State's Coastal Area.

Coastal Management Agency

As the designated coastal management agency of New York State (L. 1975, C. 464, §47), the Department of State will be responsible for administering the Coastal Management Program as well as coordinating activities essential to its implementation.

Chapter 464 of the Laws of 1973 authorizes the Secretary to apply for, receive and administer any Federal funds which are made available to the State under the Coastal Zone Management Act of 1972, as amended. These Laws also permit the Secretary to enter into agreements with other State, regional, county and local agencies which could assist the Department of State in the administration and/or implementation of the Coastal Management Program.

The Waterfront Revitalization and Coastal Resources Act (Executive Law, Article 42) requires the Secretary to file, maintain and, when appropriate, amend the Coastal Area map. As discussed in Section 3, this map shows the lands and waters in New York State to which the Act's coastal policies apply. The Act also charges the Secretary to review and approve waterfront revitalization programs prepared by coastal communities. As part of this review process, State agencies and appropriate county and local governments will be consulted before the Secretary of State approves any local waterfront revitalization program. In situations where a conflict between a local program and an existing State policy arises, the Secretary must attempt to resolve the difference.

The Department of State will perform other activities which are essential to the State's Coastal Management and Waterfront Revitalization Programs. Monitoring the decisions of State agencies as to the consistency of their proposed actions with coastal policies will be an important administrative activity. The Department will track actions proposed in the Coastal Area through the State Environmental Quality Review Act (SEORA) process and will evaluate the consistency determinations made by State agencies. When appropriate, the Department will advise the agencies on the consistency of such actions with the coastal policies. The Program-related administrative and implementation activities of agencies under contract to the Department will also be monitored and reviewed.

Changes to policies and boundaries of the Coastal Area require the review and approval of the Secretary of State.¹ If appropriate, such changes may necessitate notification, review and/or approval by Federal and local governments. Procedures covering amendments to local waterfront revitalization programs are found in the draft regulations pertaining to the Department's review and approval of such local programs.

~~The Department of State will also be responsible for conducting the Federal consistency review process at the State level. Generally, the Department will evaluate major actions proposed in the Coastal Area of the State by Federal agencies or by entities requiring Federal permits and determine the consistency of those actions with the Program's policies. Specific procedures governing this review process are contained in Section 9 of this report.~~

Departmental of Environmental Conservation (DEC)

DEC has the major responsibility for protecting the natural resources of the coastal area. This responsibility includes new administrative authority for protecting coastal erosion hazard areas as well as its existing permit authority for wetlands, both tidal and freshwater, and air and water quality.

In its permitting role, DEC reviews most activities that have the potential to impact coastal resources. ~~Those with the potential for significant impact are thoroughly reviewed in connection with the SEQRA process and can be approved only after DEC has found that the activity will be consistent with the policies of the coastal management program.~~ This review will ensure comprehensive implementation of the program with respect to a wide variety of activities.

In addition, DEC is responsible for a number of direct and funding activities, some of which, such as the construction of wastewater treatment facilities, have major consequences for coastal development. The assured consistency of these activities will have major long range beneficial effects on the coastal area.

¹Amendments to the State's Coastal Management Program are also subject to National Oceanic and Atmospheric Administration's regulations under 15 CFR 923.

Other State Agencies

State agencies, including State created authorities, commissions and boards, operate a number of programs which are critical to and may affect the proper management of New York's coastal resources. In addition to the Departments of State and Environmental Conservation, some of the other agencies include the Offices of Parks, Recreation and Historic Preservation, Business Permits, Energy, and General Services; the Departments of Transportation and Commerce; the Public Service Commission; the Power Authority of the State of New York; and the Port Authorities of Albany, Buffalo, Ogdensburg, Oswego, and New York - New Jersey; and the St. Lawrence-Eastern Ontario Commission. The State's property disposition, acquisition and leasing, capital project construction, financial assistance, regulatory and planning programs cover many land and water activities that beneficially use and adversely affect these resources. Some of the land and water activities affected by the agencies' programs include the construction of highways; acquisition and development of parklands; siting of energy facilities; construction of seawalls, bulkheads, groins and jetties; and leasing of underwater lands. Most of these programs serve singular purposes, but collectively they form an impressive block of State programs which are aimed at the wise use and protection of coastal resources. Thus, agencies of New York State are equipped and are expected to perform a vital role in the implementation of the Coastal Management Program.

~~The Waterfront Revitalization and Coastal Resources Act is the basis for bringing together all of the appropriate State agencies' programs for the purpose of implementing New York State's Coastal Management Program. Section 912 of the Act establishes several general policies applicable to the Coastal Area of the State and provides the legal basis for most of the policy statements contained in Section 6 of this report. The intent of these policies is to provide direction to State agencies when operating their programs in the Coastal Area. These policies cover a range of concerns pertaining to the use and protection of natural and man-made coastal resources. but one~~

Section 919(1) of the Waterfront Revitalization and Coastal Resources Act requires that "...actions directly undertaken by State agencies within the coastal area... shall be consistent with the coastal area policies of this Article." This provision of law effectively ties together the programs of State agencies by binding their decision-making actions to the coastal policies. Thus, the assurance that these agencies act in accordance with these policies is provided by Section 919(1). Actions which are not consistent with applicable coastal policies are to be prevented or, where appropriate, modified to an extent that they may be found consistent with the policies. The State agency having jurisdiction over a proposed action is responsible for determining the consistency of that action with the coastal policies. In instances where two or more agencies may have some jurisdiction over a proposed action, each agency is expected to make its own consistency determination. The actions of State agencies must also be consistent, to the maximum extent practicable, with local waterfront revitalization programs which have been approved by the Secretary of State.

Advocacy Role of State Agencies

In carrying out their respective administrative and coordination responsibilities, the Department of State and other State agencies will promote a number of interests that are central to the overall purpose of the Coastal Management Program. These interests include: (1) the revitalization of waterfront areas; (2) the siting of water dependent uses; (3) the protection of significant fish and wildlife habitats, scenic and historic areas and farmlands; (4) the enhancement of economic and other activities in small harbors; (5) the reduction of damages caused by flooding and erosion; and, (6) the stimulation of research, dissemination of information, and the participation of the public and private sectors on coastal-related activities.

The major vehicle for promoting waterfront revitalization is through the implementation of voluntary local government waterfront revitalization programs. Section 8 of this document details the minimum requirements to be met by local waterfront revitalization programs. The implementation of these programs, once approved by the Secretary of State, is substantially assisted by the requirement that State agencies are to be consistent with the approved programs. In addition, when such local waterfront revitalization programs are incorporated into the State's Coastal Management Program through the amendment or routine implementation processes established by the U.S. Department of Commerce, Federal agencies must also be consistent.

In addition to the local government effort, the Department of State, as the Coastal Management agency, will further revitalization by:

Assisting State agencies in establishing priorities for waterfront projects.

Investigating and establishing alternative funding and land use mechanisms which would not unduly burden the public or private sector. This would include investigating the feasibility and appropriateness of such mechanisms as simplification of State permits and other similar permits between levels of government, incentive zoning, revolving loan funds, special tax districts, dedication of property taxes, public benefit assessments, sand and gravel mining fees, tax increment financing, and Outer Continental Shelf revenue sharing.

Fostering interagency involvement in revitalization efforts on a continuing basis.

There are two major vehicles for promoting water dependent uses. First, State agencies are required to avoid undertaking funding or approving non-water dependent uses when such uses would preempt the reasonably foreseeable development of water dependent uses. State agencies must also utilize appropriate existing programs to encourage water dependent uses. Second, the Department of State will work with other State agencies responsible for those coastal resources whose proper use could be water dependent. For example, the Department of State will work with the Departments of Agriculture and Markets, Environmental Conservation, and Commerce to determine methods for expanding the State's commercial fishing industry at proper locations, and then work with selected coastal communities that can feasibly increase this industry.

A primary vehicle for protecting significant fish and wildlife habitats is through the authority granted the Department of Environmental Conservation by the Waterfront Revitalization and Coastal Resources Act. Significant habitats will be identified and mapped on the State's Coastal Area map. ~~In most instances, it will be possible to avoid or mitigate adverse effects of an action through careful timing or conditioning of that action.~~

Two means will be utilized in the Coastal Management Program's advocacy for scenic areas. The first is through waterfront revitalization programs, described in Section 8. The Department of State will also provide assistance on the usefulness of several approaches available to local governments for increasing the quality of and/or protecting scenic areas.

The second means is through the Department of State's identification of a limited number of scenic resources of State-wide significance on the Coastal Area Map. Once identified, State agencies must determine whether a proposed action could affect this resource. If the proposed action does affect the resource, agencies are encouraged to choose an alternative site for the action. If it is not feasible, special siting and design guidelines are offered which will minimize degradation of this resource.

The Program actively promotes the preservation of all historic and cultural resources which have a coastal relationship, by requiring protection of the area around historic sites, as well as areas of significance. Further, the Program requires State agencies and local governments with approved waterfront revitalization programs to actively seek to restore or revitalize appropriate areas through adaptive reuse.

The Department of State's research efforts will include working with the Office of Parks, Recreation and Historic Preservation to develop additional means of augmenting preservation and development of coastal historic areas.

Important agricultural lands will be identified and mapped on the Coastal Area map. State agencies are required to prevent actions that would result in a significant loss of such identified agricultural lands. Local waterfront revitalization programs are required to protect important farmlands if they are within the waterfront areas.

State agencies are required to consider whether any proposed action would detract from recreational and commercial fishing, ferry services, marinas, historic preservation, cultural pursuits and other compatible activities which enhance small harbor areas and hence make significant contributions to the State's tourism industry. Local waterfront revitalization programs are required to recognize the social benefits of small harbors and ensure their protection. Further, through the Program's research activities, alternative means for effectuating these actions will be sought.

Visual and physical access to and along the shore will be protected and increased, in part through a single coordinated statewide access planning process. This process will result in the identification of a list of the specific access improvement areas to which the State will give priority within financial and legal limits. Local waterfront revitalization programs must also increase access and protect existing access. Various procedures that may be used are discussed in Appendix B.

The damage to property inflicted annually by flooding and erosion in the State's Coastal Area is not only a burden on individual shorefront residents, but on local governments and the State who lose valuable facilities and are called upon to expend substantial sums for the replacement and for the installation of protective structures. The Coastal Management Program's advocacy stance seeks to reduce this ever-increasing economic waste by setting standards for land development and for the protection of natural defenses which reduce the risk of damage in flood and erosion prone areas.

The Department of State has collected and mapped basic coastal resources data. This information will be made available to all State agencies and any local government preparing and/or implementing a local program. The Department will maintain its coastal resources inventory of significant natural resources areas, historic sites, agricultural lands, and areas suitable for water dependent uses. This information will assist State and Federal agencies in ensuring consistency of their actions with the policies. It will also serve as a valuable tool to the private sector and government agencies in their development efforts. The Department of State maintains a clearinghouse of existing and potential Federal and State funding programs available for waterfront revitalization and a compendium of various approaches suitable for waterfront revitalization.

The Department will work with Sea Grant to assist in determining research priorities which will serve the purposes of both programs. It will also work with State research and development agencies to establish alternative means of effectuating waterfront revitalization, and protecting significant coastal resources.

~~The Coastal Management Program will continue providing information to raise the level of public awareness of coastal issues and opportunities, and will continue seeking advice from affected interests and government agencies in the decision-making process. The Department of State will periodically conduct workshops with State and Federal agencies to review the performance of the Program, resolve differences and make improvements. Workshops will also be held with environmental, development and other interests to ensure the Program is meeting its objectives and addressing the problems of concern to these interests.~~

The voluntary waterfront revitalization programs are based on building a consensus between all affected interests, users and regulators of the waterfront. This undertaking demands extensive participation resulting in broad based support of the Program.

Consistency of State Agencies' Actions

The basic thrust of New York State's Coastal Management Program is to have State agencies carry out their respective programs consistent with the policies contained in Section 6 of this document. ~~All of the Program's policies are derived from existing laws and regulations administered by State agencies.~~ Table 1 identifies the various laws that provide the basis for and are essential to the enforcement and implementation of the coastal policies. Many of the Program's policies are carried out by programs administered by the Department of Environmental Conservation. For example, the Department operates regulatory programs which provide protection to tidal and freshwater wetlands (Policy 44), restrict development and other activities in flood and erosion hazard areas (Policies 11-17), and protect

air and water resources (Policies 30-35 and 40-43). Other agencies, such as the Office of Parks, Recreation and Historic Preservation, Public Service Commission and the State Board on Electric Generation Siting and the Environment administer programs which provide coastal recreational facilities, regulate the siting of energy transmission facilities and regulate the location of electric power plans, respectively.

Other Program policies are based upon the provisions of Article 42 of the Executive Law. These policies carry out the intention of the State Legislature that there be "a balance between economic development and preservation that will permit the beneficial use of coastal resources while preventing the loss of living marine resources and wildlife, diminution of open space areas or public access to the waterfront, shoreline erosion, impairment of scenic beauty, or permanent adverse changes to ecological systems" (Executive Law, Article 42, Section 912(1)). Executive Law, Article 42, requires that actions directly undertaken by State agencies within the State's coastal area be undertaken in a manner consistent with this second group of policies. In addition, the procedures of the State Environmental Quality Review Act (Environmental Conservation Law, Article 8) will insure that all State agency actions, of whatever type, will be consistent with these policies.

The Department of State, in cooperation with the Department of Environmental Conservation, has prepared draft regulations to ensure that State agencies carry out their responsibilities under section 915(8) and 919(1) of the Waterfront Revitalization and Coastal Resources Act. These regulations take two forms: (1) amendments to Part 617 of the State Environmental Quality Review regulations; and (2) new rules to be promulgated by the Department of State.

State Environmental Quality Review Process

Generally, SEQRA is a comprehensive review process that is applicable to all actions of State and local agencies which may have significant effects upon the environment. Agencies are required to determine whether or not a proposed action is subject to the review process. Exempt, emergency and ministerial actions (Type II actions) are exempted from this process, but other proposed activities must be evaluated for their probable impact on the environment. If an agency finds that an action will have significant adverse environmental effects, a "positive declaration" must be made and an environmental impact statement (EIS) must then be prepared. Before making any decision on an action that requires the preparation of an EIS, an agency must prepare written findings which indicate the following: (1) "consistent with social, economic and other essential considerations from among the reasonable alternatives thereto,

the action to be carried out or approved is one which ~~minimizes~~
~~or avoids adverse environment effects to the maximum extent~~
~~practicable~~, including the effects disclosed in the relevant
environmental impact statement," and (2) "consistent with social,
economic and other essential considerations, to the maximum
extent practicable, adverse environmental effects revealed in the
environmental impact process will be minimized or avoided by
incorporating as conditions to the decision those mitigative
measures which were identified as practicable."

~~New York State's Coastal Management Program relies upon SEQRA as~~
~~a means for implementing the consistency requirement under~~
~~Section 919(1) of the Waterfront Revitalization and Coastal~~
~~Resources Act. This review process already contains points of~~
~~consideration which would help a State agency determine the~~
~~consistency of a proposed action with coastal policies.~~ In
amending the SEQRA regulations to accommodate the waterfront
legislation's directives, two conditions were set: (1) the
existing review procedures would not be substantially altered or
made complicated; and, (2) the agencies be alerted "up front" of
any new procedural and substantive requirements.

The principal amendments to Part 617 of the SEQRA regulations
address the following:

For those actions having a significant effect upon the
environment and necessitating the preparation of an
environmental impact statement, ~~State agencies must~~
~~ensure that such actions are consistent with the appli-~~
~~cable coastal policies contained in the Department of~~
~~state regulations.~~

Department of State Regulations

As the State's Coastal Management Agency, the Department of State
must be knowledgeable of the activities occurring in or affecting
the Coastal Area. The amendments of SEQRA, as described above,
will in part enable the Department to track major activities, for
it will receive copies of the EIS documents and have the
opportunity to comment on such proposed actions. Draft SEQRA
amendments are located in Appendix A.

To avoid burdening the SEQRA regulations with additional
procedures, requirements and criteria, the Department of State
will promulgate regulations which are applicable to "Type 1" and
"Unlisted" actions occurring in the Coastal Area. These proposed
regulations dovetail with the SEQRA process. Essentially, the
Department's regulations include the following requirements
and/or items:

1. The completion of a Coastal Assessment Form (CAF) is required for all state agency actions in the Coastal Area. This CAF is to be used to supplement other information in order to assist that agency in determining the significance of the action, pursuant to SEQRA. If the action will not have a significant effect, the CAF will assist state agencies in arriving at their certification decisions, as discussed below.
2. Certificates of consistency must be filed with the Secretary of State for actions that do not have a significant effect upon the environment (as determined under the SEQRA process) and which occur in or affect the Coastal Area or an area covered by an approved local waterfront revitalization program
3. Coastal policies are described and made a part of these regulations.

All proposed regulations needed to implement the Coastal Management Program will be final prior to approval of the Program.

Judicial Review of Agencies' Decisions

* State agencies will be responsible for determining the consistency of their actions with coastal policies. The Department of State will work with the agencies and assist them in fulfilling this requirement under Article 42 of the Executive Law. The Department is not authorized to override the decisions of its sister agencies on matters relating to this Law. A third party may seek judicial review of an agency's determination of consistency pursuant to Article 78 of the Civil Practice Law.

Article 78 proceedings exist primarily to afford relief to parties personally aggrieved by governmental actions. One of the questions that may be raised in such proceedings is whether a determination was arbitrary and capricious or an abuse of discretion. This is a legislative enactment of what has long been the case law of New York. The courts have consistently held that administrative action which is arbitrary, capricious, unreasonable, or an abuse of discretion is subject to judicial review and annulment. In reviewing the action of a public body, the court determines not only whether the action is within the body's statutory power but whether, within the frame of power, the action is arbitrary. Even in the presence of a delegated power of discretion and legislative standards, a determination of a body is reviewed for arbitrariness or unreasonableness within the standards set down.

The test usually applied in deciding the arbitrariness of a determination is whether it has a rational or adequate basis, or, stated in another way, whether the record discloses circumstances which leave no possible scope for the exercise of discretion. Under both the substantial evidence rule and the arbitrary and capricious standard, rationality is what is reviewed by the court.

With respect to who would be "personally aggrieved" so as to have standing to seek relief under Article 78, that hurdle is not a high one in New York State. While a respondent in an Article 78 proceeding may occasionally contest the aggrieved petitioner's standing to sue, the Court of Appeals (the highest court in New York State) has indicated that the right to challenge administrative action should be enlarged rather than diminished. Dairyalea Cooperative, Inc. v. Walhley, 38 NY2d 6, 377 NYS2d 451, 339 NE2d 865 (1975). The Court stated that "only where there is a clear legislative intent negating review...or lack of injury in fact ...will standing be denied. Dairyalea, supra., 38 NY at 11, 377 NYS2d at 455, 339 NE2d at 868. No such intent is expressed or manifest in Executive Law, Article 42, nor in any other of the State statutory authorities relied upon for implementation of this program.

When taken together, the Department's proposed regulations, the amendments to the SEQRA process and the judicial review of actions will ensure that State agencies will carry out their actions consistent with the policies of the Coastal Management Program. Table 1 lists the major authorities which State agencies will utilize to implement the Program.

TABLE 1

Legal Authorities Essential to
the Implementation of New York State's
Coastal Management Program

1. Agriculture and Markets Law

- . Article 25AA - Agriculture District Program

2. Energy Law

- . Article 3 - State Energy Policy
- . Article 5 - State Energy Office; Organization and Powers, Functions and Duties

3. Environmental Conservation Law

- . Article 3 - General Powers and Duties
- . Article 8 - State Environmental Quality Review Act
- . Article 9 - Lands and Forests
- . Article 11 - Fish and Wildlife
- . Article 13 - Marine and Coastal Resources
- . Article 15 - Water Resources
- . Article 17 - Water Pollution Control
- . Article 19 - Air Pollution Control
- . Article 23 - Mineral Resources
- . Article 24 - Freshwater Wetlands Act
- . Article 25 - Tidal Wetlands Act
- . Article 27 - Collection, Treatment and Disposal of Refuse and Other Solid Waste
- . Article 34 - Coastal Erosion Hazard Areas
- . Article 36 - Participation in Flood Insurance Programs
- . Article 37 - Substances Hazardous to the Environment
- . Article 45 - State Nature and Historical Preserve Trust
- . Article 49 - Protection of Natural and Man-Made Beauty
- . Article 51 - Implementation of Environmental Quality Bond Act of 1972

4. Executive Law

- . Article 42 - Waterfront Revitalization and Coastal Resources Act

5. Highway Law

- . Article II - Commissioner of Transportation
- . Article III - State Highways

6. Navigation Law
- . Article 3 - Navigable Waters of the State
 - . Article 11 - Improvement and Preservation of Waterways
 - . Article 12 - Oil Spill Prevention, Control and Compensation
7. Parks, Recreation and Historic Preservation Law
- . Article 3 - Office of Parks, Recreation and Historic Preservation
 - . Article 11 - State Board for Historic Preservation
 - . Article 14 - Historic Preservation
 - . Article 20 - State Park Preserve System
8. Public Buildings Law
- . Article 2 - Commissioner of General Services
 - . Article 4B - Historic and Cultural Properties
9. Public Health Law
- Article 2 - Department of Health
 - Article 11 - Public Water Supplies, Sewerage and Sewage Control
10. Public Lands Law
- . Article 2 - Office of General Services
 - . Article 3 - Unappropriate State Lands
 - . Article 6 - Grants of Lands Under Water
11. Public Service Law
- Article 3C - Provisions Relating to Liquid Petroleum Pipeline Corporations
 - . Article 4 - Provisions Relating to Gas and Electric Corporations; Regulation of Price of Gas and Electricity
 - Article VII - Siting of Major Utility Transmission Facilities
 - . Article VIII - Siting of Major Steam Electric Generating Facilities

Local Government Involvement

Many coastal communities have adopted regulatory programs which reflect State-established standards and criteria on matters relating to the protection of freshwater wetlands and flood and erosion control. Federal approval of the State's Program is not, however, dependent upon the preparation and adoption of similar programs by local governments.

The State of New York strongly supports a coastal management effort that encourages local governments to prepare and implement waterfront revitalization programs. Throughout the Coastal Area of the State, many communities have undertaken a variety of activities directed at protecting valuable resources and bringing new vitality to decayed and unused waterfronts. Other waterfront municipalities wish to do so, but lack the financial and/or technical support necessary to accomplish this objective. The State's Coastal Management Program will, therefore, focus its attention on communities which want to initiate and/or continue activities that result in the wise use and protection of natural and man-made coastal resources.

The Waterfront Revitalization and Coastal Resources Act provides the means and incentive for municipalities in the Coastal Area to prepare programs for their waterfront areas and then work with the Department of State and other State agencies implement such programs. By participating, local governments will be eligible to receive financial and technical assistance for the preparation of their waterfront revitalization programs. Upon approval of these programs by the Secretary of State, the communities may also receive assistance for pre- construction activities (e.g., feasibility studies, engineering and architectural designs) essential to projects that are recommended in the approved programs. ~~Further, Section 916(1) of the Act requires State agencies to carry out their various regulatory, capital construction, funding assistance and acquisition activities in ways which are consistent to the maximum extent practicable with the approved local waterfront revitalization programs.~~

For the purposes of the State's Coastal Management Program, approved local waterfront revitalization programs will provide more specificity to the coastal policies and their geographic application. Since these local programs contain a more detailed approach for managing activities in the Coastal Area, the waterfronts affected by such programs will be treated as special management areas. One of the ways to increase the specificity of the State's Coastal Management Program is the designation and adoption of a program for a special management area.² Section 8 of this report provides more information on special management areas.

Local Program Approval Process

Draft rules and regulations have been prepared which establish review and approval procedures for local waterfront revitalization programs. These proposed rules and regulations are contained in the Appendix of this report.

As required by the authorizing legislation, a local waterfront revitalization program must: clearly identify the geographic area to which it applies; state the goals and specific objectives of the program; demonstrate its consistency with the Act's purposes and coastal policies; inventory the waterfront's natural and historic resources; identify current and future land and water uses in the area; describe the municipality's activities essential to program implementation; demonstrate the community's authority and capability to carry out its program; and, identify specific actions by State agencies which would aid local implementation efforts. This information will assist State agencies in determining the effect, if any, that the local program will have upon their activities. Also, the required information is necessary to increase the specificity of the State's Coastal Management Program.

In reviewing a local waterfront revitalization program, the Secretary of State will consider:

²Amendments to the State's Program are also subject to National Oceanic and Atmospheric Administration's regulations under 15 CFR 923

1. Its consistency with the Act's policies
2. Its fulfillment of the Act's criteria on water dependent and water enhanced uses; public access to coastal waters and water-related activities; promotion and protection of scenic, historic and natural resources; utilization of existing infrastructure; protection of sensitive ecological areas; promotion of port and harbor activities; and incorporation of aesthetic consideration in development activities.
3. Its compliance with existing State policies and State agencies' programs.
4. Its effect upon the facilities, policies and programs of the county and adjacent local governments.
5. Comments provided by the general public, public interest groups, and business organizations.

Notification of the Secretary's approval of a local waterfront revitalization program will be sent to all State agencies and appropriate county and local governments. Amendments to such local programs may be made, but are subject to review and approval by the Secretary. Periodically, the Secretary of State will review the administrative and implementation actions of local governments affecting the coastal area for which there is an approved waterfront revitalization program in order to determine if these actions are being carried out in accordance with the goals and objectives of the approved local waterfront revitalization program.

Program Funding

Pursuant to Congressional appropriations, New York State may receive \$3 million in Federal funds in FY 82 for the administration and implementation of its approved Coastal Management Program. The State will provide \$.75 - \$1 million as its match to the Federal monies. State funds which are provided for the implementation of the Waterfront Revitalization and Coastal Resources and the Coastal Erosion Hazard Areas Acts may be counted as part of the State's required match as appropriate.

State Agencies Activities

The Coastal Management Program is a statewide program that relies upon State agencies for its implementation. Previous parts of this Section indicated what is expected of the various State agencies. Generally, funds will be provided to the Department of State for its administration of the Program, including its administrative functions required under the Waterfront Revitalization and Coastal Resources Act. The Department's technical assistance to State agencies and to local governments will also be funded by these Program monies.

Where necessary, State agencies will be eligible for funding to cover the costs associated with the consistency determination process. It is anticipated that only the Departments of Environmental Conservation and Transportation and the Office of Parks, Recreation and Historic Preservation, and the Office of General Services may require funds for this purpose. The implementation of State programs critical to the continued approval of the Coastal Management Program will receive necessary financial support. Some State agencies may assist the Department of State in providing technical assistance to local governments and in turn be compensated for their efforts. Finally, some agencies will be encouraged to undertake special studies that will advance Program objectives, including those contained in approved local waterfront revitalization programs. Such studies may focus on one or more coastal concerns and apply to the entire or some portion of the State's Coastal Area.

Local Government Activities

During the preparation of the State's Coastal Management Program, the Department of State encouraged coastal communities to become involved in the Program. Many local governments did participate.

Funding was provided to some for the preparation of waterfront management programs; others received financial assistance to conduct special studies related to a local coastal issue or project. The desire of local governments to bring new or additional vitality to their waterfronts far exceeded the funds that the Department had for this purpose.

Local governments' interest and participation in the State's Coastal Management Program are expected to be substantial. In anticipation of this level of involvement, approximately 50% of the available funds will be allocated for local government efforts. The preparation of waterfront revitalization programs and preconstruction activities for projects recommended in approved waterfront programs will be eligible activities. Special studies which address one or more coastal issues affecting two or more adjacent coastal communities will be eligible for funding under the State's Program. A maximum of one, 12 month grant, not exceeding 50% of the cost for preparing a local waterfront revitalization program may be available.

Local governments will be expected to draw upon their own agencies for the technical expertise that is needed to perform any of the eligible activities. In instances where a local government may not have the capability to undertake such tasks, the Department of State, other State, county and regional agencies should be consulted and, if appropriate, requested to provide the necessary technical expertise. Program funds would be made available to the local government for this purpose.

Funding Priorities

Pursuant to Congressional appropriations, the State of New York may receive \$3 million. Given this uncertainty, it is not possible at this time to determine how much money will be allocated to the various Coastal Management Program related activities. However, some general priorities are established to guide the Department of State in its allocation of these funds.

Coastal Management Program funds will be used by State agencies for implementation of State programs critical to the continued approval of the Coastal Management Program, including consistency activities and special studies, if necessary.

Program funds for local government activities will be used for:

1. Preparation and implementation of local waterfront revitalization programs and local ordinances for erosion hazard areas; and,
2. Pre-construction projects and other activities recommended in approved waterfront revitalization programs.

SECTION 5

COASTAL ISSUES

DEVELOPMENT

Introduction

Coastal development is an all pervading concern of New York's Coastal Management Program, and its consideration is recognized and reflected throughout the other policy discussions -- most notably in Agriculture, Energy, Fish and Wildlife, and Recreation. There are several other aspects of coastal development which are discussed below and form the basis for the policies that will guide the State in its various development decisions along the shore.

Deteriorated and Underutilized Waterfront Space

The exodus of people and commerce from the inner city is most clearly manifested in the underutilized, sometimes abandoned and often deteriorated sites found along urban waterfronts. Outdated and deteriorating private and public facilities, the need for more space, increased reliance on trucking, deteriorated surrounding neighborhoods, spiraling property taxes, and financial incentives provided by suburban counties and other states, are some of the reasons for the reduction in development activity along New York State's urban waterfronts.

The Program seeks to reverse this trend so that revitalized urban waterfronts can regain their position as focal points for industry, commerce, culture, recreation and housing.

Competition for Space

Although much of the State's coastline is underutilized, some areas are subject to intense use pressures. The reasons a particular site becomes desirable for development vary, but are generally related to such factors as topography, local climatic and soil conditions, access to transportation, aesthetic value, and surrounding land uses. Unfortunately, where there is competition for a particular site, the market mechanism and existing regulations do not always ensure that the public interest will be served. For example, many uses which are dependent on a waterfront location are preempted by development that merely seeks the convenience of a visually-enhanced setting, or by happenstance. The problem of competition for space can be particularly acute in urban areas.

Because it is the obligation of the Coastal Management Program to consider the long-range interest of the public, the task of the Program thus becomes one of determining which uses should receive priority treatment in the coastal areas, and what form that treatment should take.

Incompatible Adjacent Uses

Because certain sites are desirable locations for a number of uses, a situation often develops where incompatible activities are forced to locate next to one another. An example of this would be in port areas where heavy industrial uses may lower air, water and visual quality, and raise surrounding noise levels, with a consequent reduction in the enjoyment of those people who are participating in nearby recreation activities. Recreational uses within harbor areas, on the other hand, can inhibit port development by restricting industrial expansion, forcing port interests to alter dredging operations, interfering with shipping movements, or by creating safety hazards.

When incompatible uses are, or are proposed to be, located adjacent to one another, the Coastal Management Program, in conjunction with other State and local programs, is faced with the task of mitigating the negative aspects. When new development is to take place, steps should be taken to ensure it will locate where adjacent uses are compatible and, preferably, supportive.

Transportation Issues

State transportation policies have a substantial role in shaping the course of development. Following are those transportation issues which have particularly important implications for the Coastal Management Program:

A. Consequences of Major Transportation Improvements

Most of the State's planned transportation system is already in place. However, significant new developments or modifications may occur in the future. Such improvements would probably bolster the economy of an area, but negative consequences are also possible insofar as another area might be put at a competitive disadvantage, orderly or planned growth patterns might be disrupted, or serious environmental problems might be caused.

B. Access to the Waterfront

While the State's coastlines have served as natural corridors for highways and railroads, the coastlines have frequently been made inaccessible by the existence of these same transportation facilities. For the most part, the damage is done and is, for the foreseeable future, irreversible. However, where new facilities are being planned and where existing facilities do not preempt use of the shoreline, opportunities to increase public access can be accommodated if cost and safety considerations are not prohibitive. This issue is further discussed in the Public Access section.

C. Competition Between Transportation Modes

Relationships among the various modes of transport (particularly the relationship between rail and ship) will vary according to circumstance. In many cases, rail and ship lines are mutually supportive (as in Oswego, where the local Port Authority has opposed the abandonment of the Erie-Lackawanna rail line, and as in New York Harbor, where rail service is being re-established on the Brooklyn waterfront with the objective of enhancing general port activity.) In other situations, various modes of transportation may directly compete with each other, and State supportive action in favor of one may have negative effects on another. The State must encourage a relationship between the various modes of transportation that is based on healthy competition, if not mutual support.

D. Water Transportation Issues

Continued dredging of harbor areas and rivers is a necessary component in any long range improvement of the State's water transportation facilities. The depth to which the channels should be dredged, the precise location, and the manner in which the dredge spoils should be disposed of, are problems that must be addressed. Dredge spoils are further discussed in the Water Resources issue section.

The shipping industry needs accurate knowledge of tides, wind and water depths so that ship movements can be effectively planned. To meet this need, New York State will soon install, and then begin testing, a tidal gauge system for New York Harbor and the Hudson River.

Non-port related activities often have been proposed, or located, adjacent to major port areas, in a manner that could inhibit normal port operations. Mechanisms need to be developed that will recognize the needs of port development when potentially conflicting activities are proposed within or adjacent to port areas.

Navigation on the Hudson River, in New York Harbor and in commercial boat harbors is severely constrained by floating debris. The debris comes from sources such as decaying piers and bulkheads, abandoned barges and ships, and vegetation such as large tree trunks. (It is estimated that approximately 600,000 cubic feet of debris enter the Hudson River and New York Harbor annually.) The debris poses a serious threat to commercial shipping and recreational craft.

Concentration of Development

The argument for concentrating development is based on the need to increase energy efficiency, reduce the cost of public services, make more efficient use of existing infrastructure, increase the likelihood of downtown revitalization, and improve the protection of valuable natural resources.

The Program considers the concentration of development to be crucial in coastal areas because development pressures there are more severe, while the unique natural functions performed by coastal areas are critical to attaining both a sound economy and a sound environment.

The issue faced by the Program is how to accomplish concentrated development, not with a negative approach that merely restricts development, but by adopting a positive approach that seeks to stimulate and guide development where it would be desirable.

Permitting Procedures

The public perceives that increased costs of "doing business" results from burgeoning government regulations. Builders state their costs have increased, in part, because of unnecessary regulations and excessive design standards.

Some manufacturers view regulations in New York State as a reason not to expand and in some cases a reason to relocate out of State.

The Coastal Management Program agrees that the accumulation of single purpose environmental and land use controls has frequently resulted in overlaps, redundancies and inequities in the administration of regulations. The way in which regulations of local, State and Federal government agencies are integrated can be improved.

Consequently, the Waterfront Revitalization and Coastal Resources bill was enacted so as to require the Secretary of State to work with other agencies in an effort to determine ways of expediting development and seeking additional means of effectuating waterfront revitalization. Simplifying and consolidating permit procedures is one means to achieve this desirable goal.

FISH AND WILDLIFE

Introduction

The abundant fish and wildlife found in New York's coastal areas, particularly its estuaries, have long been recognized as important food resources and for their recreational and commercial value. As an indicator of their direct value to the State, the economic benefits derived in 1976 from commercial and sport utilization of New York's marine fisheries were estimated to be \$87.8 million and \$222.5 million respectively. In 1981, resources from sport fishing in freshwaters was estimated to be \$405 million.

The State's fish and wildlife resources also provide a less direct but equally important social benefit in that they function as indicators of the quality of man's environment. The decline of certain species (often the rarer species) is frequently an early symptom of environmental stress and degradation.

Finally the State's living coastal resources are important in terms of their own intrinsic ecological value. Diversity of flora and fauna provides stability to an ecosystem. In addition, these living resources contribute to the productivity of coastal environments through their conversion of energy and recycling of materials.

Hence, the basic goal of New York's fish and wildlife management programs has been to protect, manage, and develop these resources so that they sustain their capacity to continue providing these economic, social, and ecological benefits.

Habitat Protection

Valuable fish and wildlife species cannot be protected and maintained without preserving their habitats. While loss of individual animals can usually be made up by reproduction, loss of habitat will likely result in an irreversible loss to fish and wildlife. A habitat is an area where there exists a unique combination of resources (food, shelter, living space, etc.) and environmental conditions (temperature, climate, salinity, etc.) which animals need for their survival. When man destroys a vital resource or alters an environmental condition beyond an organism's range of tolerance, he destroys its habitat.

Certain habitats, such as breeding grounds, nursery areas, and migratory routes, are special areas where fish and wildlife populations tend to congregate. Such areas must be identified and afforded special protection, since their loss would create a greater threat to the survival of a population than would the loss of areas where the organisms were less densely distributed.

In New York, a category of habitats which has been suffering the greatest losses are freshwater and tidal wetlands. Until 1973, draining and filling of wetlands for development purposes was largely unregulated.* Wetlands provided convenient, inexpensive sites for disposal of dredge spoils. Such practices resulted in the loss of breeding, nesting and feeding grounds for reptiles, amphibians, mammals, shorebirds and waterfowl, as well as the loss of spawning and nursery areas for fish, shellfish and crustaceans. Many of the wetland areas around the highly developed waterfront sections in Buffalo, Rochester and New York City have been drained and filled.

Less direct, upland land use practices have also contributed to the loss of wetland and aquatic habitats. Vegetation removal, stream channelization, and certain farming practices have increased the variability of water temperatures and surface runoff. Increased fluctuations in surface runoff induces stream bank erosion and sedimentation in coastal tributaries. Important littoral areas used for fish spawning habitat are being blanketed with silt. The silty bay areas are then invaded by nuisance aquatic weed species which radically alter the ecology of the bay systems and thereby destroy vital habitats. Unfortunately, this pattern of habitat degradation is becoming increasingly common throughout the developed areas of New York's coastal region.

*Prior to 1973, some freshwater wetlands (except those on Long Island) were being protected under the Stream Protection Act (Environmental Conservation Law, Article 15, Title 5). Wetlands contiguous to navigable waters and wetlands associated with protected waters (streams and rivers with a classification of C (t) or higher) were and still are being regulated under this Act. In 1973, however, New York increased its regulatory controls over wetlands along the marine coast with the passage of the Tidal Wetlands Act. In 1975, the State adopted the Freshwater Wetland Act.

Toxic Substances and Other Pollutants

In New York, a critical problem is the contamination of fish, wildlife and their habitats with toxic substances, in particular Polychlorinated Biphenyls (PCBs), Mirex, Dioxin heavy metals (mercury and cadmium) and some pesticides. These compounds enter the environment from industrial and municipal discharges, atmospheric fallout, leachate from landfills, or agricultural run-off.

Of particular concern is the accumulation and transfer of toxic substances in the aquatic food chain. For example, Mirex had been discharged into the Niagara River where it collected in the bottom sediments. Small invertebrates feeding on the bottom organic food materials directly ingest the Mirex. It then becomes increasingly concentrated at successive levels of the food chain. Unacceptably high concentrations of Mirex now exist in certain predator fish species such as salmon, lake trout, and smallmouth bass.

In 1976, New York State restricted the possession of these and other fish species caught in Lake Ontario and its tributary streams. Although these restrictions were replaced by a health advisory in March, 1978, the contamination of Lake Ontario fish by Mirex and other toxic compounds persists. As recently as the summer of 1981, Dioxin was detected in Lake Ontario fish. The New York State Health Department has broadened the health advisory for eating certain species known to be contaminated with Dioxin.

An equally serious problem has occurred in the Hudson River where 440,000 pounds of PCBs were discharged into the River and these PCBs have contaminated the bottom sediments, as well as resident and migratory fish species. Cleanup costs for dredging the "hot spots" in the river were estimated to be approximately \$49.5 million. Today, commercial fishing for striped bass and the American eel is banned. Recreational fishing is also prohibited in certain portions of the Hudson.

The more conventional pollution problems created by combined overflows, failing septic systems, urban stormwater runoff, oil spills, discharge of vessel wastes and solid wastes, adversely affect fish, shellfish, wildlife and their habitats. These problems persist in areas surrounding the major metropolitan areas of the State such as western Long Island, New York City, Albany, Rochester and Buffalo.

Recreational Use of Fish and Wildlife Resources

Throughout most of New York's coastal area, inadequate public access constrains present hunting and fishing as well as non-consumptive uses such as bird watching, wildlife photography and nature study. Posted lands, strip development, highways and railroads located along the coastline severely limit physical access to the marshes and estuaries

which support valuable fish and wildlife populations. Substantial efforts have been made by State, county and local governments to improve access to these resources through acquisition programs and construction of boat ramps and dock facilities. However, increasing cost of land and construction materials and decreasing amounts of available public funding will limit future efforts to meet increasing demands for public access.

Commercial Fisheries Development

For years, New York's commercial fishing industry has been sadly neglected. New York City, once a prominent fishing port, is used today as a home port by only one commercial fishing vessel. Although the Long Island commercial fishing fleet is still active, not one of the Long Island fishing ports is large enough to be included on the National Marine Fisheries' list of the top 100 fishing ports. Commercial fishing in the Hudson River and Lake Ontario has been severely curtailed due to toxic substance contamination of the fishery resources in these waters.

However, a tremendous opportunity for expanding the State's commercial fishing industry was created with the passage of the Federal Fishery Conservation Management Act of 1976. This law provides U.S. fishermen priority rights to harvest the millions of tons of fish previously being caught by foreign fishing fleets. To realize this development potential, New York must make adjustments in the harvesting, processing and marketing sectors of its fishing industry. Inadequate channel access and limited availability of docking, unloading, and processing facilities presently impede the growth of offshore, deepwater fisheries. An insufficient number of boat ramps, inadequate catch transfer sites, and lack of shellfish processing and gear storage facilities limit development of the near-shore fisheries. Also, it will be necessary to address and reconcile user conflicts between sport and commercial fishermen if growth of the fishing industry is to occur.

Another opportunity for increased commercial fishery development exists with the possible expansion of aquaculture. As a process very analogous to agriculture, aquaculture has been a practice on Long Island since the mid-1800's. By 1880, the Blue-Point Oyster had gained international fame. Approximately 10,000 metric tons of oyster meats were produced annually at the turn of the century.

Today, however, only a few of the original private oyster farms still exist. Some firms have converted their facilities to grow hard clams. One recently formed enterprise is experimenting with growing striped bass to marketable size for sale to restaurants. But current production levels of these high-value seafood products do not meet domestic and export market demand. Results of a recent study of the feasibility for expanding aquaculture activities on Long Island indicate that the constraints on aquaculture are primarily institutional and economic rather than technological. Limited access to capital, restrictive State and local laws and insufficient acreage of underwater lands available for leasing to aquaculturists are the primary constraints to future industrial growth.

FLOOD AND EROSION HAZARDS

Introduction

Flood and erosion hazards in the State's coastal areas can be classified into two types by location: along the exposed coasts of Long Island, New York City, Lake Erie and Lake Ontario and along the banks of its major rivers and tributary streams. The first category is the more crucial in New York State's coastal areas.

Flooding and erosion on the State's coasts are generated by powerful natural processes setting water and wind against the shorelands. To maximize their benefits from resources in the coastal area, people have often ignored or been unaware of those processes and have built structures on beaches, dunes, barrier islands, erodible bluffs, and flood plains, where they are subject to damage or loss, or cause harm to natural protective landforms. People have also attempted to defend their property against flooding and erosion by installing protective structures, many of which have been inadequately designed and constructed, and have caused damage to adjacent property. As a result, great economic loss and public expense have been incurred, and human lives endangered.

Beaches are the most valuable of the hazardous coastal landforms, because they are subject to the impact of both wave and current energy as well as continually rising sea levels in the tidal zone. In their natural state, with their movements unaffected by man, beaches may be reduced in extent (erosion), rebuilt (accretion) or remain stable over time, depending on the varying power and direction of the agents acting upon them and on the type and availability of beach materials. Wave energy is the principal agent of change on beaches although wind can also supply sediment to them or deplete them. Waves attacking a beach at oblique angles also generate longshore transport which, on extensive stretches of the State's coast, travels generally in one direction (for example, west to east on Lake Ontario, and east to west along Long Island's south shore). This redirected wave energy will carry beach materials along its path, periodically depleting beaches at one point and augmenting them at others. In some cases, as on Lake Ontario, the sand particles are eventually lost in deep troughs offshore and thus permanently removed from the process.¹ The most extensive beaches in the State's coastal area are found on the barrier islands and "mainland" of Long Island, particularly along its south shore. Although the width of beaches on Lake Ontario and Lake Erie varies with the water levels of the lakes, for the most part the relative scarcity of sand in the coastal lands and, in the case of Lake Ontario, the sharp drop in the beach terrain offshore, have not permitted accumulation of beach materials to the same extent as on Long Island. Beaches are valuable as a first defense against storm waves.

Dunes are formed from sand blown by onshore winds from adjacent beaches and, except for the Deer Creek Marsh and Sandy Pond Marsh area on Lake Ontario, are found only on Long Island. They are constantly changing form, reaching a degree of stability only as vegetation establishes itself. Those on Lake Ontario are of special concern because they were formed thousands of years ago when the lake was at a lower level. Once destroyed, they will never reform because their source of sand is now underwater. Dunes are fragile and very susceptible to damage by man's activities. Dunes have a high value as a second tier of defense against the powerful actions of storm-driven waters and as part of the shore system.

Barrier islands are a unique shore form, the most significant being found on Long Island at Fire Island and Jones Island. (Smaller scale barrier features are also located elsewhere on Long Island and at the mouths of several bays and streams of Lake Ontario). These long, narrow accumulations of unconsolidated materials comprise a beach fronting the ocean, a dune system, and tidal wetlands or beaches and bays on their landward side. The islands are separated by tidal inlets which help flush the inner bays. This combination of shoreforms and natural coastal processes creates the most fragile and unstable of coastal lands which, because of their location, are most attractive for development. When unaltered by man, barrier islands respond to natural forces by absorbing wave energy which, in major storms, is dissipated on the beach and over the dunes, with beach materials often being carried into the bay beaches or wetlands. Barrier islands earn their name in this way by protecting the waters of the inland bays and the shoreline of the "mainland".

After beaches, bluffs are the most prevalent landform in the State's coastal area. Erodible bluffs can be damaged by wave attack and by landward sources such as surface runoff and ground-water seepage. The degree to which waves contribute to bluff erosion depends principally on the geologic composition and structure of the bluffs, the strength of the waves, and the energy-absorbing capacity of the beach at the base of the bluffs. Strong waves, combined with high tides or lake levels which reduce the width and thus the protection provided by the beaches, will produce a high rate of bluff recession.

The attack on bluffs by landward sources can have an effect at least as severe as that caused by waves, and includes: ground-water seeping along permeable layers of sand, carrying soil with it; the gradual slippage of upper bluff materials along a clay stratum; and direct erosion of the bluff face by run-off. The following estimates of annual bluff recession rates on the State's coasts reflect differences in the geologic composition of the bluffs, as well as the relative strength of erosion or other destructive agents at the bluff location: at Old Field Point on Long Island, 5.2 feet per year;² on the Lake Erie shoreline of Chautauqua and Erie counties, from 0.5 to 1.1 feet per year;³ and in the stretches of bluff in Oswego County on Lake Ontario, up to 2.35 feet annually.⁴ Average annual recession rates, of course, do not necessarily mean that the bluffs erode steadily at a fixed rate. In some cases, individual storms or slumping may remove land at many times the average rate.

Damages Resulting from Flooding and Erosion

On beaches, barrier islands, bluffs, and other hazard areas such as low-lying flood plain lands, man has built houses and other permanent facilities. Measures of the hazard risks and of the large scale of investments made in those areas are suggested by the following examples. In March 1973, storm waves resulting from the action of strong northerly winds on a high lake level caused damage estimated at \$25 million to both public and private property along the New York shore of Lake Ontario.⁵ As an indicator of extreme conditions, 1977 estimates showed that over \$750 million in damages could be inflicted on the south shore of Long Island between Fire Island Inlet and Montauk Point if the coast were assailed by the most severe hurricane likely in that locale at record high tide levels (a standard project hurricane).⁶ The effects of erosion and flooding, however, are not linked solely to catastrophic weather disturbances. For instance, the Corps of Engineers has calculated that annual damages along the 120 mile length of Long Island's south shore are in excess of \$30 million.⁷ In developing those hazard areas, private as well as public investments are threatened. The burden of maintenance or replacement of local, county or State facilities, and post-storm debris removal, necessitated by erosion and flooding, is borne by public funds. Thus, the drive to locate as close as possible to the shorefront has resulted in the commitment of massive private and tax-financed public expenditures in areas where it is subject to damage or loss.

An additional consequence of development on hazardous shorelands is that it may destroy natural protective landforms such as beaches and dunes which could absorb the energy of stormwaters. Thus, inland development which otherwise would be considered outside the principal hazard zone may become vulnerable.

Damage from riverine flooding and erosion, while not of major proportions compared with that incurred on the marine and Great Lakes frontal shorelands, is significant. Some of the damage occurs on the banks of tributary streams at points near the coast where ice jams, or sediments carried down by the streams or by longshore transport, block their flows. In the narrow channels of the Hudson and St. Lawrence Rivers, erosion caused by ship waves is of concern. Residents on the St. Lawrence River are also particularly disturbed by the threat of erosion caused by the movement of ice resulting from the Winter Navigation/Season Extension Program now under consideration by the Secretary of the Army. The State has affirmed its opposition to the Program.⁸ The State is not opposed to shipping on the St. Lawrence River at any time of year when ice conditions are not present. However, the State finds that adequate economic and environmental information does not exist to demonstrate the justifiability of any season extensions on the River which are defined solely by calendar dates.⁹ The Program would have little economic benefit to the State while it would impose serious effects upon the management of levels and flows, fish and wildlife and their habitats, production of hydroelectric power, rates of shoreline erosion, and upon shoreline property.

Responses to Coastal Hazards

There are four types of responses to coastal hazards: (1) the building of protective structures, including those which use natural materials such as sand, to defend coastal property against damage by flooding or erosion - the "structural" response; (2) such actions as the planting of vegetative cover, the re-shaping of bluffs or, perhaps the most prudent approach, the avoidance of the hazards by siting buildings in safe locations - the "non-structural" response; (3) the purchase of insurance against the hazards - the "insurance" response; and (4) acceptance of the risk of damage to, and eventual loss of property - the "do-nothing" response. The latter response is one not deliberately chosen by riparian owners but rather forced upon them, most often due to their unawareness of the hazards, or because of their inability to pay for the other alternatives. The other responses are often used in combination with one another.

The "Structural" Response

The most common type of structural response is the installation parallel to the shoreline of frontal protective devices against erosion or flooding. There are several difficulties associated with those widely used devices. Because of the great force generated by coastal processes, the structures must be soundly designed and constructed in order to be effective. However, one study showed that along the eastern end of Lake Ontario and the shores of the St. Lawrence River, less than half of the frontal structures inventoried were of more than limited effectiveness.¹⁰ In addition, improperly designed frontal structures such as bulkheads, revetments and seawalls may accelerate the loss of beach materials as storm wave energy is focused on the beach. Thus, a natural shield may be lost. Difficulty also arises from attempts to protect a house located on a narrow stretch of shoreland. Because erosion may continue on the unprotected sides of the structure which are vulnerable to lateral wave attack, the useful life of an otherwise sound structure could be shortened considerably and erosion conditions on adjacent lands exacerbated.

Protective structures are not only used as defenses against direct frontal attack but also to prevent the loss of, and to build up, beaches. However, the process of littoral transport will add sand on the desired side of a groin or jetty only at the expense of beaches down current which, being deprived of their natural supply of sand, will be more subject to recession, thus eventually threatening buildings at that location. A breakwater may create a similar effect by blocking wave energy and slowing littoral transport, thus causing sand to accumulate on the landward side of the structure.

One group of structural responses takes advantage of natural materials. Dune-building and the replenishment of beaches require sand in great quantities. Sand and gravel mining to meet the future needs of the construction industry is a potentially significant activity in the State's coastal waters. However, care must be taken to ensure that these materials are not obtained from sites, onshore or offshore, which are parts of the delicately-balanced coastal process. The particle sizes of the beach-building materials must also be compatible with the local beach environment or the investment will be lost.

The high cost of protective devices is another problem of the structural response. Because the cost of the most appropriate structure will vary with specific site conditions, the following estimates for a 100-foot stretch of shoreline are only illustrative: stone revetment, eight feet high - \$23,000; steel bulkhead, ten feet high - \$58,000; timber crib bulkhead, seven feet high - \$8,500.¹¹ A further cost often overlooked by riparian property owners is that necessary to implement a program of maintenance for protective devices. Most structures, although built to reasonable standards and design, will succumb over time to the powerful forces of the sea or lakes and must be inspected and repaired to preserve their effectiveness. The long-term protective capacity design of devices, and thus their original cost may be reduced if property owners follow a prudent maintenance program.

A final cost consideration arises from the case cited above of the property owner who attempts to protect his own small length of shoreline. On a stretch of coast possessing generally similar characteristics of form, geologic materials, and exposure to waves (technically termed a "reach"), the most efficient method may be to protect the entire shoreline. This would require, of course, the agreement of all property owners on the reach to finance the undertaking. However, there may be economies of scale which could make it attractive.

An important aspect of structural responses to coastal erosion and flooding is public sector activities in providing costly large-scale structural solutions including major groin fields, bulkheads, beach nourishment, sand-bypass installations and dune-building. The Federal government is the principal source of those activities with the United States Army Corps of Engineers assigned the greatest responsibility. Generally, the Corps is authorized to become involved in shore, hurricane and tidal, and lake flood protection studies and projects on the Great Lakes and marine coasts as well as in riverine areas. However, in the case of shore erosion and restoration projects, Federal funds may not be used for the protection of private property unless it: (1) is incidental to the protection of public property; (2) would result in public benefits; or (3) is necessary to mitigate shore damages on private property caused by Federal navigation works. An exception to this principle is sometimes made in the event of the threat of extreme flooding as in the Operation Foresight Program initiated during a period of high water levels in the Great Lakes area in 1972-73 through which emergency assistance was provided to private property owners.

The Corps of Engineers may also provide technical assistance to private property owners on flooding and erosion problems. Most Corps projects require cost-sharing with State and local governments for both construction and maintenance.

The largest Corps of Engineers coastal flood and erosion projects are undertaken on the State's marine shorelands principally because: the coastal processes there are more powerful; above mean high water, many of the beaches are in public ownership while almost all of them are owned by the State below mean high water; and shoreline development is more intensive. However, those projects often provoke controversy reflecting disagreement as to their effects on shoreline resources as well as the substantial expenditures involved, particularly in regard to the State and local cost-sharing requirement.

Those elements are seen in the project to protect 83 miles of Long Island's coast from Fire Island Inlet to Montauk Point at an estimated cost of \$138 million (1976 prices). Only five percent of this project (authorized by Congress in 1960) has been completed by the placement of 17 of 50 proposed groins and 2,000,000 cubic yards of fill. However, the 15 groins in the Westhampton Beach area, while stabilizing the beach on the site, are alleged to have caused heavy erosion to the west and consequent storm damage to shorefront homes in early 1978. An interim project to cure this problem would cost initially \$42 million and an additional \$8 million every five years thereafter. The State's share of first costs would be over \$8 million while Suffolk County would be required to provide almost \$4 million.

Although many of the Corps' projects are single purpose (beach erosion, or hurricane protection), some are multi-purpose. On Lake Erie, a new project at Cattaraugus Creek is expected to reduce flooding upstream by preventing ice jams and longshore transport sedimentation at the mouth of the stream. The primary purpose of the project, however, is to create a harbor of refuge to protect recreation craft from storm driven waters. The Corps also has completed, or is investigating a few small projects which do not require Congressional approval: examples include the St. Columbans-on-the-Lake Emergency Bank Protection and Wendt Beach Park Shoreline Erosion projects.¹²

The "Non-Structural" Response

The first component of the "non-structural" response is the strengthening of landforms and the use of appropriate design features in buildings as protection against flooding. A common technique of this type is the planting and careful preservation of suitable vegetation on dunes and on the top or on the face of bluffs to reduce erosion caused by wind, run-off or other agents.

This technique, however, does not prevent wave erosion and is often used in combination with frontal structures at the base of the landform. Other "non-structural" responses of this type include: sand-fencing on dunes to help build up and hold the sand; drainage systems on bluffs to prevent slumping and the formation of gullies; mechanically reshaping the face of bluffs to an angle of repose which will help prevent slumping, and the flood-proofing of buildings or their elevation above the base flood level.

The second component of the "non-structural" response to coastal flooding and erosion is the initial siting of development entirely out of the hazard areas. This method is the most economical as it avoids the various difficulties, including the high cost, of the "structural" approach. Yet it has not been widely followed by shorefront owners. Although this approach does not guarantee perpetual protection, it does significantly improve property owners' chances of reducing the hazard potential.

Some shore property owners with foresight, the necessary funds, and available land, are able to move their buildings out of the hazard zone before damage is incurred. Clearly, the less elaborate the building, the greater the savings; some cottages can be pulled to safety by a tractor while more substantial residences must be carefully and expensively transported.

The "Insurance" Response

Structural and non-structural measures and combinations thereof, are allowable alternatives under the National Flood Insurance Program which offers insurance against property damage caused by flooding and flood-related erosion. Property owners in a community which is participating in this program may purchase insurance, provided the local government regulates development in the flood hazard area. Regulation includes requirements for flood-proofing of buildings and restrictions on their siting in the floodway. A special National Flood Insurance Program regulation is applicable only to identified Coastal High Hazard Areas on the marine coast which comprise lands subject to high velocity waters caused by tidal surges or hurricane wave wash. Designation of those areas has been made in the majority of communities on New York State's marine coast. The main requirements applicable to such areas are that new construction or substantial improvements must be: located landward of the mean high tide line; elevated above the 100-year flood level with space under the first floor to permit tidal or storm waters to pass freely; and securely anchored. New mobile homes are prohibited. Additionally, alteration of sand dunes which would increase potential flood damage is prohibited. State-owned and State-financed facilities are subject to special regulations to ensure that public investment in flood hazard areas is carefully analyzed and appropriate steps taken to reduce the risk of damage and loss of life.

The National Flood Insurance Program also provides for the sale of insurance to property owners against flood-related erosion damage. However, the regulatory part of this program, which by law must include restrictions on building in flood-related erosion hazard areas, has not been initiated because the Federal Emergency Management Agency has not issued final regulations. The major obstacle is the difficulty in ascribing property damage to flood-related erosion as opposed to other types of erosion.

Lake Levels

A further coastal hazard issue pertains to high water levels on Lake Ontario and Lake Erie.¹³

The International Joint Commission (IJC), established by treaty between the United States and Canada, exercises control over the rate of outflow from Lake Ontario, and thus influences the lake's level, by ensuring implementation of the "Orders of Approval for the Regulation of Lake Ontario" (which it issued for the operation of the St. Lawrence Power and Seaway Project in 1958). This document sets forth the range within which the lake level will be maintained, and the specific ways in which the interests of navigation, power and shoreline property owners are to be taken into account in regulating the lake's outflow. Direct responsibility for implementing the Orders of Approval has been delegated by the IJC to its arm, the International St. Lawrence River Board of Control (SLRBC). The SLRBC has developed a Plan of Regulation to provide a systematic framework for its decisions.

Since the March 1973 storm mentioned earlier, the lake's water levels have been more often in the upper part of the range set by the Orders of Approval than in the lower half. Coastal property owners, fearful of these continuing high water levels, have criticized the IJC and the SLRBC for their failure to lower them.

The property owners' criticisms are threefold. First, they claim that in its day-to-day examination of level and flow data and implementation of the Order of Approval, the SLRBC tends to favor navigation and power interests over shore property owners who have no direct representation on that body. Second, the shoreline residents claim that the regulatory plan and Orders of Approval are inadequate and should be re-examined to find ways to accommodate better the needs of shore property owners. Third, it is argued that the IJC should investigate the feasibility of changing the capacity of the St. Lawrence River to allow a greater overall rate of outflow from Lake Ontario and thus a greater flexibility for regulating its level.

At least partial satisfaction of the first criticism was achieved in 1981 when an official of the State's St. Lawrence-Eastern Ontario Commission was appointed to the SLRBC, replacing a representative of the Federal Power Commission.¹⁴

A second action taken in response to these criticisms was the Lake Ontario Shore Protection Act of 1976 (PL 94-587, Section 180-a), which directs the Corps of Engineers "...to develop a plan for shoreline and beach erosion control along Lake Ontario" ... and "...include recommendations on measures of protection and proposals for equitable cost sharing, together with recommendations for regulating the level of Lake Ontario to assure maximum protection of the natural environment and to hold shoreline damage to a minimum". The first phase of this study was completed, but funding for the remaining two phases is uncertain.

The proposed Winter Navigation Program mentioned earlier is also of concern to lakeshore property owners because in addition to its other effects, the necessary ice breaking activities in the St. Lawrence River may increase the level of Lake Ontario.

Shoreline residents of Lake Erie have also been concerned about high water as, during the past decade, the mean monthly lake levels have rarely been below the long term average. As a result, flooding and erosion have caused damage along the coasts of Erie and Chautauqua counties although, because of their more erosion-resistant shorelands, the magnitude of erosion is not as great as that on the Lake Ontario coast. The IJC's Lake Erie Regulation Study Board recently completed an investigation of the feasibility of limited regulation of the lake and found that: "the magnitude of the losses as compared to the benefits is such that no reasonable changes in assumptions or evaluative techniques could result in net benefits approaching the cost of the Niagara regulatory works" necessary to implement regulation.¹⁵

In response to the United States and Canadian governments' recognition of the need for a system-wide examination of levels and flows problems throughout the Great Lakes, the IJC established the International Great Lakes Levels Advisory Board (IGLLAB) in 1979. The U.S. and Canadian members of IGLLAB, who include U.S. Section Chairman Robert C. Hansen, Coastal Program Manager, N.Y.S. Department of State, have been directed to: (1) find ways to increase public awareness and involvement in decisions regarding levels and flows; and (2) make recommendations to the IJC on actions which the Commission may wish to take regarding ongoing and proposed activities such as the regulation of lake levels and the Winter Navigation Program.

The lake level issue is complex. The fluctuating flow of waters into and out of the Great Lakes system has produced in the past both low and high water conditions causing varying amounts of damage to the many interests which depend or front on the lakes' waters. The issue, therefore, is not how to avoid entirely loss to any one interest, but, rather how to ensure an equitable distribution of benefits among all interests.

Evacuation Needs

Climatological hazards such as hurricanes, northeasters, or seismic disturbances can seriously impact the coastal area. During the last 100 years, seven hurricanes have directly hit the coast of New York State, and several other hurricanes have affected the coast while passing offshore. The methods of dealing with storm surge, wind, and flooding associated with these natural hazards are addressed in the coastal management program policies, particularly policies 11-17.

Evacuation planning is a necessary component of Coastal Management, particularly when existing protection from natural hazard impacts is inadequate. The New York State Office of Disaster Preparedness has primary responsibility for evacuation planning. Department of State will work with the office to ensure adequacy of evacuation plans which may be necessary for coping with these natural hazards.

FOOTNOTES

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- 2 Nassau-Suffolk Regional Planning Board, A Coastal Erosion Subplan for Nassau and Suffolk Counties, 1978.
- 3 Seibel, Erwin, et al, Technical Report on Determination of Quantity and Quality of Great Lakes U.S. Shoreline Eroded Material, International Reference Group on Great Lakes Pollution from Land Use Activities, International Joint Commission, 1976.
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- 6 U.S. Army Corps of Engineers, New York District, Final Environmental Impact Statement for Fire Island Inlet to Montauk Point, New York Beach Erosion Control and Hurricane Protection Project, 1977, in Nassau-Suffolk Regional Planning Board, op. cit.
- 7 U.S. Army Corps of Engineers, New York District New York telephone conversation, August, 1981.
- 8 Letters of Governor Hugh L. Carey dated March 11, 1980 to the U.S. Board of Engineers for Rivers and Harbors, and October 19, 1981 to Chief of Engineers, U.S. Army Corps of Engineers.
- 9 Carroll, J.L., et al, Season Extension on the Great Lakes/ St. Lawrence Seaway: A Critique of the Recommended Plan of the Corps of Engineers, prepared for the NYS Department of Transportation, July 1979; and Department of Environmental Conservation, Environmental Assesment, FY1979 Winter Navigation Demonstration on the St. Lawrence River, Summary volume and 15 studies appended as technical report volumes, June 1978, prepared for the Winter Navigation Board.
- 10 St. Lawrence-Eastern Ontario-Commission, A Report on Coastal Resources.
- 11 U.S. Army Corps of Engineers, North Central Division, Help Yourself, 1978. Those data were prepared for the guidance of private property owners.

- 12 U.S. Army Corps of Engineers, Buffalo District, Current Civil Works Projects of the U.S. Army Corps of Engineers Buffalo District, May, 1977 and May, 1981.
- 13 See N.Y.S. Department of State, Coastal Management Program, Draft Regional Element-Great Lakes West, 1978 and St. Lawrence-Eastern Ontario Commission, Analysis and Recommendations Concerning High Water Levels, 1975 for more detailed information on the Lake Ontario water level issue.
- 14 The affiliations of the other three members of the SLRBC are: U.S. Army Corps of Engineers, the federal St. Lawrence Seaway Development Corporation and the Power Authority of the State of New York.
- 15 International Lake Erie Regulatory Study Board, International Joint Commission, Lake Erie Water Level Study: Main Report, 1981

PUBLIC ACCESS

Introduction

Public access to both the recreational and aesthetic resources of the coast is a key element in the management of coastal areas in New York State. There are two principal components of public access: access to existing recreation resources; and, access to publicly-owned lands and waters of the coastline at large. The first is linked to the coastal recreation issue discussed separately in this section. Therefore, this public access discussion does not delve into the need for recreation facilities or resources, but focuses on problems in getting to these facilities and the coastline at large.

Access to the Coast at Large

There are two types of conditions which impede public access to those lands available for public use along the coast: development and private ownership of land which create man-made barriers to shorefront access; and natural shoreline topography or conditions which make access difficult or impossible. A large portion of New York's coastline is devoted to private residential, commercial and industrial use. Along much of this shoreline, the existing land uses effectively block physical and visual access to the shore, even where there are lands immediately adjacent to the shore as well as lands underwater that are publicly-owned. In other cases, owners of private property that is adjacent to the publicly-owned foreshore and underwater lands often legally and illegally restrict lateral access along the foreshore. Where public rights-of-way to the shoreline do exist, use of the shore itself is often restricted by private beach/no trespassing signs.

Transportation facilities are another major man-made barrier blocking access to the shore. Highways and railroads, both in urban and rural areas, often provide views of the shoreline and the water, but their presence usually makes it difficult to get to the shore. The railroad tracks and highways lining the Hudson River clearly illustrate this problem and indicate why the River has failed to fulfill its potential as a recreational amenity. The railroad tracks follow both shorelines for long stretches; highways are located adjacent to the river in cities such as Albany and Poughkeepsie. Where these conditions prevail, the Hudson, aside from its visual value, remains detached from the community. Moreover, where significant parcels of public land do exist between transportation rights-of-way and the river, one's ability to reach them is often restricted because it is either too dangerous to cross the right-of-way or too expensive to provide a safe crossing. The need to provide safe pedestrian and vehicle crossings is becoming even more acute now that high speed rail travel has begun.

Similar conditions exist along Lake Ontario, where the Lake Ontario State Parkway is a distinct barrier to physical access to the shore. In New York City, highways hinder much of the access to the shore in all boroughs.

In many urban areas, there are numerous obstacles to increasing public access to waterfronts. In addition to industrial and commercial land uses, decaying piers, and abandoned buildings, unsafe neighborhoods have made the waterfront an undesirable location for almost any activity.

Opposition from the coastal residential community also serves to impede efforts to increase general public access to the shore. Community opposition, somewhat justifiable, is rooted in the fear that increased public access would lead to: (1) diminished individual enjoyment; (2) decreased value of private property adjacent to access points; (3) increased pollution, litter, and noise; (4) undesirable commercial development; and (5) intensified use conflicts as competition for waterfront space increases.

Visual access problems are caused by development patterns and specific structural designs that either block the coastline from view or intrude upon the scenic coastal landscape. The discussion on aesthetics contained in this Section deals with the particular problems of visual access.

Public access is also limited by natural shoreline conditions. Along parts of Lakes Erie and Ontario, Long Island, and the Hudson River, cliffs and steep slopes, while they provide great scenic value, preclude all but the most ambitious from shoreline use.

The nature of public ownership of underwater lands and the foreshore and the terms and legitimacy of their sale have a long and complex legal history. The rekindled public awareness of the value of coastal lands requires increased circumspection before the public lands along the shore are disposed of or existing public rights of access are restricted or constrained in any way.

Unfortunately, in a practice that still prevails, the State has sold off underwater lands and the foreshore without full consideration of the value of such lands for public use and access to the water. This should not be construed to mean that all sales must cease, but that each such proposed sale must be carefully evaluated from both a public interest and riparian rights standpoint. The public interest must include the concept that such lands can have value for public use and access to the water, and are held in trust.

Access to Coastal Recreation Resources

The other major component of the public access issue is access to existing or potential coastal recreation resources. A beach is the most commonly identified coastal recreation resource. People want to get to the coast to use beaches for swimming, sun-bathing, fishing, walking, or simply for enjoyment of scenery. A problem in many areas is lack of access to beaches. Thus, there is a need to identify existing and future beach areas requiring additional access. To aid in this identification, a technical definition of "beach" has been developed (See Public Access Planning Process in Part II, Section 7).

Various forms of coastal beaches are found in New York State. Steep headlands fronted by narrow beaches are common along Lake Erie, Lake Ontario, the Hudson River, and the Long Island Sound. Barrier complexes, formed by a sequence of long, narrow barrier islands or bars, separated from the mainland by a lagoon or marsh, are found along the south shore of Long Island and the Port Ontario-Ellisburg region of Lake Ontario. Sandy beaches fronting the continuous ridges of sand dunes are also common, especially along the southshore of Long Island. Barrier spits are formed when littoral transport causes the projection of a sediment body into a bay; i.e., Rockaway spit and Southhampton spit on Long Island. The bays and harbors that are found in many coastal areas of the State normally contain narrow beaches backed by bluffs or pocket beaches with associated dunes.

There are several factors associated with the concern for access to existing or potential coastal recreation resources. One relates broadly to transportation limitations and inadequate parking facilities. The lack of adequate public transportation to many coastal recreation areas effectively limits access for many people, particularly urban residents unable to reach facilities located in suburban or rural areas. In some areas, the lack of public waterborne transportation limits access to key barrier beaches, preventing them from being fully utilized for recreation. Related to this problem are the limited parking facilities found at many coastal recreation areas. Beaches are often closed, not when the facilities are crowded, but when the parking lot is full. In many instances, recreation areas could accommodate increased use by limiting automobile access and providing public transportation such as shuttle buses from remote parking areas.

Restrictions on use of public recreation areas to local residents exist in a number of coastal areas, such as along Lake Ontario and on municipal beaches of Long Island. These restrictions take the form of outright legal prohibitions against non-residents using the facilities, or more indirect means, such as restricting parking to residents only, allowing no parking on streets adjacent to beaches, and charging higher user fees for non-residents.

RECREATION

Introduction

Coastal areas are New York's most important outdoor recreation resource. Within these areas a narrow band along the shore provides a wide variety of water dependent and enhanced recreational activities. Coastal residents and visitors make the coast the most heavily utilized recreation area in the State. This activity is often intensive and is an important contributor to the State's economy, with many coastal communities depending on the recreation industry for their economic well being.

The appeal and importance of New York's coasts for recreation creates several concerns. The principal issue is: how can the special qualities of the coastal area best serve the demand for recreation, while ensuring that other land and water use needs will be accommodated and that the natural resource base will be protected? Flowing from this broad issue are several more specific concerns. These include conflicts with other uses of the coast; overuse of existing coastal recreation areas; the deficiency of water based recreation in urban areas; conservation of historic and cultural resources; the particular needs of recreation boating and fishing; and the desire to promote the private sector's role in recreation.

Use Conflicts

Use conflicts are major barriers to coastal recreation. A number of land uses which require coastal locations restrict recreational use of the coast. For example, use of the shoreline for rail transportation on both sides of the Hudson River has limited physical access to the river. Yet, the economic and social value of the railroad is such, that needs for recreation must be secondary to improved rail service. In urban areas, because the commerce and industry of an earlier day was heavily water-dependent, many such structures occupied shorefront locations. A number of these facilities still remain, often in a deteriorated or dilapidated condition, and limit access to the recreation opportunities of the shore. The costs of their removal, where absolutely necessary, or more preferably their rehabilitation are, along with land acquisition, often prohibitive to cities wishing to reclaim the land for parks and recreational use. However, structures such as existing piers are readily adaptable for recreational uses at reasonable costs. Other barriers to the enjoyment of coastal recreation include the presence of industrial plants, nearby sludge and spoil disposal heaps, pollution control facilities, and elevated transportation routes. In rural areas, residential development along the shoreline consumes potential public recreation space as well as blocks access to the coast.

Use conflicts also take the form of destruction of resources necessary for recreation. Poor water quality plagues existing swimming beaches and limits development in some coastal locations. Water pollution is also a major deterrent to the growing sport fishery in the State. Toxic chemicals, such as Mirex, polychlorinated biphenols and mercury, have resulted in fishing bans on some species in the Hudson River and the issuance of health advisories regarding the consumption of fish from Lake Ontario. Air and noise pollution additionally limit the recreational appeal of waterfronts for many outdoor activities.

Natural coastal processes create problems for recreation. Shifting sand bars intermittently block the openings to bays, creeks and rivers, thereby cutting off boater access to the coastal waters. Thus, if boating access is desired, dredging of channels is necessary. Heavy seas erode beaches and sudden storms create hazards for boaters if harbors of refuge are not nearby. In addition, natural, and in some cases even artificial fluctuations in water levels can adversely affect fish resources by disrupting breeding habitats¹ and can severely reduce the size of beaches for swimming.

On the other hand, the intensity or nature of recreation activities may pose threats to natural resources. For example, an embayment or estuary, which is now a productive fish and wildlife habitat, may be an ideal location for a harbor of refuge, but the attendant noise and pollution from motor boats and marine activity may disrupt the fish and wildlife habitat. Recreation development may also have an adverse impact on the character of existing shorefront residential areas by encouraging increased activity levels, commercial development, and other conflicts with existing development.

Excessive Use

Each recreation resource has a maximum capacity. Over-use can impair the quality of the resource and the recreation experience. Thus, with the increasing number of people participating in coastal recreation activities, there is a potential for excessive use of the coastal resources of the State. Excessive use has a number of effects. It can frequently result in water and noise pollution. Fragile coastal resources such as wetlands and dunes, may be damaged

¹New York State Department of Environmental Conservation, Environmental Assessment, FY 1979 Winter Navigation Demonstration on the St. Lawrence River, Technical Summary Volume, p. 32.

merely by excessive foot traffic or off-road vehicles. Other areas, such as islets and offshore rocks that provide protected bird sanctuaries are often disturbed by any human intrusion.

Most coastal recreation is seasonal due to climate and existing vacation habits. The coastal recreation season consists, for the most part, of weekends and the summer vacation months. This is an unavoidable complication encountered when providing parks and recreation facilities for a large population.

Urban Area Needs

In New York State, urban areas generally exhibit the greatest recreation deficiencies along with the highest use of existing facilities. Poor water quality, restricted coastal access, high development costs, and many alternative demands for limited space severely restrict attempts to overcome these deficiencies. The needs of the poor, elderly, and handicapped are particularly affected.

Historic and Cultural Resources

New York State is rich in historic, archeological, and cultural resources which are important for their recreational as well as aesthetic and educational value. Unfortunately, there is yet no program or law to prevent the owner of a significant historic resource from impairing its historic character or demolishing it. Many significant historic sites have already been destroyed. Other sites are threatened by deterioration, lack of maintenance, and encroaching adjacent incompatible uses.

Recreational Boating and Fishing

Boating and fishing are significant recreational activities in the coastal waters of New York State. The fundamental requirement is to provide safe and desirable facilities to accommodate the demand. While some areas have adequate facilities now, growing demand indicates increased deficiencies in the future. A recent study indicates future growth in recreational boating in the Great Lakes basin area.² The Department of Environmental Conservation has initiated a fish stocking program in both Lake Erie and Lake Ontario. This also promises to increase demand for boating

² New York State Department of Environmental Conservation, "Report on Regional Facilities in New York's Coastal Area", 1977.

facilities. A boating survey indicates the marina industry on Long Island is grossing \$55 million annually, yet marina facilities are being lost to other more profitable land uses.³ At the same time, existing facilities are not meeting current demands. Public and private marinas report backup lists of 200-300 requests. Furthermore, an undocumented but apparent trend seems to indicate that demand for small boat launching sites to service smaller boats is growing. In New York City in particular, the high costs of boat ownership combined with an inadequate number of marina facilities discourage recreational boating in spite of the opportunities that exist in the waters around the City for enjoying this activity.

New York State has the potential for developing one of the best sport fisheries in the nation (cf. section on FISH AND WILDLIFE). Realizing this potential will require the provision of adequate support facilities at the shoreline. Among the facilities needed are a sufficient number of "Harbors of Refuge" along the shoreline of the Great Lakes. These harbors must be provided at suitable intervals to assure safety in the event of rapidly developing inclement weather. In addition, adequate public marina facilities, including boat launching ramps, docks and storage areas, are needed to serve the sport fishermen.

Public vs. Private Ownership

Both the public and private sectors provide recreation facilities. In most cases there is little or no overlap. For example, lodging is generally provided by the private sector and large developed beaches are generally accepted as a public responsibility. Where government and private enterprise are providing the same type of facilities, they usually serve different markets. However, in some instances, direct competition has developed. This can create economic problems for private enterprise and ultimately less service to the public. For example, in the Buffalo area several firms lost a significant number of their customers to a recently constructed state-owned marina. On the other hand, in some areas of the State, public marinas have attracted additional boats to the area and boatyard owners have concluded that public facilities actually helped their businesses.⁴

³Sea Grant Advisory Service, Cornell University, Ongoing Research of Recreational Boating on the Shoreline of Westchester County, New York City and Long Island, Ithaca, NY, 1974.

⁴Noden and Brown, The New York Commercial Marina and Boatyard Industry, 1972, pp. 31, 45

Often the laws and practices of the various levels of government have inhibited or at least not promoted cooperation with private enterprise in the provision of recreation facilities. Many jurisdictions do not permit the development of commercial facilities on public parkland.⁵ The term of a lease to a private individual that a municipality may grant for operation on public land is limited by State law. Since large recreation facilities require a long amortization period, this limitation has discouraged private investment in some aspects of public recreation.

Because both public and private investment is necessary to ensure adequate recreation opportunities, the State must continue to address the issue of how to assure that a mutually beneficial relationship evolves between private and public investment in recreational facilities.

⁵ Bureau of Outdoor Recreation, National Urban Recreation Study, New York, Newark, Jersey City, 1977, p. 94.

SCENIC QUALITY

Introduction

Of the shoreline's many attributes, coastal scenery is perhaps the most universally appreciated. At least three basic characteristics contribute to the visual quality of coastal landscapes: water in its many moods; dynamic coastal landforms; and expansive views. This environment attracts wildlife of all forms which also contributes to the aesthetic quality of the coast. To a degree, even the more ordinary coastal landscapes possess these attributes.

In great part, scenic resource studies have concentrated on natural characteristics. This emphasis results from the perception that natural landscapes are more visually pleasing than man-modified environments. However, in many locations, man has changed coastal landscapes in ways which harmonize with or even enhance their natural scenic qualities. Old fishing villages, rolling farmlands, and dynamic city skylines are examples of man's intervention which have added character and interest to coastal areas.

Beyond their inherent worth, scenic attributes of the coast augment other values. They combine with recreational possibilities to make the coast a prime location for vacationers and thus offer the potential for growth of the tourist industry.

We have long recognized the importance of scenic resources for recreational, psychological, educational, and economic purposes. In 1972, Congress gave coastal aesthetic quality even greater importance through the Coastal Zone Management Act which states:

The Congress finds that the coastal zone is rich in a variety of natural, commercial, recreational, industrial and aesthetic resources of immediate and potential value to the present and future well-being of the Nation. (§302(b))

Similarly, the New York State Legislature in the Waterfront Revitalization and Coastal Resources Act of 1981 has found that:

New York State's coastal area is unique with a variety of...aesthetic resources of state-wide and national significance. (§910)

Degradation of Scenic Resources

While the New York State Legislature has recognized the value and benefits of scenic resources, its concerns are frequently not translated into real protection and enhancement of these resources. Instead, large and small-scale development projects often ignore and degrade natural coastal landforms and attractive man-made features. Large-scale development -- whether industrial, commercial or residential -- has a greater chance of impairing aesthetic value, but even a single prominent structure can significantly affect the scenic quality of an area.

Other degrading conditions may accompany development and reduce the aesthetic quality of the coast. Such unattractive conditions include: deteriorated buildings and piers, billboards and signs, power lines, transportation networks, litter, and visible air and water pollution.

The most complete degradation occurs when development blocks views of coastal waters. In urban areas, the problem is especially serious, because few visual access points remain. But the problem exists as well in rural areas where linear residential and commercial development often spreads to prevent visual access for all but shorefront property owners.

Protection of Scenic Quality

In order to protect scenic quality, the characteristics of scenic landscapes must be more completely considered during the course of making development decisions. Scenic quality assessment and protection is a relatively new and complex field. The complexity results from the uniqueness of each landscape area and from varying opinions about what constitutes scenic beauty. Even where there is agreement about the outstanding quality of a given resource, there may still be varying opinions about what would seriously impair this quality.

As a result of the many complexities and differing opinions, scenic resources have been unsystematically inventoried and assessed; as noted above, they have often been disregarded altogether when development decisions were made. To assure more complete consideration of scenic quality, the State Coastal Management Program will identify certain significant coastal resources and will provide more specific guidelines for protecting and enhancing scenic quality. Local, State and Federal agencies will, thus, be able to more fully consider the potential effect of proposed developments and avoid despoiling coastal scenery.

AGRICULTURE

Introduction

Agriculture is New York State's largest industry, with 1979 sales of \$2.2 billion.¹ Dairy farming accounts for more than 50% of these sales.² Fruit and vegetable production, the second largest source of income, accounts for 13% of the total. To produce this wealth, New York farming occupies 8.7 million acres, of which 35% (3.0 million acres) are in the coastal counties. These counties are the primary location of the State's important fruit and vegetable farming, which in 1978 had a market value of \$240.5 million.

While only a small portion of the agricultural land in coastal counties is devoted to fruit and vegetable farming, it produces nearly 10% of the total market value of all agricultural products produced in New York State. Because of the positive climatic influences of coastal waters, most of this farming, particularly that devoted to fruit, is concentrated in areas immediately adjacent to the coast.

Loss of Agricultural Lands

Although the latest U.S. Census of Agriculture³ reveals that, for first time in decades, the amount of land devoted to farming in New York has not decreased, the following factors indicate that the preservation of good farmland is a continuing problem for the State. Since 1945 nearly half of the land then being farmed has been lost to other uses. Though much of this loss is irrevocable, it is not all so. And while it is understandable that a highly urbanized state might not, or need not, be self-sufficient in food production, New York's present very low level of self sufficiency increases the cost of food to the State's population and the State's vulnerability to agricultural calamity elsewhere. Finally, while the trend toward continual loss of land in farming may now not be alarming for New York State, the trend is not consistent across the State. Much land in the

¹ New York Crop Reporting Service New York State Department of Agriculture & Markets.

² Unless otherwise identified all data is from the 1978 U.S. Census of Agriculture (published in 1982 and is for farms with sales of over \$2,500.

³ According to the U.S. Censuses of Agriculture for 1969 and 1978, the amount of land in New York in farms with sales over \$2,500 was 2,998,395 and 3,010,231 respectively, an increase of .4 per cent.

State is continuing to go out of production, often in areas that possess the most agriculturally significant land. These lands produce crops that are a unique or significant part of national food production e.g., grapes, sour cherries, carrots, and onions. In two of the three important fruit growing areas along the coast, land in orchards has declined. Along the southern shore of Lake Ontario from Niagara to Wayne County, land in orchards has declined by 13.3% between 1969 and 1978. In the Hudson Valley the principal fruit growing counties of Columbia, Ulster, and Dutchess have experienced 5.3% decline in orchards over the period. In Chautauqua County, however, there has been a 20% increase in the amount of land in vineyards. In Suffolk County, where much farmland is near the shore and where farming has consistently generated the highest market value of farm products of any county in the State, land in farming has declined by 16.4% between 1969 and 1978.

While there is widespread recognition of the problem of the loss of farmland, mechanisms for addressing the problem remain at issue. To be effective, programs to preserve agricultural land must be comprehensive and authoritative, yet they must also be adaptable to changing market forces and responsive to the legitimate property interests of farmers.

Urban development, as it expands outward into farming areas, is the major cause of farm loss. In addition, land goes out of farming at the urban/rural fringe for the following, often interrelated, reasons: 1) Farming is dependent on nearby agribusiness enterprises; these, in turn, require a minimum number of active farms. Once a certain number of farms cease production and the level of agribusiness is reduced, the economic viability of the remaining farms is in question. 2) The proximity of an urban labor market begins to provide alternative employment opportunities to farmers and farm laborers. 3) In urban/rural fringe areas, local ordinances often restrict farm operation. 4) Declining or low net farm income and high inheritance taxes⁴ are factors in the loss of farmland. 5) Urban land values raise local property taxes to levels beyond what is appropriate for its value for agricultural use. And, 6) Major public infrastructure investment can accelerate or direct urban growth into farming areas.

⁴ Recent changes in tax law have reduced this burden on farm owners

Definition of Important and Valuable Farmland

Different approaches to identifying important farmland have been taken. Howard Conklin's 1968 study⁵ rated farms based on high, medium, and low economic viability. The State Development Plan⁶ restructured this identification into categories referred to as exceptional, high viability and medium viability farming areas. The Soil Conservation Service identifies soils according to several categories of capability and also has a system for identifying important farmland as prime, unique, or of statewide or local importance. In a report prepared for the State '701' Land Use Element, the Agricultural Resources Commission recommended that "No one all-encompassing definition of important farmlands is practical or desirable." Rather, the Commission recommended that agricultural land use policy be based on various combinations of information about soil quality, economic viability of farming, climate, and existing land use patterns. This recommendation was considered the best approach. Therefore, for the operation of the Coastal Management Program, important farmland has been defined as: 1) those lands which meet the United States Soil Conservation Service's criteria as being prime, unique, or of statewide importance; 2) active farmland within Agricultural Districts; and 3) agricultural areas identified as having high economic viability.⁷

Note: Since the above definition was adopted, the State has developed a new system for identifying and valuing farmland. In the near future the program will shift to this definition. The land captured by it is essentially the same.

⁵ Howard Conklin, The Nature and Distribution of Farming in New York State, New York State College of Agriculture, 1968

⁶ New York State Office of Planning Coordination, New York State Development Plan 1, 1971, p. 48

⁷ This term is defined in the explanation of Program Policy 26.

ENERGY

Introduction

New York's coast plays an important role in satisfying the energy needs of the State. It provides sites for numerous energy facilities, including steam-electric generating plants (oil, coal, nuclear); hydro-electric generating plants; electric and gas transmission lines; oil and gas exploration, development, transfer and storage facilities (including LNG facilities); and alternative energy facilities. All these facilities are located near the coast for one or more reasons: (1) access to shipping corridors for fuel; (2) proximity to the consumers of energy; (3) abundance of cooling water for electric generating plants; and (4) use of water for direct production of energy from hydro-power and possibly in the future from wind, wave and tidal power.

Some energy facilities depend on coastal locations in order to function, while others, such as closed-cycle power plants and oil and gas storage tanks, are able to operate at sites inland from the shoreline. Therefore, in view of the competition among many types of uses for shorefront locations, proposed energy facilities must be carefully studied to determine their dependency on coastal sites and resources. In addition to technical requirements, other factors must be considered, including public need, environmental impacts, and construction and operation costs of various site alternatives.

The New York State Coastal Management Program (CMP) recognizes that all energy facilities have certain positive and negative aspects. They satisfy energy demands of individuals, commerce and industry and create employment opportunities. But these facilities often require large parcels of land and present potential dangers to the people and natural resources of the coast.

A special issue concerns ice management practices. The annual placement of an ice boom in the Niagara River is essential to protect power facility water intakes from ice jams and simultaneously to safeguard downstream shorelines from excessive ice scouring and flooding. The timing of installation and removal of the boom, however, must be carefully reckoned to ensure the greatest benefits from its use. In other instances, skillful control of ice formation helps avoid loss of power production crucial to the State's economic growth while reducing the risk of flooding and erosion damage.

Possible impacts of energy facilities on coastal resources include the following:

Chemical, thermal and/or radioactive discharges into the air and water of the coast and entrainment and thermal shock of fish resulting from the operation of various types of steam electric generating plants:

Alteration of landforms and vegetative cover, degradation of scenic resources and possible health hazards from electric transmission lines or fuel pipelines. The extent of impact from transmission lines and pipelines on the coastal area will, of course, depend on whether they run perpendicular or parallel to the coastline;

Spills associated with the transport and storage of petroleum products;

Explosions and fires associated with petroleum or LNG facilities;

On-shore land use conflicts and disruption of underwater habitats from possible Lake Erie gas exploration and production and from OCS activities.

Degradation of air quality because of dust emissions resulting from the transportation and handling of coal for an increasing number of coal-fired power plants as well as the stack gases emitted from these fossil fueled facilities.

New Energy Sources

The State's coast may play an additional role in supplying new sources of energy. Natural gas is present under Lake Erie, and there is commercial as well as public interest in recovering this resource. Also, a high resource find on the Outer Continental Shelf (OCS) could be an important supplemental source of energy for the State. However, significant environmental problems could be associated with production in Lake Erie or the Atlantic Ocean.

One issue in Lake Erie is the potential for damage to the lake's biota and water quality. Drilling operations and the placement of gas pipelines underwater would result in increased localized turbidity due to disposal of drilling muds and disturbance of bottom materials. These operations would have temporary adverse effects on benthic organisms. Mobile organisms such as fish should be able to avoid the area and thus any harmful effects, although significant fish habitats could be threatened. Damaging impacts would result if construction operations stirred up toxic wastes which were previously dumped in the lake. Concerns have also been expressed about the effect of gas exploitation on Lake Erie's waters upon which Buffalo and other communities depend for their water supply.

A second issue in Lake Erie centers upon the possibility of accidental oil and gas spills. It is generally accepted by geologists that the chances of finding oil under the lake are very small. As for natural gas, the extremely high pressures associated with well blowouts are not expected to be encountered in Lake Erie. If a leak does occur, the gas would bubble to the surface and disperse. A large leakage of gas would present an immediate hazard although such an occurrence would cause minimal environmental damage.

OCS production could result in significant environmental problems, including impacts on important fish wintering grounds and migration routes. Drilling, dredging, and laying pipelines could present possible dangers, but the most serious danger is that of oil spills, both at the platform and from tankers traveling the Nantucket-Ambrose lanes. Major and minor spills could adversely affect fish, wildlife and vegetation in the Long Island area. Controlling such spills is difficult at best and made all the more so by severe weather conditions which frequently occur in the Atlantic. Oil spills could not only damage shore and near-shore natural resources but also have drastic impacts on the economic health of Long Island's multi-million dollar fishing, tourism and recreation industries. A spill during harvesting or vacation periods could be devastating. In addition, potential OCS operations pose navigational risks to ships transiting the Nantucket - Ambrose lanes. Discarded equipment resting on the ocean bottom also poses a threat to fishing trawls. Finally, onshore support facilities, if any are sited in the New York City - Long Island area, may have beneficial and adverse impacts. The primary benefit would be the creation of jobs and an income producing industry. On the other hand, the nature and extent of any adverse effects would depend upon the facility. For instance, a supply base would generate excessive noise and reduce navigational safety due to increased shipping and helicopter traffic.

WATER RESOURCES

Introduction

One of New York State's major assets is its abundant water resources available to meet domestic, commercial, and industrial water supply demands. The tourist industries thrive in the Eastern Ontario and Long Island regions of the State because of the distinctive water recreation and scenic values of these areas. Vast quantities of high quality water from Lake Ontario proved to be a key incentive for locating several breweries in upstate New York. The natural, deep-water harbor at New York City and the Hudson River provide an important transportation artery linking the Atlantic Ocean and upstate New York.

New York State is committed to protecting and developing its water resources. Since 1962, the State has spent about ten million dollars to develop comprehensive sewerage studies. Under the Pure Waters Program established in 1965 and subsequent bond issues, voters have authorized nearly \$1.7 billion for construction of sewage treatment facilities.

In 1975, the State, after bringing its long standing pollutant discharge control program into conformance with requirements of the Federal Water Pollution Control Act (FWPCA) Amendments of 1972 (PL-92-500), established the State Pollutant Discharge Elimination System (SPDES) which, like its predecessor programs, regulates municipal and industrial discharges into surface and groundwaters of the State.

Under the FWPCA, the State has also conducted basinwide water quality surveys (303(e)) and areawide water quality management (208)¹ studies. These studies provide a reassessment of the State's water quality problems and management needs. Of the six primary water basins with greatest water quality management problems, four of them encompass New York's entire coastal frontage. In addition, these studies indicate that although the State has been able to make great strides in controlling water pollution from raw sewage and easily discernable industrial wastes, there remains an even more complex set of water quality problems including toxic substances, surface runoff and residual wastes. These problems are nationwide in scope and their significance went unnoticed until previously unregulated point source pollutants were eliminated. More attention has been given to such pollution problems under the 1977 amendments to the FWPCA (the Clean Water Act, PL 95-217).

¹The references are to sections of the Federal Water Pollution Control Act of 1972 (PL 92-500)

Integration of State water quality and coastal management programs are precisely what was intended by Congress under Section 307 (f) of the Coastal Zone Management Act of 1972, as amended. This section specifies that water quality management requirements developed under or pursuant to FWPCA, as amended, shall be the water pollution control requirements applicable under such coastal programs.

Industrial Wastes and Toxic Substances

New York State presently regulates the direct discharge of industrial wastes into surface and groundwaters through its State Pollutant Discharge Elimination System. Most of these wastes must be treated before being discharged. The effectiveness of this permit program is dependent on the availability of the information pertaining to the relative toxicity and the technology to treat these wastes. Without this information, certain chemical wastes may be unknowingly discharged into the environment in amounts greater than should occur, only to be discovered later to have dangerously adverse health effects. Such has been the case with the toxic industrial chemicals, Mirex and PCB's which have created serious biological consequences in Lake Ontario and the Hudson River. Presently, the annual proliferation of new chemicals creates a tremendous challenge to State and Federal governments' efforts to monitor their production and distribution, establish discharge tolerance limits, develop treatment technologies and regulate their discharge into the environment.

Municipal Sewage Treatment

Through the State's 208 program, the twenty-year population projections used for determining municipal waste water treatment needs have been updated, refined and disaggregated to a minor civil division level. Procedures are being developed to ensure that facilities planning and design will be consistent with these revised projections. The construction of new and upgrading of existing municipal sewage treatment plants is funded with monies made available by the State Environmental Quality Bond Act of 1965 and Section 201 of the FWPCA.

Unfortunately, there have been construction delays due to difficulty in financing the local share; length of lead time required for planning, design and site preparation; delays in the processing of applications; and increasing costs. Hence, partially treated sewage is still polluting the State's waters, particularly in the vicinity of large metropolitan areas. Recent budget cuts for the federal Construction Grants Program may even further delay construction of sewage treatment plants scheduled to be built. It should be noted that the Federal Environmental Protection Agency and Congress are considering a reduction in the biochemical oxygen demand (BOD) standard from 85% to 50%.

If this lower standard is adopted, the cost of treatment facilities that meet this requirement will be less, thus reducing future construction delays.

Because of rising costs, conventional sewage collection and treatment systems may not be economically feasible in many small coastal communities and rural areas. In many of these areas, failure of on-site septic systems or absence of sewage treatment has resulted in excessive nutrient enrichment of surface waters, groundwater contamination and sanitary problems.

Urban Stormwater Runoff and Combined Sewer Overflows

As New York State has progressed in treating industrial and municipal point sources of pollution, the relative significance of the pollution effects of urban stormwater runoff and combined sewer overflows has become more apparent. In many of New York's major urban areas, a single sewer system collects and transports sanitary sewage and stormwater runoff to the municipal treatment plants. During storms, the volume of flow through the system exceeds the plant's treatment capacity. The excess, therefore, is not treated and is discharged directly into the receiving waters. Such discharges include nutrients, coliform and pathogenic bacteria, organic wastes, lawn and garden chemicals, animal wastes, petroleum wastes from streets and parking lots, road salt, garbage and other assorted debris. Even where separated storm and sanitary sewer systems are used, such as on Long Island, untreated waters are discharged from the storm sewer systems with high levels of many of the same contaminants.

Untreated discharges have forced the closing of public beaches near Rochester, restricted shellfishing on Long Island, reduced dissolved oxygen levels in the New York and Buffalo Harbors, and may be contributing to degradation of groundwater on Long Island.

A major constraint to addressing the problems created by urban stormwater runoff and combined sewer overflows is the expense of structural control measures such as the installation of separate sewer lines, large underground storage systems or construction of large catchment basins. At present, Federal financial assistance is not available for constructing stormwater treatment facilities. Non-structural methods, such as control of lawn and garden chemicals and pet control ordinances, may prove difficult to enforce, because they often depend on voluntary citizen compliance.

In some parts of the coastal area, such as Long Island, there are close relationships between stormwater runoff and groundwater quantity and quality. These issues are discussed further in the sub-section on "Groundwater".

Agricultural Runoff and Wastes

In recent years there has been considerable controversy over (1) the relative magnitude and significance of the pollution of State waters generated by agricultural activities and (2) the determination of which management practices are most cost effective in mitigating the water quality impacts of agricultural operations. The non-point water quality problem associated with agricultural practices is the transport of nutrients, pesticides, herbicides, organic matter and sediment by storm runoff into surface waters. Silting in of fish spawning habitats, excessive growth of algae or rooted aquatic plants, decrease in dissolved oxygen concentrations and contamination of certain aquatic organisms are impacts associated with this water quality problem.

The variability in data from recent rural non-point studies makes it difficult to formulate a clearly defined cause and effect relationship between a given agricultural practice and an associated water quality impact. A case by case examination of potential problem areas and application of "Best Management Practices" for specific problems at a given site is presently the most practical approach to handling agricultural and other rural surface water runoff problems.

Vessel Wastes

Commercial and recreation boat discharges of shipboard wastes (e.g., sewage, garbage, bilge and cleaning wastes) degrade surface water quality, particularly in enclosed embayments and estuaries where diluting water volumes are low and vessel usage may be high. Serious public health hazards may result when untreated vessel wastes are discharged near shellfishing areas, bathing areas or public water supply intakes.

The Coast Guard enforces Federal regulations established by the Environmental Protection Agency in waters of the United States, including territorial seas. Federal sanitary vessel waste treatment standards, however, are less stringent than New York's standards. Present technological constraints for treating sanitary wastes, particularly on smaller recreational craft, make statewide enforcement of the State's stricter effluent standards impractical. However, the prohibition of all vessel waste discharge is feasible on an area-specific basis, i.e., near shellfishing and bathing areas, and where adequate pumpout and treatment facilities are available. Federal law now prohibits discharges near public water supply intakes.

Dredging and Dredge Spoil Disposal

Dredging is a useful management tool serving a variety of purposes such as navigation channel maintenance, marina and shoreline development, beach nourishment, and pollutant removal. There is also substantial interest in the extensive offshore sand and gravel deposits in the State's coastal waters, especially in the New York Bight. These are viewed as a future supply of materials for the construction industry in urban areas which now depends largely on decreasing local terrestrial supplies. Unfortunately, many adverse environmental impacts have been associated with the processes of dredging and dredge spoil disposal, particularly when the sediments are polluted.

During dredging operations, sediments are resuspended and mixed with water; this process thereby increases the potential for immediate release of contaminants into surrounding environments. After the dredge sediments are deposited at an open water disposal site, contaminants may be released slowly from the spoil mound into the overlying water column for several years. Because of this threat, the U.S. Environmental Protection Agency requires that polluted dredge spoils be "capped" with clean sediments.

Alternative dredge spoil disposal methods include upland disposal and placement behind diked enclosures. The shortage of suitable onshore disposal sites and the potential leaching of contaminants into adjacent ground and surface waters make these alternative methods expensive and environmentally unsafe. For example, New York State faces a difficult challenge in the safe removal and disposal of sediments that are contaminated with PCB's from "hot spots" in the upper Hudson River.

Important adverse physical impacts on coastal waters may result from dredging and disposal activities. These include changes in bottom topography, local water circulation patterns, and flushing, erosion and sedimentation rates. Secondary biological effects, such as the loss of habitats, may result from the physical and chemical impacts identified above.

Environmental problems associated with dredging and spoil disposal can be minimized through careful selection of the disposal sites and timing of the dredging and spoil disposal operations. Such efforts, however, are thwarted by a lack of baseline data, e.g., location of important habitats, seasonal distribution of fish populations, local hydrologic conditions and sediment transport patterns.

Oil and Other Hazardous Substances Spills

The potential for oil and hazardous substances spills in New York's coastal waters is high because of the substantial amount of commercial shipping. The possibility of such spills occurring in these waters is greater in major urban areas which have numerous oil and other bulk storage facilities. Nearly 1,000 oil and hazardous material spills were reported in New York State in 1976. In addition to spills, many bulk storage facilities also present air quality and fire hazard problems.

The potential development of offshore oil and gas resources along New York's Atlantic shore and the onshore facilities essential to this activity increase the chances for spillage. The recent lifting of the ban on gas drilling beneath Lake Erie and the possibility of extending the Great Lakes navigation season increase the potential of the spillage of oil and hazardous substances in these coastal waters.

The cumulative effects of a series of small spills on water quality and other environmental degradation may be as great or greater than those caused by a single large spill. Consequently, a sophisticated surveillance and cleanup program is needed.

Adequate baseline data indicating the distribution patterns of important living aquatic resources is necessary in order to identify critical areas where spill incidents would cause serious biological damage. The data would assist in the proper siting of facilities and transportation routes and would be utilized in establishing cleanup priorities for New York Harbor and the Hudson and St. Lawrence Rivers and other vulnerable areas along New York's coastline where there is intense shipping traffic.

Nutrients

High nutrient levels in coastal waters can stimulate excessive growth of rooted aquatic plants and algae blooms, and thus lower dissolved oxygen levels. These conditions disrupt water-oriented recreational activities such as swimming, boating and fishing.

In marine waters, nitrogen is usually the limiting nutrient to plant growth, while phosphorous is generally the limiting nutrient in fresh waters. While nutrients do not generally create a problem in open waters, recent episodes of anoxic conditions in the New York Bight indicate that the effects of nutrient overload have extended to the outer continental shelf. The effects of nutrients are most evident in bays and harbors of Long Island and the Great Lakes.

The accumulation of nitrates in groundwater can create a health problem, especially when an underground aquifer is the only source of drinking water. On Long Island, nitrate concentrations have, in some cases, approached maximum drinking water tolerance levels.

Nutrients are discharged into surface and groundwater from a variety of sources, including municipal treatment plants, urban stormwater, combined sewer overflows, malfunctioning septic systems, animal wastes, and agricultural runoff. For any given nutrient problem, and depending on the nature of sources in a tributary watershed, unique regulatory and structural measures may be required for its correction.

These may range from the sewerage of shoreline cottages to application of special agricultural best management practices, or to nutrient removal at municipal treatment plants.

Groundwater

The relationship between land use activities occurring in the vicinity of ground water aquifer recharge areas and the water quality of the groundwater has become more apparent in recent years. For instance, excessive application of lawn fertilizers, failing septic systems and use of road salts for de-icing can cause elevated nitrate and chloride concentrations in groundwater. Where communities, such as those on Long Island, must rely on groundwater as their primary source of drinking water, serious health problems could result.

The challenge to Long Island communities is not only to protect the quality but also the quantity of their groundwater resources. In an effort to reduce the leaching of contaminants from failing cesspools and septic systems into the groundwater aquifer, several communities have installed public sewage treatment systems. Although this results in a net removal and treatment of pollutants, significant quantities of water which otherwise would have recharged the aquifer are instead treated and discharged into marine waters or their tributaries. This practice causes the volume of the freshwater aquifer to shrink, and the salt water intrusion from the surrounding sea to increase. A loss of potable groundwater results. Recharge basins have been built throughout Long Island to retain storm water and allow it to filter into the groundwater aquifer.

When stormwater flows over roads, parking lots, industrial sites, and other areas, it picks up contaminants. It appears that treatment of the stormwater collected in the recharge basins may be necessary, since trace levels of toxic contaminants are now being detected in some of Long Island's groundwater aquifers.

Solid Wastes

As water pollution efforts lead to higher levels of municipal and industrial wastewater treatment, greater volumes of residual sludges will result. Because of their physical and chemical properties, there are no easy solutions for the disposal of most sludges. Traditional methods have included land disposal either in landfills or by spreading on land, incineration, and ocean dumping. Land disposal poses problems with odors, runoff and leaching; incineration affects air quality conditions; and ocean dumping may have adverse effects upon water quality and aquatic life.

Water Quality Management Planning programs being carried out at both the State and regional levels under Section 201 and 208 of Federal Water Pollution Control Act of 1972 (PL 92-500) are currently studying the available alternatives for environmentally sound sludge management and disposal, as well as the disposition of certain other residual wastes. In addition, the Clean Water Act of 1977 (PL 95-217) calls for EPA to conduct a study on the utilization of treated municipal wastewater and sludge.

In New York State the most severe impacts from sludge disposal occur in the New York City metropolitan area. Open water dumping in the New York Bight adversely affected fishery resources. Discussions are ongoing as to whether or not any dumping will be allowed at the present site or at some other undetermined location in the Bight.

Solid wastes such as certain manufacturing wastes and residue from incinerators also pose substantial hazards to water quality, especially in the New York metropolitan area where suitable onshore disposal sites are limited. Even where these sites are available, the toxicity or hazardous nature of some solid wastes necessitates expensive treatment and disposal methods and long-term monitoring of land disposal sites.

Thermal Discharges

Most of New York State's electric generating facilities and certain other industrial activities are located along the coast because of the availability of large volumes of water needed for cooling purposes. The production of electric power results in large amounts of waste heat. Water used as a coolant is then discharged into water bodies. This discharge of warm water can create serious problems for the aquatic species and the quality of coastal water, especially if discharged intermittently as is customary with the start up and shut down of generating facilities.

Thermal discharges in small embayments or semi-enclosed areas (such as estuaries) are likely to have more negative effects on fish than discharges in open waters. These enclosed water bodies have low dilution capacities and flushing rates and thus cannot easily dissipate thermal discharges. These coastal waters, therefore, are less appropriate as locations for major stream electric generating facilities.

During winter months fish often congregate in the warmer waters created by discharged water. However, should a generating facility be shut down for a period of time, the sudden drop in water temperature could cause thermal shock and subsequent death to large numbers of fish.

Also, warmer water contains less dissolved oxygen which is needed by a water body to neutralize certain wastes. By discharging heated water into a water body, its capacity to assimilate waste is reduced.

Water Supply

Generally, New York State is blessed with ample annual precipitation to recharge the State's reservoirs, lakes, rivers, and groundwater aquifers. But from 1979-81, particularly the winter and spring of 1981, precipitation levels declined and drought-related impacts and problems started to become evident. In December 1980, Governor Carey established the State Drought Management Task Force to coordinate New York State agency efforts to manage the intensifying drought in the State. This Task Force prepared the New York State Drought Preparedness Plan which provides a staged plan of action for local and State agencies in the event of a drought emergency.

Several short and long-range water supply projects were outlined in the Plan. While most of the water supply projects are proposed for inland water systems, one particular proposal to use the Hudson River to augment New York City's water supply is noteworthy. The Hudson River Flow Skimming Project would draw water from the river above the City of Poughkeepsie. This project poses a number of water quality and other environmental issues of concern to the State and coastal communities located along the Hudson which presently utilize the river as a water supply. A considerable effort will be needed to build broad-based support of this project before it can be implemented.

Precipitation levels increased to normal levels in the following fall and winter of 1981 through the present, and New York is not presently threatened by drought. However, the State has prepared itself in the event of a future drought by completing a strategy for coping with drought-related problems.

Other Water Resource Related Issues

Issues related to flooding, lake level management, and winter navigation are described under the Issue Section on Flooding and Erosion. Infrastructure related problems are addressed in the guidelines for implementing Policy 5 on Concentration of Development.

Data and information gathered in the numerous water resource studies such as the 303e Basin Studies, and the Level "B" Studies and the River Basin Studies, were used in developing the New York Coastal Atlas and in the preparation of the Coastal Management Regional Elements, published in 1979.

AIR QUALITY

Introduction

All of the State's coastal areas are affected by Federal and State policies to abate and prevent air pollution. The Coastal Zone Management Act, as amended, reflects this, for any State air pollution control program requirements developed pursuant to the Federal Clean Air Act must be incorporated into a State's Coastal Management Program.

The State's Air Pollution Control and Coastal Management Programs must be coordinated to ensure that each can be effectively utilized to support mutually desirable objectives. New York State's air pollution regulatory programs can be enlisted to achieve coastal management objectives such as protection of habitats, farmland, or scenic areas. At the same time, these programs could conflict with some coastal management objectives such as those related to economic development. Coordination requirements are essential to develop and implement an effective coastal management program.

Major air quality management concerns in the coastal area, as elsewhere, are grouped into four general categories: the attainment and maintenance of National Ambient Air Quality Standards as proposed in the State Implementation Plan; protection of clean air areas from significant deterioration; air pollution control problems in rural areas; and control of toxic discharges into the air.

Attainment and Maintenance of National Air Quality Standards

Under the Federal Clean Air Act, National Ambient Air Quality Standards have been established for seven pollutants. Recent amendments to the Act (1977) require that the compliance status of all areas of the country be determined for five of the seven pollutants. The Act further requires that all areas not in compliance with these pollutant standards be brought into compliance by the end of 1982 or, in special cases, by the end of 1987. The Act also requires states to prepare "State Implementation Plans" which detail the mechanisms that will be utilized to attain the standards by the statutory date.

Table I indicates the coastal areas designated for nonattainment of the health related National Ambient Air Quality Standards for various pollutants. With the exception of the New York Metropolitan Air Quality Control Region, where extensions to 1987 have been granted by the United States Environmental Protection Agency for ozone and carbon monoxide, the entire coastal area is expected to attain all health-related National Ambient Air Quality Standards by the end of 1982.

TABLE 2

Coastal Areas Designated as Nonattainment Areas for
Health-Related Pollutants

<u>Location</u>	<u>Carbon Monoxide</u>	<u>Ozone</u>	<u>Total Suspended Particulates</u>	<u>Sulfur Dioxide</u>
New York Metropolitan AQCR*				
New York City	X	X		
Nassau County	X	X		
Suffolk County		X		
Westchester County	X	X		
Rockland County		X		
Hudson Valley AQCR				
Albany County		X		
Rensselaer County		X		
Putnam County		X		
Ulster County		X		
Dutchess County		X		
Greene County		X		
Columbia County		X		
Niagara Frontier AQCR				
Erie County		X	X	X
Niagara County		X	X	
Genesee Finger Lakes AQCR				
Orleans County		X		
Monroe County		X		
Wayne County		X		
Central AQCR				
Cayuga County		X		

*AQCR - Air Quality Control Region

In coastal areas not meeting air quality standards, any new major source of air pollution must install air pollution controls, and existing sources must reduce their air pollution emissions. These reductions in emissions from existing sources are often difficult to obtain. Because of this, nonattainment areas are not as desirable for certain types of economic activities.

Maintenance of air quality standards is ensured through the review of the air quality impact of major new sources. Areas which have recently improved from the nonattainment to the attainment category will have little room for increased pollution emissions before violating air quality standards. Therefore, the air quality maintenance program may make it more difficult to locate certain types of activities in coastal areas which have just recently become attainment areas.

Protection of Clean Air Areas from Significant Deterioration

The 1977 amendments to the Clean Air Act require a State to protect "clean air areas" from significant deterioration through regulations that classify the entire State into one of three land area classifications based upon allowable deterioration of air quality. This program can be supportive of the overall coastal management environmental goal to preserve, protect, enhance, or restore natural resources. At the present time, all of New York State is classified "Class II" which allows for moderate increases in air pollution. After obtaining agreement from the affected local governments and the State Legislature, the Governor may redesignate areas as either Class I, where minimal increases in air pollution are allowed, or Class III where substantial increases in air pollution are allowed. The difficulty in obtaining and coordinating all of the approvals and the fact that the quality of air in most coastal locations is too near the established standards to allow full utilization of the increment permissible under Class II indicate that there will be few, if any, redesignations to Class III. Similarly, it is unlikely that there will be any redesignations of areas of the State to Class I, since the State air pollution source review system, other State development review programs, and local land use regulations are more suitable for preserving undeveloped areas than the inflexible Prevention of Significant Deterioration program.

Air Pollution Control Problems in Rural Areas

Air quality conditions outside metropolitan areas are generally good, and concentration levels for most pollutants are below national standards. Throughout the State, however, pollutants which are carried long distances from where they are produced can adversely affect agriculture, fish, wildlife and water quality. These pollutants, such as ozone and the acid rain precursors, sulfates and nitrates, are generated by motor vehicles, refineries, chemical plants and power plants which are often hundreds of miles from the rural areas affected. New York State has embarked upon a comprehensive program of documenting the mechanisms and effects of acid rain while utilizing Section 126 of the Clean Air Act to attempt to force upwind states to limit their contributions to air pollution within New York State. Achieving coastal management policies for agriculture, fish, wildlife, and water quality will be, in part, dependent upon the State's continuing effort to reduce air pollution from sources which affect the rural areas of the State's coast.

Control of Toxic Discharges into the Air

Toxic discharges into the air, water and land are of major national and State concern. In some areas of New York, toxics have a significant adverse impact on the use of coastal resources for economic and recreational purposes. While the State has long regulated toxic emissions directly into the air from industrial facilities, toxic air pollution from old chemical dumps such as Love Canal, from the demolition of contaminated buildings and from facilities which detoxify waste products are presenting new challenges. Detoxification facilities and the potential use of toxic wastes as fuel in some industrial processes may foster the economic development potential of the State's coastal area.