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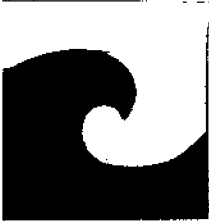
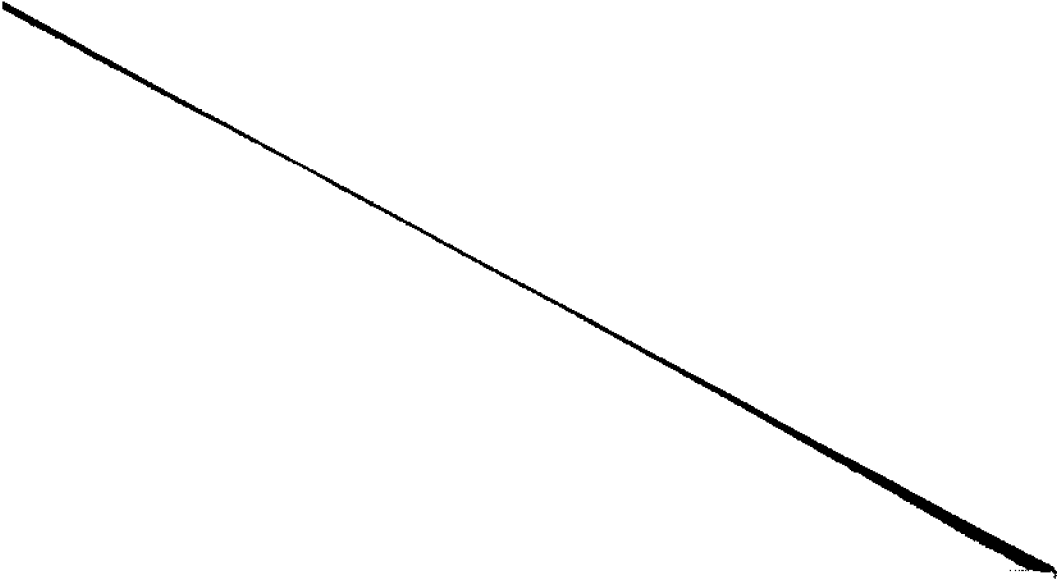
# FIRST IMPRESSIONS

Management of the Ocean Shore of  
New York State Rockaway Point to  
Montauk Point

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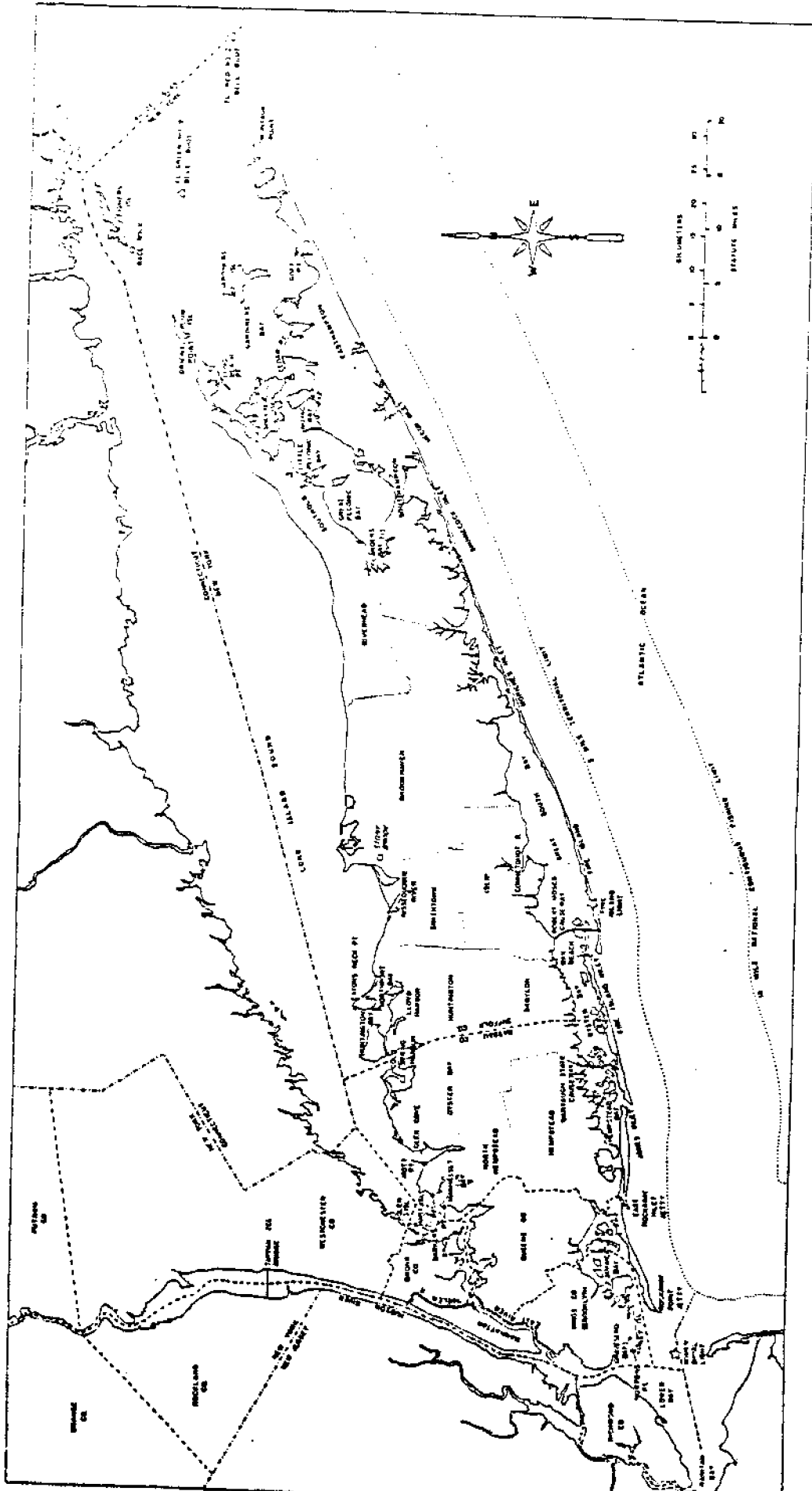
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MANAGEMENT OF THE OCEAN SHORE OF NEW YORK STATE:  
ROCKAWAY POINT TO MONTAUK POINT

Geography

The New York State marine coast from Rockaway Point to Montauk Point on the south shore of Long Island consists of a series of well-defined segments. From west to east, it begins with the Rockaway peninsula, continues with four long and narrow barrier islands, then continues with the Southampton peninsula and mainland, and ends with the Easthampton mainland to Montauk Point. (See Figure 1).

Although these segments are topographically and ecologically diverse and vary greatly in the extent and density of their development, in one respect they form a single natural system. From one end to the other, this coastline is fronted by ocean beaches that are backed by sand dunes, where they have not been obliterated by construction of homes or other development, and by high bluffs at Montauk. The energies released by storms, tides, and surf mold the entire shoreline, causing seasonal and secular cycles of erosion and deposition. Large volumes of sand move offshore and onshore, along the shore from east to west, and from the beaches to the dunes. The destruction and rebuilding of this shoreline are influenced by seasonal changes in climate, by the slow rise in the sea level, and by the construction activities of man that modify the beaches and upland.



The peninsulas and barrier islands are narrow, not more than half a mile wide, and much less on the average. They separate the Atlantic Ocean from the great bays that indent the Long Island south shore. Jamaica Bay is separated from the Atlantic Ocean by the Rockaway peninsula. The barrier islands lie in front of an interconnected series of bays that stretch for 70 miles from east to west. Some of these bays have extensive wetland islands. The entire bay system is rich in wildlife, fish, and shellfish; but the western bays are so polluted that they are closed to shell-fishing. The barrier islands are separated from one another by narrow inlets that provide navigation access between the back bays and the Atlantic Ocean. These shoreline segments and their characteristics are briefly described in Table 1.

The mainland shore of the large bays that lie behind the peninsulas and barrier islands that separate them from the ocean is relatively <sup>flat</sup> ~~flat~~ and ~~very~~ irregular <sup>in outline</sup> ~~in outline~~. It is indented by rivers and creeks that drain the upland and by artificial channels that provide docking and access for boats. Much of this shore <sup>and</sup> and the bay islands, contain extensive wetlands. Thousands of acres of wetlands have been drained and filled for the construction of residential subdivisions, marinas, and other commercial and transportation uses.

The Long Island south shore is governed by a patchwork of governmental jurisdictions. The Rockaway peninsula is entirely in Queens County, an integral part of New York City. Long Beach island and the western four-fifths of Jones Beach island are in

Table 1

Ocean Reaches of the Long Island South Shore

<u>Reach</u>	<u>Extent</u>		<u>Length</u> (miles, approx.)	<u>General Topography</u>
	<u>From</u>	<u>To</u>		
Rockaway Peninsula	Rockaway Point	E. Rockaway Inlet	10.0	Flat, mostly urbanized, ocean beaches; backed by Jamaica Bay
Long Beach Island	East Rockaway Inlet	Jones Inlet	9.5	Flat, mostly urbanized, ocean beaches; backed by Hempstead and Middle Bays
Jones Beach Island	Jones Inlet	Fire Island Inlet	17.6	Flat; mostly state parks and beaches; little development; backed by East Bay and S. Oyster Bay
Fire Island	Fire Island Inlet	Moriches Inlet	31.0	Flat; large state and national parks; mostly undeveloped beaches, dunes, and wetlands interspersed by dense cottage development; backed by Great South Bay and Moriches Bay
Westhampton Beach Island	Moriches Inlet	Shinnecock Inlet	12.5	Flat; summer home development; some undeveloped beaches, dunes, and wetlands; backed by Moriches and Shinnecock Bays
Southampton Peninsula and Mainland	Shinnecock Inlet	Georgica Pond	13.8	Peninsula similar to barrier islands; mainland beaches and dunes backed by flat upland occupied by residential development and some farming; peninsula backed by Shinnecock Bay
Easthampton Mainland	Georgica Pond	Montauk Point	23.0	Beaches and dunes backed by variable topography--flat areas in extensive agriculture, irregular back dunes and moraine land in residential development. high bluffs at Montauk



Nassau County. Within this county, the Towns of Hempstead and Oyster Bay front on the south shore. Nassau County contains about 17 miles of shoreline, as compared to Suffolk County, which contains most of the Long Island seashore--almost 90 miles from the Nassau County line to Montauk Point. Within Suffolk County lie from west to east the towns of Babylon, Islip, Brookhaven, Southampton and Easthampton. The substate governmental structure also contains incorporated municipalities within the boundaries of the various towns. They are listed in Table 2. Municipal services are provided in varying combinations by the counties, towns, and villages. The towns and villages also exercise zoning and other land use controls.

#### Land Use Regulation

Perhaps the most significant element in a coastal resources management program is regulation of land use. This authority has been delegated by New York State to local units of general government. Zoning ordinances regulate permissible uses within mapped zones. Subdivision regulations and building codes contain development and construction standards. Municipalities on Long Island also have waterway and other environmental regulations. Town and village ordinances cover all privately-owned lands on the peninsulas, barrier islands, and mainland segments of the Atlantic Ocean shore. New York State also regulates the use of wetlands by its own permit system. Extensive reaches of this shore are publicly owned and managed for local parks and sanctuaries,

Table 2

Long Island South Shore Municipalities

<u>Incorporated Municipality</u>	<u>Town Location</u>	<u>Geographic Location</u>
<u>Nassau County</u>		
City of Long Beach	Hempstead	Long Beach island
Village of Hewlet Harbor	Hempstead	Hempstead Bay
Village of Hewlet Neck	Hempstead	Hempstead Bay
Village of Hewlet Bay Park	Hempstead	Hempstead Bay
Village of Lawrence	Hempstead	Hempstead Bay
Village of Freeport	Hempstead	Middle Bay
Village of Massapequa Park	Oyster Bay	South Oyster Bay
<u>Suffolk County</u>		
Village of Amityville	Babylon	South Oyster Bay
Village of Lindenhurst	Babylon	South Oyster Bay
Village of Babylon	Babylon	Great South Bay
Village of Brightwaters	Islip	Great South Bay
Village of Saltaire	Islip	Fire Island
Village of Ocean Beach	Islip	Fire Island
Village of Patchogue	Brookhaven	Great South Bay
Village of Bellport	Brookhaven	Great South Bay
Village of Westhampton Beach	Southampton	Moriches Bay and Westhampton Beach Island
Village of Quogue	Southampton	Shinnecock Bay and Westhampton Beach Island
Village of Southampton	Southampton	Mainland
Village of Easthampton	Easthampton	Mainland

large county parks and reservations, numerous state parks, and the federal Fire Island National Seashore.

It would not be feasible to examine here in detail the land use planning and regulatory activities of all the south shore towns and villages. The Town of Islip may serve as an example of how these municipal powers are used along the entire Atlantic shore of Long Island. Three Town agencies have major responsibility for environmental management: the Department of Planning and Development, the Department of Environmental Control, and the Environmental Council. There are also a Board of Appeals and an informal Wetlands Hearings Board.

Department of Planning and Development, Town of Islip

This Town of Islip agency advises the Planning Board and the Town Board, the legislative body, about development policies and plans. It also drafts land use regulatory changes for legislative action. The Town of Islip Comprehensive Plan contains a broad statement of policy about environmental resources. It aims at conservation, providing recreational opportunities, limiting population to the carrying capacity of land and water resources, and promoting only economic activities that are compatible with local employment needs and environmental values. The need for planning is demonstrated by the quadrupling of town population from 71,500 in 1950 to 278,800 in 1970.

The Town of Islip zoning ordinance has special features to regulate development on its portion of Fire Island. The Ocean Front Dune District extends along the entire Atlantic shore of

the town from mean high water to a line 40 feet inland from the 15-foot contour line closest to the water. The 15-foot contour elevation is a surrogate for the primary dune line. No structures are permitted within the Dune District except a stair, lookout platform, or fence to hold the dune. Unfortunately the Suffolk County Supreme Court decided an appeals case in favor of a property owner who wanted to build a house on the dunes. The court decided that the property was suitable for this use, and that restricting it to use for a lookout platform, stair, or fence was unreasonable and an unconstitutional exercise of the police power. The Court did not consider that the house might destroy the dune, and might therefore itself be destroyed by a storm.

The Town of Islip Zoning Ordinance also regulates construction in flood hazard districts. These were established in conformance with flood hazard boundary maps prepared by the Federal Insurance Administration. Property owners whose structures are located within these districts may purchase flood insurance, and new structures that conform to the regulations may also be covered. Although the owners may be protected from financial loss by flooding of the barrier island by high storm surges, the federal flood insurance program may encourage inadvisable development in these hazardous areas.

#### Suffolk County in Shoreline Regulation

New York counties do not have zoning powers, but they may review certain local zoning and variance decisions. The Suffolk County Charter grants such review power to the County Planning

Commission within 500 feet from the waters of the Atlantic Ocean, Long Island Sound, and their bays or estuaries. If the County Planning Commission disapproves of a local zoning action in this strip, the municipality must override it by a vote of a majority plus one of all the members of the municipal legislature. If a state agency notifies the Planning Commission that a proposed local zoning action is likely to result in air or water pollution or destruction of estuarial values, the municipality may not act at all or must comply with changes required by the County Planning Commission.

The National Seashore on Fire Island

Most of Fire Island is undeveloped, but there are two incorporated villages and 15 unincorporated settlements that occupy strips of land running from the Atlantic Ocean to the Great South Bay. These 17 "exempt communities" in the Towns of Islip and Brookhaven alternate with undeveloped areas that are federally-owned as part of the National Seashore. The Fire Island National Seashore Act of 1964 did not prohibit further development but required that it must conform to local zoning ordinances approved by the Secretary of the Interior.

The 1977 General Management Plan for the National Seashore notes that in the past, local governments had been reluctant to enforce their own zoning ordinances. The Town of Islip and the Village of Saltaire had submitted zoning ordinances for review by the Secretary and wanted to restrict further development. It has been noted, however, that Islip has not been able to prevent

construction on the primary dunes. The Village of Ocean Beach and the Town of Brookhaven had granted hundreds of variances that permitted commercial and high-density uses. Substandard lots that were created before the enactment of zoning ordinances are also being developed. The General Management Plan states that

Continuation of the present land use control system will probably result in development of nearly all lots, including substandard ones, dune properties, and wetlands .... A greater danger with the present system is that no effective method will exist to resist pressures that would permit higher densities on already developed lots, including multiple-family dwellings and additional commercialization. Illegal conversion of single-family dwellings to multiple-family dwellings would continue.\*

#### Hazardous Areas

The Atlantic Ocean shore presents serious hazards for urbanization and marketing as real estate. Tropical hurricanes and "northeaster" storms bring combined high winds and tides that may

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\*U.S. Department of the Interior, National Park Service, Fire Island National Seashore General Management Plan, Patchogue, N.Y., September 1977, pp. 102-103.

wash away beaches and dunes, undermine bluffs, inundate coastal lands, and cause great loss of life and property. Nevertheless, the attraction of the shore and short memories, as well as the high monetary value placed on shore property, cause people to ignore the hazards and persist in building where the risk of loss is high.

Erosion and flooding may be dealt with by either structural or nonstructural means. Nonstructural means include civil defense preparation and early warning systems, flood insurance, and land use regulations. These regulations may require a large setback for construction near the edge of bluffs, density controls to prevent threats to large populations, prohibition of construction on dunes, and conservation of wetlands. Such nonstructural means are least costly, and they are most effective if they can prevent construction in hazardous areas altogether. Designation of such areas as "geographic areas of particular concern" within a coastal management program could limit uses to recreation, agriculture, fish and wildlife sanctuaries, or very low density occupation. Unfortunately, development pressure and high land values prevent such a rational approach. Property owners insist on building as close as possible to the water's edge and then demand that governments take costly measures to keep nature from having its way.

In the long run, structural measures may cost the general taxpayers more than the value of the private properties saved from damage or destruction. Artificial beach nourishment, for

example, may require the placement of hundreds of thousands of cubic yards of sand on eroded beaches every year. Bulkheads, revetments, and seawalls may protect the base of bluffs or shore-front uplands for a longer or shorter time, but eventually they give way to the tremendous power of winds and waves. Another structural means to control beach erosion is the groin or jetty, a long narrow structure of wood, reinforced concrete, or rock built out at right angles to the beach. These structures interfere with the littoral current that runs parallel to the beach and cause it to drop part of its load of sand on the upstream side of the groin or jetty. Unfortunately, although sand builds up the beach on the upstream side of the structure, the shore current erodes the beach on the downstream side. A single groin or a whole field may protect the upstream segments of a beach, but the system robs Peter to pay Paul. Trapping sand from the shore current upstream deprives the beaches downstream of nourishment, and they erode.

The prevailing shore current on the south shore of Long Island is from east to west and carries sand from the eroding Montauk area towards the Rockaways. Rising sea level and natural storm surge processes continuously erode the ocean shore. Barrier islands in their natural state may be washed over completely by the storm surge, but sand is deposited on the bay shore. Eventually the dunes rebuild and new wetlands form on the bay side. The long run effect of the natural process is that barrier islands slowly migrate toward the mainland. Problems arise, however, when unstable barrier islands are converted into valuable real estate.



The U.S. Army Corps of Engineers was assigned the responsibility for protecting the nation's shorelines. One of its studies showed that part of Westhampton Beach west of Shinnecock Inlet had receded 500 feet between 1940 and 1960. Since Colonial days, the area had been hit by 126 severe storms. The maximum hurricane tide of record occurred in 1938, when 45 lives were lost. The Westhampton Beach project was part of a long term program to rebuild the beaches and dunes from Fire Island Inlet to Montauk Point. About 34 million cubic yards would have to be placed initially, and about 480,000 cubic yards would be required annually to keep up with continuing erosion. Groins were to be constructed only if experience showed they were necessary. Their purpose would be to stabilize the fill, not to trap sand from the shore current to build up the beach.

The project was financed originally by a 52% federal contribution and 24% shares each by New York State and Suffolk County. A field of 11 groins was constructed in the middle of Westhampton Beach after a storm had damaged valuable properties there. Suffolk County, however, refused to pay the cost of dune reconstruction and the placement of beach fill between the groins. The results were predictable. Only eight months after the groins had been finished, they had robbed enough sand from the shore current to cause serious erosion to the beaches to the west of the groin field. New York State, Suffolk County, and the property owners persuaded the Corps to again go against its own design recommendations. Four additional groins were built to the west of the first

field, but no dune and beach fills were placed here either. Again there was severe erosion further west, and a project was prepared to build six more groins. By this time, however, a new county executive had been elected, and he opposed further groin construction. He vetoed appropriations for the county share of financing on the grounds that more groins would only cause more erosion to the west, and that all county taxpayers should not have to support the property values of a few wealthy summer residents on Westhampton Beach. The project for the new six-groin field was abandoned in favor of a program of continual pumping of beach fill from the Atlantic Ocean bottom to replace beach sand lost by erosion.

The Westhampton Beach case demonstrates the difficulties and uncertainties involved in using structural solutions to attempt to stop the natural process of shore erosion. Because of technical uncertainties, the Corps of Engineers wanted to use groins experimentally only if beach and dune fill failed to stabilize the shore. Political uncertainties, however, forced the Corps to go against its own design recommendations not only once, but twice with disastrous results. Further political uncertainties caused cancellation of the project to complete the groin field on Westhampton Beach, in the face of the certainty that erosion would continue and indefinite artificial nourishment would be required. No way has been found, however, to replace structural solutions to shore erosion by nonstructural means that would restrict development or require public purchase of very expensive properties on

the barrier islands. Returning the shoreline to its natural state does not seem financially or politically feasible.

### Shellfish Management

The great bays of the south shore of Long Island, which are protected from the Atlantic Ocean by barrier islands and narrow peninsulas, provide fertile ground for shellfish production. This is an important economic and recreational resource. Commercial landings in 1974 were valued at almost \$20 million. The value of harvesting by individual persons for home consumption may have been even greater than this amount. Most of the shellfish industry's economic product, however, comes from transportation, wholesaling, retailing, and restaurant business. The whole industry is estimated to contribute \$100 million or more to the regional economy.

Shellfish harvesters include large-scale dredge operators, independent commercial harvesters known as baymen, and individual recreational harvesters. The shellfish resource is protected by governmental regulators, who are sometimes regarded as enemies by the harvesters. The regulators are concerned about protecting public health by assuring that the shellfish come from clean waters <sup>and</sup> are safe to eat. Handling and marketing are also regulated to assure proper sanitation and grading. The U.S. Food and Drug Administration, the N.Y.S. Department of Environmental Conservation (DEC), and local authorities are all involved in the regulatory process.

The National Shellfish Sanitation Program (NSSP) was established in 1925 after a serious typhoid epidemic that was attributed to infected shellfish. NSSP is now administered by the Food and Drug Administration. It is a cooperative effort in which states set up their own Shellfish Sanitation Programs. Under the SSP, the N.Y.S. Department of Environmental Conservation classifies all actual and potential shellfish-producing waters according to state quality standards. Shellfish may be taken only from waters that meet the highest standards as determined by: (1) collection of bacteriological data at water sampling stations, (2) shoreline surveys to identify actual and potential pollution sources, (3) hydrographic studies to determine the impact of major sources of pollution on shellfish-producing waters, (4) analyses of these data to determine if the waters meet state quality standards and certifying areas for shellfish growing and harvesting. In May, 1977, for example, DEC closed 2,665 acres of shellfishing waters because they did not meet state standards.

DEC also maintains surveillance over wholesale marketing of shellfish. Storage and processing facilities are inspected before a wholesaler is issued a permit to operate. Monthly inspections are made thereafter to assure compliance with state rules and regulations on sanitary control over shellfish. Market samples of oysters and clams are collected for bacteriological analysis, shellfish samples are collected for analysis directly from their underwater beds, and vessels used for harvesting are inspected periodically.

Concern for shellfish sanitation is paralleled by programs to manage shellfish resources to increase their productivity. One of the most important of these programs is the transplanting of shellfish from polluted waters to areas of acceptable quality. In clean water, shellfish can flush out the disease-producing organism and toxic materials they may have accumulated. In 1977 alone, 36,000 bushels of clams were transferred from uncertified to certified waters. Transplanting shellfish from cool to warmer waters increases spawning. Clams, oysters, and bay scallops production have been increased in this way.

It is evident that shellfish must have a proper environment in order to multiply and be marketable. Water depth, temperature, salinity, turbidity, and quality must conform to the range of shellfish growth requirements and sanitation. All of these conditions, however, are affected by man-made changes in the environment, particularly pollution, dredging and filling, alteration of wetlands, and engineering works that affect tidal flushing and water circulation in the great bays behind the south shore barrier islands. DEC therefore makes shellfish population surveys in areas to be dredged for navigation improvement or other reasons. If enough shellfish are affected to make transplanting worthwhile, DEC supervises the process and apportions the costs among the public and private beneficiaries.

State shellfish resource management includes leasing state-owned underwater lands to the large-scale mechanized shellfish farming operators and to the individual baymen. The large-scale

operators cultivate the shellfish and then harvest them with mechanical dredges. The baymen, however, use hand rakes or tongs and depend on nature's bounty for their harvest. State law provides that state-owned areas where shellfish may be harvested by tonging or raking must be open to baymen without restriction. Only areas suitable for large-scale cultivation and harvesting may be leased for exclusive use by the operators.

Long Island towns that border the bays also own thousands of acres of bottom lands, and they regulate the taking of shellfish by issuing permits and leases. Town shellfish resource management programs are also concerned with sanitation, increasing productivity, and enforcing the regulations on harvesting. The Town of Islip, for example, established the Department of Environmental Control to carry out these responsibilities. This department's Environmental Management Division supervises and controls the use of the waterways under Town jurisdiction. It has a comprehensive shellfish and bay management program, which includes transplanting of shellfish from polluted waters and restoring or creating wetlands.

The Town of Islip owns about 4,000 acres of prime shellfishing bay bottom lands. It no longer leases any of its lands to large-scale operators. Licenses are issued to baymen for commercial harvesting anywhere in Town waters. Resident licenses are also issued for taking shellfish for home consumption. The Town shellfish ordinance prescribes harvesting seasons and specifies the minimum sizes of oysters, scallops, and clams that may be taken.

The Town also has its own enforcement program to prevent poaching in uncertified waters. It has three patrol vessels, a seaplane, radar facilities, and seven officers.

#### Wetlands Management

The New York State Stream Protection Act of 1966 required that permits had to be obtained for excavating or filling in navigable waters as well as in their contiguous estuaries, marshes, and wetlands. Unfortunately, Nassau and Suffolk Counties were excluded from the provisions of this law. The Long Island Wetlands Act had earlier established a program of state-local cost sharing to improve, conserve, and manage tidal wetlands. About 16,350 acres of town-owned wetlands in Hempstead, Islip, Oyster Bay, and Brookhaven were improved under this program. It was not intended, however, to preserve privately-owned wetlands. Repeated attempts to enact a strong marine wetlands program were ineffective because of opposition from developers and local governments. In 1973, the state legislature finally passed the Tidal Wetlands Act.

This Act was justified by the legislative finding that tidal wetlands constitute one of the most vital and productive areas of our natural world, and that their protection and preservation are essential. The legislature identified these economic and other values of wetlands: (1) support marine food production by providing nutrients for organisms at the bottom of the food chain and also serve as spawning areas, nursery grounds, and sanctuaries for fish; (2) provide cover and nesting and feeding

areas for wildlife, waterfowl, and shore birds; (3) absorb and store storm waters, act as buffers against storm tides and waves, and minimize flood damage and erosion; (4) provide recreational opportunities for hunting, fishing, boating, hiking, bird watching, photography, and camping; (5) marsh vegetation produces large quantities of oxygen from photosynthesis and thus help to oxidize biological and chemical pollutants that are washed into the wetlands; (6) serve as settling and filtering basin that absorb sediment and organic matter; (7) provide opportunities for scientific research and serve as outdoor classrooms for nature study; (8) provide open space and natural areas for aesthetic appreciation.

Wetlands are an integral part of the ecology and economy of the Long Island south shore and its estuaries. The Tidal Wetlands Act was passed in recognition of the value of this resource and the irreparable losses already experienced.

The legislature further finds that vast acreage in the tidal wetlands in the State of New York has already been irreparably lost or despoiled as a result of unregulated dredging, dumping, filling, excavating, polluting, and like activities; that the remaining tidal wetlands are in imminent jeopardy of being lost or despoiled by these and other activities; that if the current rate of loss continues, most of the



State's tidal wetlands will be entirely lost before the end of this century; and that presently many creeks and tidal wetlands are so polluted that shellfish harvesting is banned.\*

About 10,000 acres of tidal wetlands had been lost in Nassau and Suffolk Counties since 1953. In order to conserve and protect the remaining tidal wetlands, the Tidal Wetlands Act established a regulatory program. This began with a wetlands inventory and a moratorium on further alteration of wetlands. After the inventory was completed, land use regulations were adopted and special permits were required for any activity that would alter the wetlands.

Aerial photography and ground checks were used to make the wetlands inventory. From this information, maps were prepared that show the areal extent of the wetlands as well as variations based on plant types. Vegetative types and the degree of tidal inundation were the major factors that went into determining which classes of uses would be compatible with the various classes of wetlands. Five wetlands classes were identified in the inventory:

Coastal fresh marsh: in upper tidal limits of rivers  
where there is significant freshwater inflow

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\*New York Environmental Conservation Law, Sec. 25-0101, 1973.

Intertidal marsh: between low and high tide lines; most productive for primary nutrients

High marsh or salt meadow : lies above the intertidal marsh; regularly flooded only by spring and storm tides

Coastal shoals, bars, and mudflats: covered by water at high tide and exposed, or covered by less than a foot of water, at low tide; not covered by vegetation

Littoral zone: shallow bay bottoms under less than 6 feet of water at low tide

About four years after the Tidal Wetlands Act was passed, the inventory had been completed and hearings were held on the proposed rules and regulations. They were promulgated in August 1977. The heart of the Tidal Wetlands Land Use Regulations, N.Y. Compilation of Codes, Rules, and Regulations, Part 661, is a matrix table that specifies which of 57 categories of use may be permitted in any of the five classes of wetlands or the adjacent area. The latter is the sixth regulated zone and is defined as extending 300 feet landward from the boundary of a wetland or to the contour elevation 10 feet above mean sea level.

The 57 different types of land use have been grouped into five classes for determination as to whether or not they may be permitted in any of the six zones: (1) compatible use not requiring a permit or notification letter approval, (2) generally compatible use, notification letter required, (3) generally

compatible use, permit required, (4) presumptively incompatible use, (5) incompatible use.

Property owners or developers who find from the matrix that their proposed uses are compatible with the wetland class may proceed without notifying the Department of Environmental Conservation or applying for a permit. If the proposed use is classified as generally compatible, but a notification letter is required, the developer must inform DEC about his intentions. The DEC permit administrator returns a written "notification letter response" informing the developer whether he may proceed or must apply for a permit. For all other classes of use a permit application and permit approval are required.

The land use regulations incorporate development standards to protect wetlands and adjacent areas from residential and other kinds of construction for which permits have been granted. These include minimum setbacks from the wetland edge; location and construction of septic tanks or other forms of on-site sewage disposal; lot coverage by buildings, parking areas and other impervious surfaces; and minimum lot areas. Substantially increased surface drainage caused by construction must be prevented from running directly into tidal waters classified by DEC as suitable for commercial shellfishing or contact recreation, or into other surface waters within 1000 feet of such waters. Suitable measures to reduce runoff are <sup>dry</sup>~~day~~ wells, retention basins, filters, and open swales or ponds.

Municipal Management of Tidal Wetlands

It has already been noted that local governments on Long Island have natural resources management institutions that parallel those of the State. For example, the Town of Islip has a Department of Environmental Control that is concerned with administering its Wetlands and Watercourses Law. The Town already owns most of the wetlands within its borders and expects to acquire the rest. The Town, the Nature Conservancy, or the Audubon Society own about 1,100 out of the 1,700 acres of tidal wetlands in Islip. The Town wetlands inventory report expressed little faith in land use regulations, easements, or contracts with private owners to conserve wetlands: "the only guarantee is ownership, and those wishing to preserve the wetlands forever must pay the price."\*

The Town of Islip budgeted \$1 million for wetlands purchase, and it created a Nature Preserve Trust in 1974. The Town Department of Planning and Development was given responsibility for recommending which wetlands should be purchased or dedicated to the Nature Preserve Trust. Dedication was by Town Board resolution. The Department of Environmental Control was charged with management of the Nature Preserve, and its properties were to be kept in their natural state.

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\*Town of Islip, Department of Planning and Development, Marine Wetlands in the Town of Islip, December 5, 1972, p. 5.

Regulation of Dredging and Filling

Tidal wetlands are particularly vulnerable to dredging and filling. New land may be created by sinking a bulkhead to outline the future solid land. The bottom material on the water side is dredged up and placed behind the bulkhead. Deepening the water improves navigation, and the new land may be used for houses, marinas, resorts, port facilities, and industrial plants. Unfortunately, these economic advantages require obliteration of the wetlands, which have their own economic and environmental values in their natural state.

Dredging changes the bottom topography and consequently the shoaling and scouring patterns caused by currents. Potholes created by sand and gravel mining tend to trap organic materials and pollutants. Increased turbidity decreases penetration of sunlight into the water, affecting plant life, and it also causes clogging of the water circulation organs of shellfish. Dredging also destroys the shellfish habitat. Dredging solely to improve navigation produces the problem of what to do with the spoil. It was formerly dumped on conveniently available wetlands, thus destroying them. There are other uses for it, however. Clean sand of the proper grain size may be used as fill for eroded beaches. The spoil may also be used to create artificial islands in open water, and they may be planted with marsh vegetation to create new wetlands.

Local, state, and federal governments are involved in regulating dredging and filling. The N.Y. Department of Environmental

Conservation wetlands regulation program, already described, includes the processing of permits and hearings required before dredging and filling affecting wetlands may take place. Long Island south shore towns have their own regulations and permit procedures. Under the Town of Islip Wetlands and Watercourses Law, for example, all water and wetlands areas were delineated on tax maps that showed every public and privately-owned parcel of land. These areas were then consolidated into 42 wetlands and watercourses management areas on the Islip mainland and on Fire Island.

The Town Wetlands and Watercourses Law established a permit system to regulate dredging and filling, diversion or obstruction of water flow, the placement of structures, and other activities in town watercourses, coastal wetlands, and tidal marshes. The town law specifies those uses that are permitted if they are carried out according to the terms and conditions of the permit. The permit application must contain detailed technical information about the proposal and its environmental impact. After notice, a public hearing is held by the Wetlands and Watercourses Hearings Board composed of the Commissioner of Planning, the Commissioner of Environmental Control, and the Chairman of the Environmental Council. The Town Board finally decides whether or not to approve permits and may impose conditions on how the activity is to be carried out.

There is a third permit system that regulates dredging and filling. This one is operated by the U.S. Army Corps of Engineers. In practice, then, three separate permits are required before

dredging and filling may affect Long Island coastal waters and wetlands. Filing, processing, and hearings procedures are coordinated by the three levels of government, but any one of them may refuse to permit the proposed activity.

The federal permitting authority is founded on both the River and Harbor Act of 1899 and the Clean Water Act of 1977, which amended earlier Water Pollution Control Acts. Corps of Engineers permits are required under the former law for piers, breakwaters, bulkheads, revetments, power transmission lines, aids to navigation, dredging, stream channelization, and excavating and filling. In 1968, the earlier limited concern with waters actually used for interstate or foreign commerce was broadened to include consideration for fish and wildlife, resources conservation, pollution, and aesthetics.

The ~~Clean~~ <sup>Clean</sup> Ocean Water Act of 1977 has water quality improvement rather than navigation objectives. Section 404 of this act gives the Corps of Engineers responsibility for regulating the discharge of dredged and fill materials into the "waters of the United States." The federal courts expanded the definition of "navigable waters" to include the entire aquatic system, including wetlands and tributary streams. The rules and regulations adopted by the Corps extends its regulatory jurisdiction

to the entire surface and bed of all water bodies subject to tidal action. Jurisdiction thus extends to the edge ... of all such water bodies, even

though portions of the water body may be extremely shallow, or obstructed by shoals, vegetation, or other barriers. Marshlands and similar areas are thus considered 'navigable-in-law,' but only so far as the area is subject to inundation by the mean high waters.\*

The regulatory definitions of "navigable waters" and "fill materials" give the Corps wide jurisdiction over what may be taken out of or put into tidal wetlands. Two major exceptions are provided by law. Farming and forestry practices are excluded by Sec. 404 of the Clean Water Act. The Corps is not responsible for discharge of wastes, either, as waste disposal is regulated by the Environmental Protection Agency under Sec. 402 of the Clean Water Act. In New York, this function has been delegated to the Department of Environmental Conservation and the State Pollutant Discharge Elimination System.

#### Recreation and Access to the Shore

Demand for recreational use of the Atlantic shore of Long Island and of the water bodies behind the barrier islands is intense. The shore features are unique and attract visitors from

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\*Federal Register, Title 33, Sec. 329.4, July 19, 1977.



a large region. They are also adjacent to the New York Metropolitan Area, whose large and high density population exerts a heavy demand on the recreation resource. Recreation facility capacities are limited, however, and access from the center of demand is inconvenient and costly. County and municipal parks and beaches are restricted to residents. Most use of the Long Island south shore recreation facilities is made, therefore, by residents of Nassau and Suffolk Counties, and by those from New York City who can afford the costs of travel for day use or accommodations for longer periods. Tourists are also attracted from a wide area. Fortunately, Jacob Riis Park and other facilities are available on the Rockaway Peninsula by public transportation for New York City residents. Jones Beach and other state parks in Nassau County may be reached by those who have private autos and can cope with the traffic congestion on summer week-ends.

#### Federal Recreation Facilities

The National Park Service has jurisdiction over two large national parks on the south shore. The Gateway National Recreation Area occupies 26,785 acres of some of the last remaining open space around the greater New York harbor. Major components are on Staten Island and Sandy Hook, N.J., but two of its areas are on the Long Island south shore within New York City. Breezy Point has 2,791 acres at the western end of the Rockaway peninsula. It forms the southern portal of Rockaway Inlet, which is the gateway to Jamaica Bay. This bay contains the largest component

of the Gateway National Recreation Area, 15,480 acres. Most of the New York components of this national park are still undeveloped. Considerable outlays of federal funds and years of time may be required before the Gateway facilities will be available for mass use.

The Fire Island National Seashore comprises 3,400 acres, but it is not intended for intensive use. Fire Island is a 32-mile link in the chain of Long Island barrier islands. Part of the island is densely developed with summer homes, but there are still large areas of untouched primitive forest, wetlands, dunes, and beaches. Robert Moses State Park is on the western end of Fire Island. It is accessible by a causeway and toll bridge and has parking and other facilities for intensive use. Near the eastern end of Fire Island is Smith Point County Park, which is also accessible by a causeway. Suffolk County also owns the entire eastern end of Fire Island from Smith Point Park to Moriches Inlet. Between these two large parks, which receive thousands of visitors during summer week-ends, are several beaches restricted to town residents, 17 communities of summer homes, and the extensive undeveloped areas that constitute the National Seashore.

There is no vehicular access to Fire Island except by causeway to the state and county parks. There are no paved streets in the residential communities, and only utility service vehicles are permitted on the sand tracks. The only way to get to the National Seashore, the town parks, or the summer homes is by

passenger ferry or private boat. The primary objectives of the National Seashore are to conserve the unique natural features of Fire Island and provide recreational facilities in areas where they would be compatible with the natural environment. Unfortunately, the federal government does not own the beach, the primary dune line, the marshlands, or other unimproved lands outside of the National Seashore property. The only way to preserve these dunes and wetlands is for the federal or town governments to buy them.

Although the National Seashore is a national recreation resource, its focus on preserving environmental values and the difficulty and expense of access limit its use to a small population.

The primary management concern is preservation and enhancement of the serenity and natural beauty of the island.... Increased use of the federal recreation areas will be minimal, with emphasis placed on the quality of facilities and visitor experiences and not on quantitative increases. This general management plan recognizes that Fire Island National Seashore serves a definable population of known and potential visitors. Basically, Fire Island provides for, and will continue to serve the recreational needs of Nassau and Suffolk Counties and to a lesser degree the needs of New York City.\*

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\*U.S. Department of the Interior, National Park Service, Fire Island National Seashore: General Management Plan, Patchogue, N.Y. 1977, p. 23.

State Parks

Since 1924, 21 state parks have been established within the coastal zone of Long Island. Those that are on the south shore barrier islands or the bays behind them are listed on Table 3.

There are no legal restrictions on access to state parks, as there are on county and town parks, but transportation and cost factors limit their use. Recreational demand comes primarily from residents of New York City and Nassau and Suffolk Counties. With the decline of public transportation, the elderly, young, poor, and handicapped residents of the region are unable to reach the state parks. Even area residents who can afford private autos may be discouraged from driving to the parks and beaches on summer week-ends because of traffic congestion and long delays, even on the expressways and parkways. Tolls and fees on parkways and bridges and for park entrance and parking may also pose obstacles to use by low income families.

The Long Island Railroad provides transportation service along the south shore out to Montauk. But the stations are several miles from the shore parks; and where there are local connecting buses they do not run on Sunday and holidays. Families that cannot afford cars are not likely to be able to afford the cumulative costs of railroad and taxis either, even if they would be willing to spend hours in travel for a day's outing. Buses have been banned from state parkways, the only efficient access to the barrier island parks, and quotas have been set for the number of buses that may enter state parks. On Sundays, buses

Table 3

New York State Parks on the Long Island South Shore\*

	<u>Area (Acres)</u>	<u>Attendance in 1976 (Thousands)</u>
<u>Jones Beach barrier island</u>		
Jones Beach State Park	2,413	11,311
Gilgo Beach State Park	1,223	30
Captree State Park	298	Included with Jones Beach
<u>Fire Island</u>		
Robert Moses State Park	1,000	2,049
<u>Mainland-Atlantic Shore</u>		
Hither Hills State Park	1,755	Included with Montauk Point
Montauk Point State Park	724	645
<u>Mainland-South Oyster Bay and Great South Bay</u>		
Massapequa State Park	596	Undeveloped
Belmont Lake State Park	459	463
Heckscher State Park	1,657	922

\*Source: N.Y. State, Office of Parks and Recreation, "Public Access and Recreation Within the Coastal Boundaries of New York State," Albany, N.Y., March 1978, Table 8, p. 24.

are excluded from all state parks except Heckscher. These access limitations prevent efficient use of some state parks. Very often parking lot capacity determines the capacity of the park, although some of its recreational facilities may be underutilized. Jones Beach, for example, usually closes early on summer week-end mornings because the parking lots are full, although there may still be plenty of room on the beaches.

#### County and Town Parks

Nassau and Suffolk Counties and the south shore towns have extensive park facilities on the Atlantic seashore and the back bays. They are open only to county and town residents, however. Autos must display resident stickers to gain admission to these parks and beaches. For those who do not live nearby, autos provide the only access. The rationale for excluding nonresidents is that this is the only way to avoid overcrowding and financial drain on local taxpayers.

Nassau County developed so rapidly after World War II that little public thought was given to reserving areas for parks, nature preserves, or other kinds of open space. Little open land remains to meet local recreation needs. Suffolk County, in comparison, is still largely undeveloped. A foresighted county government acquired large tracts of land while they were still available and reasonably priced. Access to county parks is not open to all, however. Nassau County parks are restricted to residents and their guests. Entrance to these parks is strictly

controlled, and residents must show their "leisure pass" to get in. Suffolk County has a similar policy, but it is not strictly enforced.

Data are not readily available on the number, area, location, and attendance at municipal parks and beaches on the South Shore. The towns and villages do have a considerable number of facilities, but they are closed to non-residents. Some of these facilities receive federal and state grants, and they should therefore be open to the general public. Municipalities may charge fees to offset costs of park and beach use by outsiders that would otherwise have to be borne by residents. Nevertheless, the State has found it difficult to implement its policy of discouraging discriminatory restrictions against non-residents in facilities that are supported by grants-in-aid. It is true that local beaches are overcrowded, particularly on week-ends, but there are also less manageable problems of race and socio-economic class relations. White middle-class town residents do not welcome people from New York City of whose appearance and behavior they disapprove.

#### Water Quality Management

There is no need to emphasize the obvious point that water is one of the major resources of the Long Island segment of the shore of the New York Bight. Management of water quality is a responsibility of the N.Y. Department of Environmental Conservation.

It carries out the mandates of New York State laws concerned with water quality management, and it is the State's lead agency for implementing the federal Clean Water Act of 1977, which incorporates predecessor Water Pollution Control Acts.

The N.Y. Department of Health also plays a major role by analyzing and certifying drinking water supplies. The Interstate Sanitation Commission helps to coordinate New York and New Jersey water quality programs in the N.Y. Metropolitan Area. An important participant in State efforts to improve water quality is the Nassau Suffolk Regional Planning Board. It is the agency designated by the Governor to prepare the regional water quality management plan under Section 208 of the Federal Clean Water Act.

Various point and nonpoint sources produce the pollutants that affect the near shore waters of the Atlantic Ocean and the system of great bays behind the barrier islands:

1. Municipal discharges: from publicly-owned sewage treatment plants, private package treatment plants for residential subdivisions, and facilities to pretreat industrial wastes before they are discharged into municipal systems
2. Industrial discharges: may go directly into nearby surface waters or indirectly through municipal treatment works



3. Residual wastes: include treatment plant sludge, septic tank sludge, wastes removed from air pollution control devices, nuclear wastes, and solid wastes
4. Combined storm and sanitary sewers: volumes of surface runoff and sanitary sewage collected during rainstorms that are beyond the capacity of treatment plants are bypassed directly to surface waters
5. Hydraulic-hydrologic modifications: channel modifications, impoundments, construction, and natural erosion cause sedimentation and discharge of pollutants into surface waters
6. Urban stormwater runoff: rainwater flowing over roofs, paved areas, lawns and gardens picks up auto wastes, insecticides, fertilizers, animal wastes, and other contaminants that are conveyed without treatment to surface waters; both point and nonpoint sources
7. In-place pollutants: materials in bottom sediments, such as sludge formed from duck farm wastes, PCB's, etc.
8. Nonpoint sources: surface runoff from rural areas collects pesticides, herbicides, fertilizers, animal wastes, and sediment from normal farming operations.

Water Quality of the Long Island South Shore

Water quality studies by the Nassau-Suffolk Regional Planning Board, prepared for the "208" wastewater management plan have come to these conclusions:

Nearshore Atlantic Ocean water does not appear to significantly influence water quality of the South Shore bays. Nitrogen concentrations in these waters are consistently between 0.1 and 0.4 mg N/l. Bacterial water quality in the bays is determined primarily by contaminant loads from the bay shores themselves. "A review of historical physical and water quality data in the N.Y. Bight Apex indicates that the great majority of wastes emitted from New York Harbor travel south along the New Jersey coast, except during sustained periods of southerly winds. In addition, the sludge dumping practices in the Bight Apex do not, at present, appear to significantly affect water quality along the South Shore of Long Island. For these reasons, waste management plans for reducing waste loads within the South Shore Bays should be effective in controlling water quality in these bays."\*

All the south shore bays periodically have lower dissolved oxygen concentrations than the 5 mg/l state standard. Western Great South Bay has the highest frequency of depressed oxygen

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\*Nassau-Suffolk Regional Planning Board, Long Island Comprehensive Waste Treatment Management Plan, Vol. I: Summary Plan, Hauppauge, N.Y., July 1978, p. 30.

values; East Bay and South Oyster Bay have the best record for oxygen values. (Moriches and Shinnecock Bays were not evaluated for dissolved oxygen.)

All of the bays show total coliform concentrations above the 70 MPN per 100 ml state standard for shellfish areas, but sampling stations are concentrated in areas where shellfishing is most likely to be prohibited. The western south shore bays are closed, as well as mainland shore stream mouth areas of Great South Bay and Moriches Bay. The open waters of Great South Bay and all of Shinnecock Bay are open for shellfishing.

There are large regional variations in total nitrogen concentrations. Values decrease with improved flushing conditions and distance from sewage treatment plant outfalls.

Western South Shore Bays. These include Hempstead, East, Middle, and South Oyster Bays. They comprise a series of inter-connecting channels, marshes, tidal flats, and islands. Flushing times are relatively short compared to Great South Bay, but the densely urbanized shores have large pollutant sources. Virtually all of these western south shore bays are closed to shellfishing because total coliform concentrations exceed state water quality standards. Surface runoff accounts for about 96% of fecal coliform loadings and point sources for only about 4%.

Great South Bay. This large open estuary is about 25 miles long and up to 8 miles wide at the maximum width. Average water depth is only 6 feet. Water quality is mostly influenced

by stream discharges, groundwater flow, two sewage treatment plants and tidal flushing. Residence time in parts of Great South Bay varies from 2 to 3 months. This means that at any particular time the bay contains nearly all the wastes and fresh-water discharged to it over the last two or three months.

About 90% of the total coliform bacteria loadings to Great South Bay are from stormwater runoff. The remaining 10% is primarily from stream flow. Areas closed to shellfishing lie along the mainland shore where streams discharge into the bay.

Moriches Bay. Moriches Bay lies to the east of Great South Bay. Almost all of the fecal coliform loadings are from stormwater runoff. Several tributary streams and their mouths are closed to shellfishing. The condition of Moriches Inlet is an important influence on tidal flushing. Water quality in the bay has improved recently as the result of stabilization and widening of the inlet and reduction of point source loadings.

Shinnecock Bay. Coliform loadings come entirely from storm runoff, but concentrations are typically below 10 MPN per 100 ml. No areas are closed to shellfishing. Nitrogen concentration is only about 0.32 mg N/l. Shinnecock Bay, therefore, has excellent water quality.

Mecox Bay. This is a shallow coastal bay off the Atlantic shore of mainland Southampton. The only outlet is an ephemeral channel connecting it to the ocean. The inlet provides limited

flushing and drainage from Mecox Bay only about half the time. There are no point sources of nitrogen, but coliform contamination from stormwater runoff exceeds state standards. Most of the bay is closed to shellfishing.

Although the nearshore Atlantic waters off the barrier beaches and the eastern mainland of Long Island are usually of acceptable quality for swimming, some areas are subject to water quality crises. The annual contribution of the recreation industry to the Long Island economy has been estimated at between \$600 and \$800 million. Access to the ocean beaches is the prime attraction Long Island has to offer. But between June 15 and July 1, 1976, about 30 miles of ocean beaches between Rockaway and East Hampton had to be closed to public bathing. Even after the beaches were reopened, attendance was slow in reaching normal volume. The cost of this pollution episode was estimated to be about \$30 million to the local economy plus \$100,000 in public cleanup costs.\*

Beaches were first closed after two great sludge holding tanks in Island Park, Nassau County, exploded. A million gallons of sludge were spilled. Two weeks later, raw sewage, sludge, oil, tar balls, produce, and plastic and wooden containers began washing ashore on Fire Island. Soon afterward, these materials began to

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\*N.Y. Office of Parks and Recreation, Long Island Waste Pollution Study: An Economic Analysis, November 1976 (mimeo).

appear to the east and west until almost the entire South Shore was affected. The sources of this unusual volume and variety of refuse and contaminants has not been fully determined.

#### Water Quality Management Process

DEC has classified all streams, lakes, and marine waters according to their "best usage," in descending order, for drinking, swimming, shellfishing, fishing, and boating. Standards for dissolved oxygen, coliform count, toxic substances, pH, dissolved solids, phenolic compounds, and radioactivity have been specified for each class of usage. The management goal is to maintain the water quality of each water body or segment so that it will meet the standards for its assigned best usage classification.

In order to achieve this goal, DEC has taken advantage of financial assistance offered by the federal government under the Clean Water Act to undertake these programs:

1. Construction grants
2. State Pollutant Discharge Elimination System (SPDES)
3. Nonpoint source management
4. Water quality standards
5. Monitoring
6. Enforcement
7. Toxic substances control
8. Public water supply
9. Residual waste management

Integration of these programs is to be provided by regional comprehensive water quality management plans, the "208" plans. The Nassau-Suffolk Regional Planning Board published the completed plan for the bicounty area in July 1978. It showed how the region was divided into 8 hydrogeologic zones according to varying ground and surface water quality concerns. For each zone, the plan listed pollution control options that integrated structural measures, such as sewage treatment works, with nonstructural measures, such as minimizing population density, promoting water conservation, and regulation of waste sources. Water supply was found to be adequate for the next 20 years, provided that management techniques were implemented to maintain water quality.

#### New York Coastal Zone Management Program

Earlier sections have reviewed some of the more important substantive aspects of coastal resources management and noted the state and local agencies that are responsible for them. In order to integrate these activities into a coherent coastal program, New York State is participating in the federal program under the Coastal Zone Management Act of 1972 and its amendments. The national program is supervised by the Office of Coastal Zone Management, a component of the National Oceanographic and Atmospheric Administration in the Department of Commerce. Responsibility in New York has been delegated by the Governor to the Department of State and its Coastal Management Program.

At this time it is possible only to sketch the outlines of the New York coastal zone management program, for it is still in the development stage. In draft form it has been presented at a series of public meetings to provide an opportunity for citizens and local officials to participate in policy making. The draft program will be revised to reflect the information received at these meetings and then be open to public consideration again at formal hearings to be held in the fall of 1978. Final revisions will prepare the plan for submission to the Governor by the end of the year. The program timetable for implementation is for the State legislature to enact necessary legislation early in 1979 and for submission to the U.S. Department of Commerce for review by June of that year.

The Coastal Management Program in the N.Y. Department of State devised a strategic approach to developing its program that was based on four principal concepts. The first was to establish a partnership between state and local governments. The State already had several state-wide programs to protect air, water, and land resources, some of which have been described here. At the same time, decisions affecting the lands and waters of the coastal zone are regularly made by local elected officials, planning boards, zoning appeals boards, and other agencies. The State coastal program would have to recognize these existing state and local authorized activities and find a way of coordinating them into a working partnership.



The second premise of the state approach was to use the existing legislative foundation for making and implementing State resource management and development policy. It would also use existing authority to regulate private sector development and activities that impact on the coastal zone. New state legislation would be sought only to assure state agency and local government adherence to state coastal zone policies and to satisfy the requirements of the Department of Commerce regulations.

The third premise was that the State management program would not attempt to specify permissible uses and activities on every square yard of the coastal zone or the location of all major public and private facilities. Instead, the state program would formulate performance standards and criteria to guide state and local agency management decisions.

Fourth, the state coastal program would aim to balance needs and objectives for both economic growth and protection of coastal resources. Areas of particular environmental concern or fragile ecosystems would be protected, but suitable provision would be made for economic activities that require waterfront locations, such as port and related transportation facilities as well as docks and processing plants for the fishing industry.

The draft state coastal management program grew out of an inventory and analysis of New York's most significant coastal land and water activities. Eleven issues or concerns were identified as having the greatest importance for the management of coastal resources. It is around these issues that the technical elements

of the program were developed. They are intended to recommend state coastal policies, identify the basic legislative authority for implementing them, and provide guidelines for management techniques and performance standards for both state and local agencies. These are the eleven policy/management elements:

1. Protection of Aesthetic Resources: preserve coastal landscapes and water vistas, cultural and historic values, and enhance them to develop recreational opportunities and the tourist industry.
2. Recreation Resources to Meet Increasing Demands: develop New York's coastal areas to provide facilities to meet increasing demands for recreation resulting from urban population growth in the region and increasing leisure time, and to promote the contribution of tourism to local and state economies.
3. Public Access to the Shore: improve opportunities for public access where they are cut off by private ownership and development of shorelands and waterfronts; concern for visual as well as physical access.
4. Economic Development: stimulate economic enterprises in manufacturing, transportation, fishing, and recreation that require coastal or waterfront sites in suitable locations and without unreasonable environmental degradation.

5. Petroleum Exploration on the Outer Continental Shelf: prepare for the onshore impacts of exploration, extraction, transportation, storage, and industrial processing of oil and gas that may be discovered.
6. Energy Production to Meet Increasing Demand: resolve issues of location and design characteristics of electricity generating facilities and the production and marketing of fuels, particularly petroleum products.
7. Protection of Agricultural Resources: support New York's largest single industry, that depends to a great extent on the tempering influence of coastal climates, by protecting agricultural lands against the competing demands of residential and recreational development.
8. Protection Against Coastal Erosion and Flooding: avoid loss of life and property values by regulating development to avoid hazardous areas and by restoring beaches and dunes.
9. Protecting Fish and Wildlife and Their Habitats: protection of breeding and nursery areas, migration rest and feeding areas, and other habitats from pollution and adverse development.
10. Water Quality: manage municipal waste and wastewaters and regulate individual residential, industrial, and

other discharges to maintain the quality of water resources for drinking, recreation, fishing, and other purposes.

11. Air Quality: abate and prevent air pollution to meet state standards, provide a healthy living environment, and avoid obstacles to economic development.

The draft coastal management program suggests two alternatives for institutional arrangements to implement it. It has already been noted that one element of the program strategy is to develop a state-local partnership for coastal management. One alternative is to mandate local preparation of coastal programs by state law following state guidelines. The other is to encourage voluntary preparation of such programs; and where local governments prefer not to do so, the state would assume management responsibility.

Under the first alternative, municipalities would be notified of the federal approval of the state program and the state legislative requirement that certain specified coastal policies were to be implemented locally. The municipalities would be given a timetable for the preparation of local programs based on state criteria. Technical assistance would be provided by federal and state agencies for the local effort. The state coastal management agency would review local programs and approve those that were consistent with the State Coastal Management Program. If municipalities were unable or unwilling to prepare acceptable

The Secretary of State would be assisted by an Advisory Committee. It would have representation from 10 fields of technical expertise in coastal management and representatives of eight designated geographic coastal areas. Seven ex officio members would represent state agencies that have major responsibilities for implementing the Coastal Management Program.

Where two or more state agencies have jurisdiction over a particular project and differ as to its consistency with the Coastal Management Program, either agency or the applicant for a permit for the project may ask the Secretary of State to resolve the differences. The Secretary could consult with the Advisory Committee in resolving such disputes.

The Coastal Erosion Hazard Areas Bill (proposed Article 34, Environmental Conservation Law). Coastal erosion hazard areas would be designated only after the Department of Environmental Conservation had adopted regulations defining such areas. They could include dunes, beaches, and other natural areas in locations where they provide protection for upland and other coastal areas against erosion. DEC would also promulgate standards and criteria for the design and construction of protective structures so that they would have a reasonable probability of controlling erosion for at least 30 years.

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