COASTAL MANAGEMENT STRATEGY FOR NEW JERSEY

Let's protect our earth

CAFRA AREA SEPTEMBER 1977

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BRENDAN BYRNE
GOVERNOR

ROCCO D. RICCI
COMMISSIONER

A COASTAL MANAGEMENT STRATEGY FOR NEW JERSEY

September, 1977

Brendan Byrne
Governor

Rocco D. Ricci
Commissioner

New Jersey Department of Environmental Protection
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STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ROCCO D. RICCI, COMMISSIONER
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September, 1977

To the Honorable Brendan Byrne, Governor, and Members of the Legislature of the State of New Jersey:

The Department of Environmental Protection takes pride in presenting A Coastal Management Strategy for New Jersey - CAFRA Area. This Strategy has been prepared under the authority of the Coastal Area Facility Review Act (N.J.S.A. 13:19-1 et seq.) which requires the Commissioner of this Department to select an environmental management strategy for the coast by September of this year.

The Coastal Management Strategy provides a tool to address the many potentially conflicting opportunities and pressures faced along New Jersey's coast. The Strategy provides a firm framework for coastal decision-making which will minimize uncertainty among those who may be affected now or in the future by development decisions.

The Strategy provides specific substantive and procedural policies which can be reviewed, considered and used by agencies throughout the State government, as well as by county, municipal and federal agencies, private interests, and citizens.

Based upon work by the Department's Office of Coastal Zone Management, the preparation of the Strategy has benefited from hundreds of public meetings throughout the coast. This public involvement in coastal management must continue. Accordingly, staff of the Department will convene a series of public meetings throughout the state in November to explain and discuss this document and listen to suggestions on it, while continuing to meet with individuals, groups, and agencies interested in coastal management.

I believe this Coastal Management Strategy is a major, but far from final, step in the management of New Jersey's coast. The area where the land meets the sea is both a fragile and a coveted resource. The Department stands ready to use the Coastal Management Strategy to conserve this resource and achieve a wise use of the New Jersey coast.

Very truly yours,

Rocco D. Ricci, P.E.
Commissioner

SUMMARY

This report, A Coastal Management Strategy for New Jersey - CAFRA Area, is presented by the Department of Environmental Protection (DEP) as required by the New Jersey Coastal Area Facility Review Act. Prepared by DEP's Office of Coastal Zone Management, the Strategy defines a process for making public decisions on the future of the coast. The Strategy first describes the Coastal Area defined by the Coastal Area Facility Review Act (CAFRA). The report goes on to propose a "coastal zone" under the federal Coastal Zone Management Act, and spell out coastal policies. DEP recommends that this Strategy, to be revised based on public hearings this fall, also be submitted for federal approval this winter by the Governor as the first segment of New Jersey's participation in the national coastal management program.

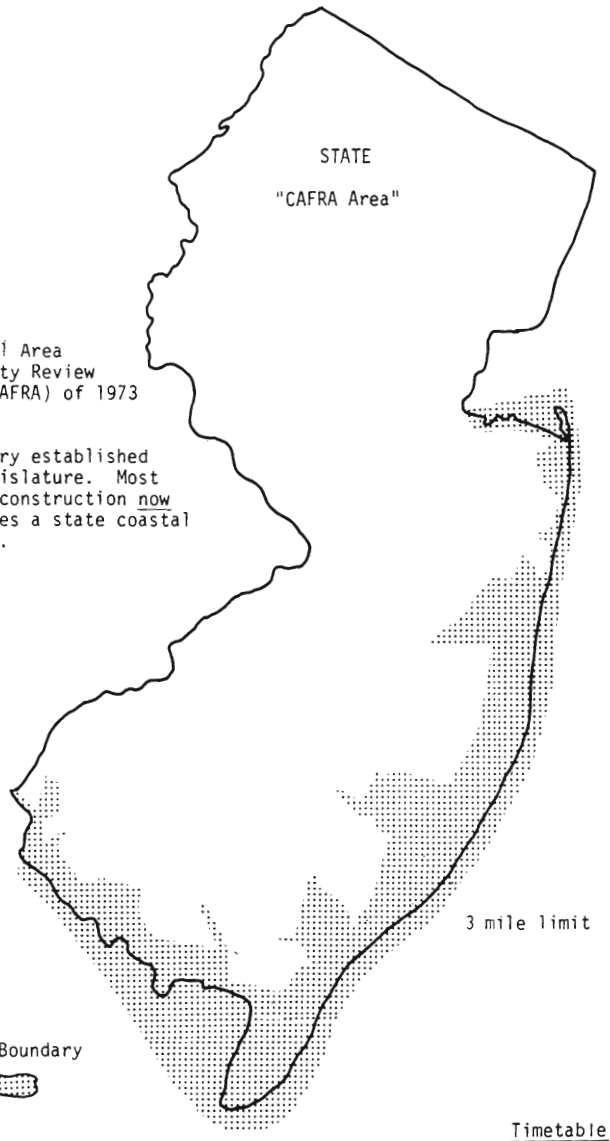
The statutory CAFRA Area includes a 1,376 square mile land area and related coastal waters in a region stretching from Raritan Bay along the Atlantic oceanfront to the Delaware Bay. This Coastal Management Strategy, a project required by the 1973 CAFRA law (N.J.S.A. 13:19-16) is the latest step in the State's coastal planning efforts. Two previous DEP interim reports -- An Inventory of the New Jersey Coastal Area - 1975, and the Alternatives for the Coast - 1976, both submitted to the Governor, the Legislature, and the public -- and other studies have provided the information behind the Department's selection of this management strategy for the region defined by CAFRA.

DEP, in addition to being the CAFRA planning agency, is also the designated coastal planning agency for New Jersey under federal law. The Coastal Management Strategy will also be applicable to the part of New Jersey to be considered the "coastal zone" under the federal Coastal Zone Management Act.

DEP intends to submit a coastal management program for federal approval in two stages. First, the Coastal Management Strategy is intended as the draft of the coastal program to be submitted in the winter of 1977 for federal approval for the CAFRA Area of New Jersey. Second, the management program for the coastal region outside of the present CAFRA area -- along the Delaware River and in northern New Jersey -- will be completed and submitted for federal approval by late 1978. Figure 1 indicates the differences in geographic scope and submission timetable for the CAFRA Area under state law and the proposed "coastal zone" under federal law.

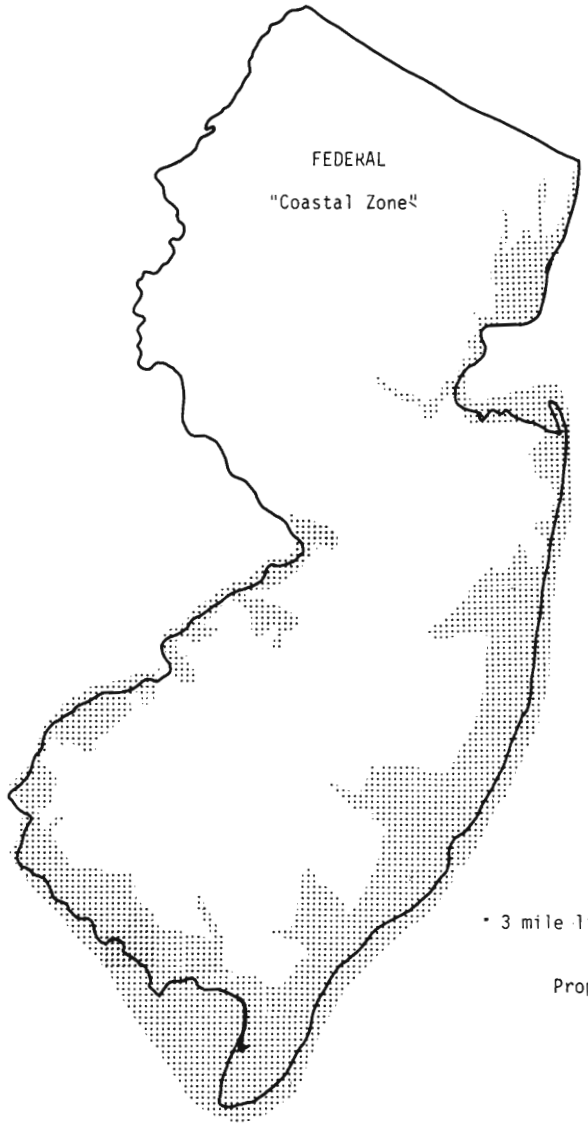
Both the state and federal laws recognize that the coast, one of the state's greatest assets, is threatened by conflicting pressures for preservation and different types of development. For example, New Jersey's two largest

FIGURE I COASTAL ZONE MANANGEMENT IN NEW JERSEY - SCOPE AND TIMETABLE



Coastal Area Facility Review Act (CAFRA) of 1973

Boundary established by Legislature. Most major construction now requires a state coastal permit.



Federal Coastal Zone Management Act of 1972

Boundary concept proposed by DEP under provisions of federal Coastal Zone Management Act, includes the "Coastal Area" under CAFRA.

Timetable

September 1977

Coastal Management Strategy submitted by DEP to Governor and Legislature

December 1977

Anticipated submission by Governor of CAFRA segment for Federal Approval.

Fall 1978

Anticipated submission by Governor of Coastal Program for other parts of Coastal Zone.

industries, petrochemicals and tourism, with their vastly different demands and impacts, may at some future time both seek sites along the state's coastline.

This Coastal Management Strategy provides a coherent set of well-reasoned policies and procedures to guide the difficult choices and decisions which affect the coast.

Policies of the Coastal Management Strategy

Four basic coastal policies make clear the major choices and the basic direction represented by the Coastal Management Strategy:

1. Protect the coastal ecosystem.

2. Concentrate rather than disperse the pattern of coastal residential, commercial, industrial, and resort-oriented development and encourage the preservation of open space.

3. Employ a method for decision-making which allows each coastal location to be evaluated in terms of both the advantages and the disadvantages it offers for development.

4. Protect the health, safety and welfare of people who reside, work and visit in the coastal zone.

The specific policies in the Strategy are divided into three groups: USE POLICIES are directed at different uses of the coastal zone, such as housing and energy facility development; LOCATION POLICIES evaluate specific types of coastal locations such as wetlands and agricultural land, and PERFORMANCE STANDARDS focus on controlling the effects of development, such as water runoff and soil erosion.

The Strategy includes more than fifty policies addressing Uses and Performance Standards. As examples of the coastal policies, the Strategy encourages hotel-motel construction in developed oceanfront communities, directs offshore crude oil and natural gas pipelines away from the center of the Pine Barrens, reaffirms the State's preservation policy on coastal wetlands, and encourages energy conservation in building design and development patterns. The Strategy also presents an explanation of a Coastal Location Acceptability Method (CLAM), which will be used to determine specific Location Policies.

How The Coastal Policies Are Used

The Department will carry out the policies and techniques of the Coastal Management Strategy through its regulatory decision-making under the CAFRA, Wetlands and riparian permit programs.

In addition, decisions in the coastal zone under other permit programs administered by the Department, such as programs concerned with Air Quality, Flood Plain Management, Sewerage Facilities and Water Facilities, will reflect consideration of the Coastal Management Strategy, to the extent possible within the legal constraints of these programs. DEP will also use the Coastal Policies in the Strategy to review plans and proposals by other public agencies, allocate state funds, and undertake further planning affecting the coastal zone.

DEP will also work closely with state agencies, particularly the Department of Energy, Department of Community Affairs, Department of Labor and Industry, Department of Transportation, and Department of Agriculture, federal agencies, local agencies, interest groups and the public in carrying out and refining the Strategy.

Next Steps In Coastal Management

The Coastal Management Strategy represents a major step in New Jersey's efforts to manage its coast. Most significantly, it provides a framework for building from the work done to date.

As the immediate next step, DEP invites widespread public discussion and debate on the contents of the Strategy. Publicly announced meetings throughout the coast, as well as smaller meetings with interested individuals and groups, will take place during the Fall to discuss the Strategy.

DEP will continue its coastal planning program during the next year, beginning with a revision late this year of the Coastal Management Strategy, based on public comments. The revision will be submitted as the CAFRA Segment of New Jersey's coastal management program. DEP will also address in greater detail many of the issues raised in the Strategy. Among the projects to be emphasized are: (1) further developing, refining and explaining the Coastal Location Acceptability Method (CLAM), (2) producing maps of many coastal features to clarify the implications of coastal policies, (3) preparing a Developer's Handbook to assist people who must work with the Strategy on a day-to-day basis, and (4) continuing to develop a clear, comprehensive and coherent system to implement the Coastal Management Strategy, with an emphasis on creating productive state-local relationships.

Some users of the coast might expect this document to define specific blocks or areas within each coastal municipality for preservation as a natural resource or as appropriate for a specific type of development. While DEP's detailed coastal wetlands and flood plain maps have delineated such areas, the Coastal Management Strategy does not identify such individual sites. The Strategy is a tool for making decisions on CAFRA permits, other coastal permits and planning. Through the Strategy, decisions are made after a thorough analysis of the advantages and disadvantages individual sites offer for specific development proposals. Rather than relying on a static inventory alone, the Strategy creates a procedure to gather facts and weigh them against each other. The specific decisions and the detailing of the Coastal Management Strategy must move forward in conjunction with the responsible local planning agencies.

The Coastal Management Strategy is a tool for coastal decision-making which can indicate in advance the probable outcomes of a specific decision. In the short term, DEP's next steps under CAFRA will be to achieve still greater predictability through mapping and analyses, particularly in very sensitive areas and locations facing special development pressures. Assuming the continuance of federal funds, DEP, in cooperation with local governments, expects to complete a more detailed and increasingly site-specific Strategy for New Jersey's coastal regions in two years. The Strategy is designed to remain flexible and responsive to change. This capacity will enable DEP to respond to new and better information, improved technology or unforeseen events (such as the relatively recent sharp rise in gasoline prices, and the passage of the casino gambling referendum) while still carrying out the policies articulated in the Strategy to encourage appropriate development and protect the coast.

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A COASTAL MANAGEMENT STRATEGY FOR NEW JERSEY

Section One: INTRODUCTION

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Purpose

This report presents a Coastal Management Strategy, prepared by the Department of Environmental Protection (DEP), to guide future public and private actions to protect and develop New Jersey's coastal resources.

New Jersey's Coastal Area Facility Review Act (CAFRA) of 1973 mandates preparation of such a strategy for the part of the state generally known as the Jersey Shore, plus the Raritan Bay and Delaware Bay areas. The federal Coastal Zone Management Act of 1972 provides further impetus for New Jersey to devise and adopt a management strategy for what will be defined as the state's "coastal zone", an area that must be more inclusive than the area defined under CAFRA. As New Jersey's efforts under State and Federal law share a similar agenda and timetable, this report constitutes a single document to carry forward the coastal planning process for both the Coastal Area under State law and the "coastal zone" under federal law.

This Coastal Management Strategy has three major parts:

First, the geographic extent of the proposed coastal zone under federal law is defined, indicating the recommended jurisdiction of the Strategy over coastal waters and adjacent shorelands.

Second, public policies on uses and environmental management of coastal resources within the coastal zone boundary are specified.

Third, a management system is suggested for involving local, state, and Federal governmental agencies as well as interest groups and the public, in making decisions carrying out these coastal policies within the defined coastal zone. This system is based on New Jersey's present laws governing land and water uses of coastal resources.

All three major elements of the strategy -- boundary, policies on uses of resources, and management system -- link together and should be read and understood together.

This Strategy represents an ambitious planning effort for New Jersey's coastal zone and is a tool for making decisions. It is important to understand, however, that this document does not indicate only one acceptable use for each site or each block or acre in the coastal zone. The Strategy recognizes New Jersey's historical commitment to a strong role for local governments in land use decision-making, focuses on only those coastal resource management decisions with greater than local significance.

The Strategy does indicate the policies which will be used to administer the existing coastal permit programs and to make funding decisions and recommendations affecting the coastal zone. It identifies resource use implications and spells out a process for making individual decisions on development proposals for specific sites.

Report Structure and Audience

Prepared by New Jersey's coastal planning agency, the Office of Coastal Zone Management in the Department of Environmental Protection (DEP-OCZM), this report presents a general framework for coastal resource management decisions, public debate, and further planning for the coast.

This document begins with a brief outline of New Jersey's coastal management laws and the federal Coastal Zone Management Act, and includes background information on the Coastal Management Strategy. The three sections presenting the three elements of the Coastal Management Strategy -- boundary, coastal resource policies, and management system -- form the heart of this document. This document also spells out the next steps in New Jersey's coastal management efforts. Finally, the report concludes by outlining the implications of this Strategy. A BASIS AND BACKGROUND report and APPENDICES, included after the Strategy, provide more of the underpinnings of the Coastal Management Strategy.

Sometimes public documents appear rigid and final, but that is not the intent here. New Jersey will continue its coastal planning efforts, reflecting further research, new information and public comments. At a minimum, the Coastal Management Strategy will become increasingly specific. Also, it will incorporate the findings of on-going coastal planning studies conducted by DEP-OCZM staff, consultants to DEP, and the twelve coastal counties participating in a joint state-county coastal energy facility planning project. In addition, the Strategy will continue to be changed by public reactions. In brief, the Department welcomes and expects vigorous public comment and suggestions on this document.

The audience for this strategy is large and diverse. First, the report is being presented to the Governor and Legislature, at whose direction it was prepared. It will be offered for comment through DEP-OCZM's publication The Jersey Coast to more than 5,000 interested citizens and representatives of municipal, county, state and federal agencies, and business, civic, professional, and environmental groups. Some may initially only be interested in one specific issue, while others will search for the policies affecting a particular piece of land. Hopefully, however, the Strategy will provide all readers with an appreciation for the relationships between each coastal decision and the entire coastal zone.

The Process Behind the Coastal Management Strategy

This Coastal Management Strategy represents the "tip of an iceberg" of work by staff of the Department of Environmental Protection, with the assistance of the Department of Community Affairs, Department of Labor and Industry, university researchers, consultants, interest groups, individual citizens, and numerous other agencies and organizations who care about the future of the coast. Numerous policy statements, reports, newsletters, staff working papers, maps, and permit decisions prepared by DEP-OCZM have described, explored, and analyzed coastal resources, development opportunities and problems, alternative policies, and resource management methods. Three public documents prepared and released by DEP merit special notice here:

- An Inventory of the New Jersey Coastal Area - 1975 (September 1975)

- Interim Land Use and Density Guidelines for the Coastal Area and Guiding the Coastal Area of New Jersey (July 1976)

- Alternatives for the Coast - 1976 (October 1976)

Numerous public meetings, workshops, hearings, and informal conversations have punctuated the past two and one-half years of coastal planning. DEP-OCZM has shaped the Coastal Management Strategy from this stream of facts and maps, opinions and suggestions, and analysis and debate.

For insight on the mass of the "iceberg" behind this report, the BASIS AND BACKGROUND and the APPENDICES include a description of the coast, a chronology of coastal management in New Jersey, other background materials and items that explain further and provide a basis for elements of this Coastal Management Strategy.

New Jersey's Coastal Management Laws

New Jersey has three State laws directed specifically to coastal zone management: the Coastal Area Facility Review Act of 1973, the Wetlands Act of 1970, and the set of statutes addressing riparian lands management. Other laws will play a part in New Jersey's coastal management program, but these three laws, all administered by offices within DEP's Division of Marine Services, constitute the legal foundation for New Jersey's coastal management responsibilities.

The Coastal Area Facility Review Act (CAFRA) of 1973 (N.J.S.A. 13:19-1 et seq) is New Jersey's major coastal law. In CAFRA, the Legislature entrusted the Department of Environmental Protection with the responsibility to regulate the location and construction of housing developments of 25 or more units and most major industrial, sewer and energy producing facilities in a defined "Coastal Area" stretching from Raritan Bay and Sandy Hook to Cape May and from Cape May to the Delaware Memorial Bridge. The inland boundary established by the Legislature varies from several thousand feet to 24 miles. This coastal area includes 17 percent of the land and more than 75 percent of the waters in New Jersey, including coastal waters out to the three mile limit of the State's jurisdiction in the Atlantic Ocean.

Since CAFRA took effect four years ago, DEP has received 211 applications for CAFRA permits, including 132 housing developments, 54 sewerage projects, 10 industrial facilities, two major energy facilities, and 13 others. Close to half of the proposed sites for development have been in Ocean County. To date, 144 applications have been approved and 15 denied. The remainder were cancelled by the applicant or are still pending (See Appendix Two for more details on the record to date of the CAFRA permit program).

DEP also has authority to regulate certain activities on mapped coastal wetlands, under the Wetlands Act of 1970 (N.J.S.A. 13:9A-1 et seq). Virtually any development in a mapped tidal wetland must receive a Wetlands permit before construction can begin. In addition, certain activities are prohibited in the wetlands, including dumping solid waste, discharging treated or untreated sewage waste, storing or disposing of pesticides, applying persistent pesticides, and applying pesticides on significant stands of wetlands vegetation (See Appendix Three for more details on the record of wetlands management).

New Jersey's third major coastal law is the set of riparian statutes which apply to the lands now or formerly flowed by tidal waters. Under these statutes, DEP and the Natural Resource Council (an autonomous but closely related citizen body, with members appointed by the Governor with the consent of the State Senate) can sell or lease these lands, and manage most activities on the lands through the administration of the Waterfront Development permit program. Through the riparian statutes, DEP requires a permit for construction or alteration of facilities such as a dock, wharf, pier, bulkhead, bridge, pipeline or cable, and dredging and filling involving lands flowed by the tide.

The CAFRA law also called for the Department of Environmental Protection to prepare a management strategy for the coastal area, to

> "... include a delineation of various areas appropriate for the development of residential and industrial facilities of various types, depending on the sensitivity and fragility of the adjacent environment to the existence of such facilities." (N.J.S.A. 13:19-16)

This Coastal Management Strategy meets that challenge, recognizes the dynamic quality of the coastal economy and environment, and provides the tools for responsible decision-making.

The Federal Coastal Zone Management Program

The federal Coastal Zone Management Act of 1972 (P.L. 92-583), administered by the National Oceanic and Atmospheric Administration, Office of Coastal Zone Management (NOAA-OCZM) in the U. S. Department of Commerce, offered coastal states incentives to design and implement a coastal zone management program. New Jersey joined all thirty-three other eligible states and territories in voluntarily taking advantage of this offer.

In New Jersey, the federal law has provided more than two-thirds of the funding used by the Department of Environmental Protection (DEP) for coastal planning during the past three years. Additional funding will be available to the State and to local governments to complete the planning of the program, and later to implement the program after it is approved by the U.S. Secretary of Commerce.

The State program submission, to be approvable, must address seven broad topics which parallel the three elements of the Coastal Management Strategy: the Boundary, Coastal Policies, and the Management System. The seven topics include: (1) Boundary, (2) Land and Water Uses, (3) Geographic Areas of Particular Concern, (4) Public and Governmental Involvement, (5) State-Federal Interaction and National Interests, (6) Organization, and (7) Authorities. The federal law and management program approval regulations provide criteria New Jersey must meet in each of these areas, but leaves the specific delineations, policies and procedures to the State.

The Coastal Management Strategy described in this report meets many of the criteria required for federal approval of a coastal zone management program. In particular, the Coastal Zone Boundary, the Coastal Policies, and the Management System described in the Strategy are intended to fulfill the federal requirements for the CAFRA segment of the coastal zone. They will be publically discussed and refined and then submitted for the final determination by

the Secretary of Commerce. Further work and additional public hearings are necessary before New Jersey can submit its entire coastal program to the U.S. Department of Commerce, by late 1978.

Submitting a Segmented Coastal Management Program for Federal Approval

The federal Coastal Zone Management Act contains a provision allowing states to request federal approval of the coastal management program for only a segment of the entire coastal zone. To pursue this option, the state must provide a detailed program for the segment, an initial description of the boundary of the entire coastal zone, and an indication of the steps the state will take to complete the program for the remainder of its coastal zone. At this stage, this segmentation provision appears to offer New Jersey its best opportunity to benefit from the federal Coastal Zone Management Act.

The Department recommends that the Governor submit for federal approval this winter a coastal program for the area defined by CAFRA. The program for this area, based on a boundary already defined by the Legislature, policies enunciated in this document, and a management system based on the existing CAFRA, Wetlands, and riparian laws, is already in effect and is expected to meet all federal requirements. Federal approval of the segment would make New Jersey eligible for increased funding to cover costs such as the administration of the CAFRA permit program, and other efforts to implement the state's coastal policies, such as demonstration projects.

Concurrent with the submission of a segment for federal review and approval, the Department would continue to receive federal coastal planning funds to develop and refine the boundary and policies for the entire coastal zone. In addition, the Department would work to clarify or develop the authority necessary to implement the coastal program throughout the coastal zone.

Section Two: COASTAL ZONE BOUNDARY

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Introduction

The Coastal Area Facility Review Act (CAFRA) defines a "Coastal Area" stretching from Raritan Bay and Sandy Hook to Cape May and from Cape May to the Delaware Memorial Bridge. This area includes the least intensively developed parts of New Jersey's coast and the areas most important to the state's tourism and resort industry. The coast, however, extends beyond the boundary of CAFRA, to the more urbanized, developed waterfronts which face Pennsylvania on the west and New York on the east.

The Department of Environmental Protection recommends that the Governor submit New Jersey's coastal management program under the federal Coastal Zone Management Act for federal approval in two segments. First, a program for the area defined by CAFRA would be submitted, in December 1977. Second, a program for the other parts of the coastal zone would be submitted at a later date, in late 1978. The program submitted for the CAFRA segment would include a description of the entire coastal zone, although that boundary could be revised on the basis of public comment.

It is this larger coastal zone that is defined and addressed by the Coastal Management Strategy. The Strategy is, therefore, able to incorporate the planning mandate of CAFRA into a consideration both of other related state laws and of the federal Coastal Zone Management Act. Of equal importance, the major issues which affect the entire coast, such as energy facility siting and waterfront access, can be addressed on a state-wide basis.

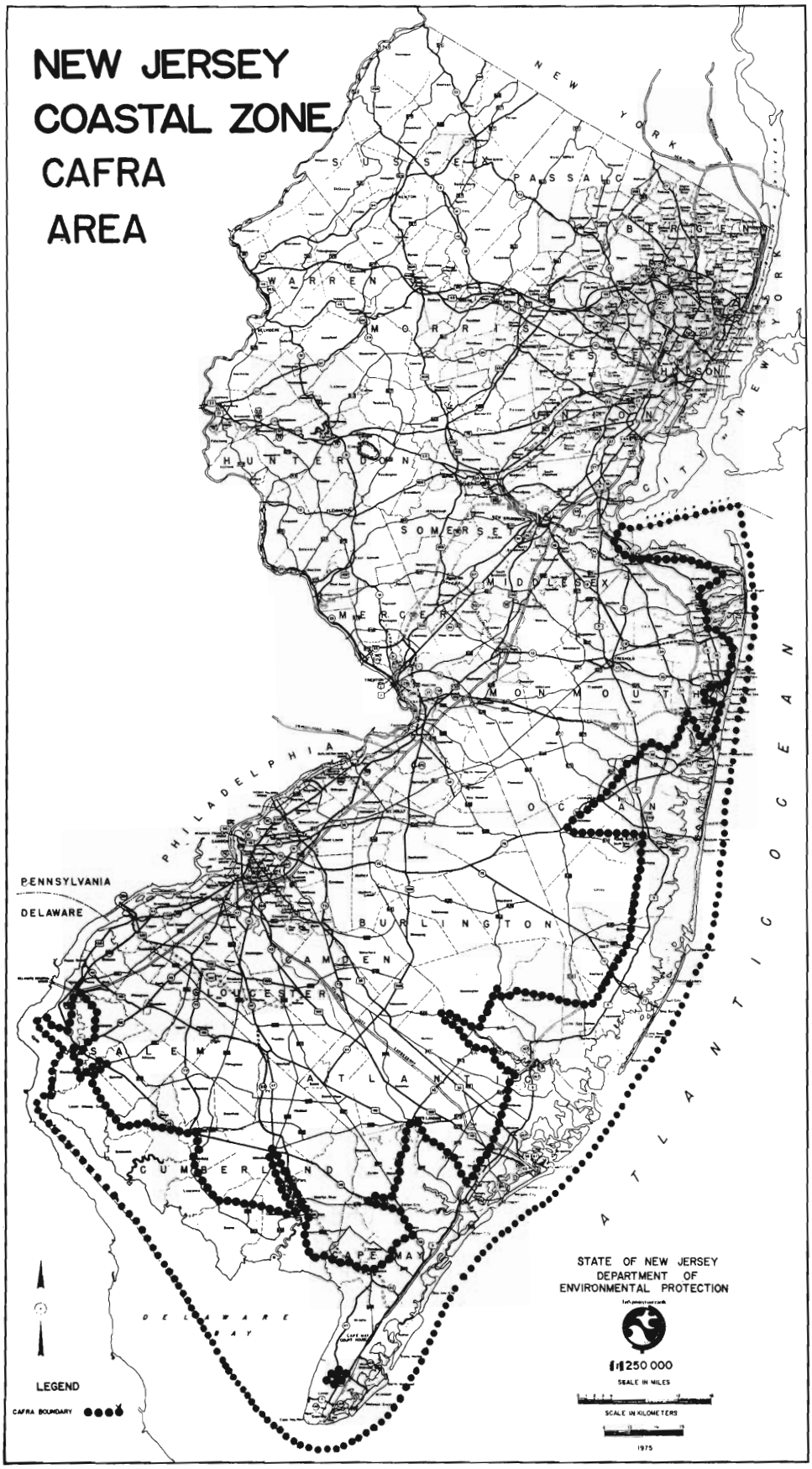
This section describes briefly the present CAFRA boundary and defines the proposed coastal zone boundary for New Jersey under the federal Coastal Zone Management Act.

This coastal zone boundary must not be considered in a vacuum. It must be understood in concert with the coastal policies presented, as well as the management system suggested to implement these policies in the coastal zone.

The Existing CAFRA Boundary under State Law

The Coastal Area delineated under CAFRA in 1973 appears on Figure 2. It extends from the Raritan Bay east to Sandy Hook, south to Cape May Point and north and west up the Delaware estuary almost to the Delaware Memorial Bridge near Wilmington, Delaware. The total land area is 1,376 square miles or 17 percent of New Jersey's land area. The coastline is more than 215 miles in length, with 126 miles along the Atlantic oceanfront from Sandy Hook to Cape May. Inland the CAFRA boundary ranges from a few thousand feet from the

FIGURE 2



ocean in Monmouth County, to 24 miles around the Mullica River at Batsto in Burlington County. Major roads and rights-of-way, such as the Garden State Parkway and county roads, define the boundary. A small segment around the Cape May County airport was excluded from the Coastal Area by the law.

Eight of New Jersey's 21 counties are represented in the CAFRA Area, including parts of Middlesex, Monmouth, Ocean, Burlington, Atlantic, Cape May, Cumberland, and Salem. Portions of each county within the area vary considerably, from less than one percent of Middlesex to 57 percent of Ocean and 93 percent of Cape May. A total of 126 municipalities, as diverse as urban Asbury Park in Monmouth County, suburban Dover Township in Ocean County, and rural-historic Greenwich Township in Cumberland county, are wholly or partially within the statutory Coastal Area.

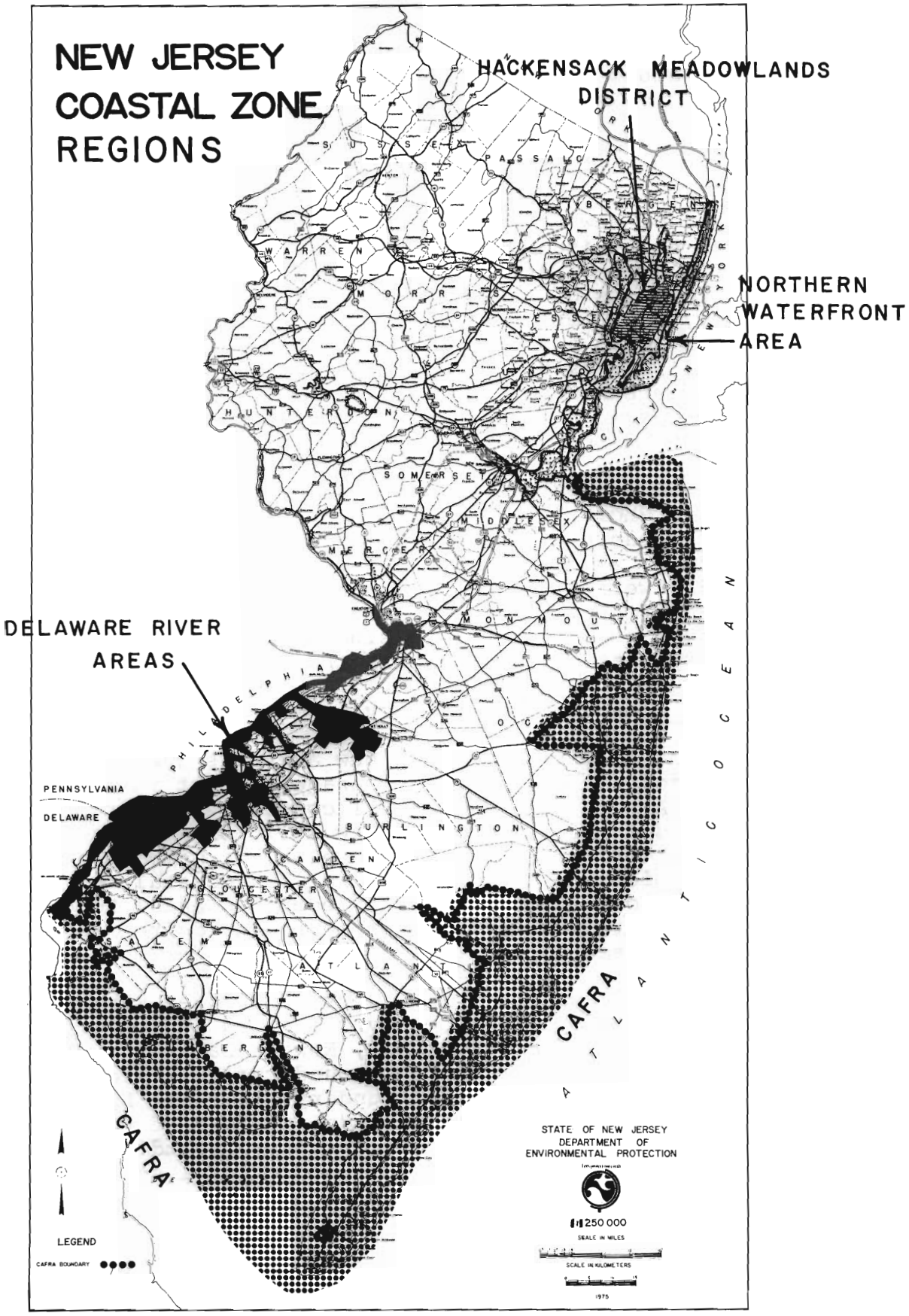
The CAFRA area features the area traditionally called the "Jersey Shore," long known as a recreation area for the state, northeastern United States and Canada. Parts of the Pine Barrens, as well as the shores of the Delaware Bay and Raritan Bay were also included within the Coastal Area in 1973. All of Atlantic City, which faces new opportunities and problems as a result of casino gambling and offshore oil and gas exploration, lies within the CAFRA area.

A Proposed Coastal Zone Boundary under Federal Law

The boundary proposed for New Jersey's "coastal zone" under the federal Coastal Zone Management Act includes the entire CAFRA area, as well as all coastal waters to the limit of tidal influence, a narrow strip of adjacent shorelands, and the Hackensack Meadowlands Development Commission District. Figure 3 depicts generally this proposed coastal zone, and its four regions. Note that the federal Coastal Zone Management Acts requires that federal lands be excluded from New Jersey's coastal zone (see Appendix Seven).

The coastal waters of New Jersey include: the Atlantic Ocean to the limit of New Jersey's seaward jurisdiction; the Hudson River, Upper New York Bay, Newark Bay, Arthur Kill, and Raritan Bay to the New York boundary; Delaware River and Bay to the State of Delaware boundary; Delaware River to the Pennsylvania boundary; and the tidal portion of the Delaware, Raritan, Passaic, and Hackensack Rivers, including the tidal portions of their tributaries and other tidal streams of the Coastal Plain.

FIGURE 3



This proposed coastal zone includes at least a small part of 242 municipalities in seventeen of New Jersey's twenty-one counties. Only Hunterdon, Morris, Sussex, and Warren Counties have no coastal waters and are excluded from the coastal zone. This relatively large zone, united by the presence of coastal waters, is quite diverse, stretching from the port at Camden to the vast wetlands along Delaware Bay, to the sparkling beaches of the barrier islands along the ocean, to the industrialized waterfront of northern New Jersey.

Coastal policies should not be uniform throughout such a diverse area. Even the list of issues of statewide coastal significance is more extensive in some parts of the zone than others. For the purposes of discussion and program implementation under existing legislation, the coastal zone has been divided into three regions, in addition to the area delineated by the Coastal Area Facility Review Act (CAFRA): (1) the area north of the CAFRA area along the Delaware River, (2) the area north of the CAFRA area along the Hudson River and adjacent tidal waters, and (3) the Hackensack Meadowlands Development Commission District (See the BASIS AND BACKGROUND, Section Four for maps that indicate this recommended boundary in some detail at a scale of 1:250,000). Each region will now be described briefly.

The Delaware River Area

Although the CAFRA boundary stops at approximately the Delaware Memorial Bridge, the tidal influence on the Delaware River extends 60 miles further north to Trenton. Because of the flat topography of the Coastal Plain, tidal tributaries from the Delaware River extend up to 10 miles inland.

Tidal influence makes the region immediately adjacent to these waters "coastal" in the sense intended by the federal Coastal Zone Management Act. The inland boundary of the coastal zone in this area is, therefore, the first road or cultural feature parallel to the river or stream. This includes wetlands and transitional areas between the tidal waters and the appropriate road or cultural feature. Moreover, this area is part of the coastal zone because several land use activities have a direct influence on the coastal waters. In addition, the area's coastal location provides it with certain attributes for recreation and industry.

The Delaware River Area includes parts of the City of Camden, waterfront residential communities such as Riverside, historical areas in Roebling and Bordentown, and two oil refineries in West Deptford and Greenwich Townships.

This region is more developed than the CAFRA region. It has considerably less potential as a recreational and tourist attraction, and it currently faces less intense residential development pressure. As a result, this Coastal Management Strategy is concerned with only four major types of activity in this region, in addition to water use activities and development on or affecting wetlands and riparian lands: energy facilities, port development, marina development, and projects affecting access to the waterfront. These activities are of clear statewide coastal significance because of their direct dependence and impact on coastal waters.

The Northern Waterfront Area

Tidal influence in New Jersey also extends north of the CAFRA area on the east side of the state. The tidally influenced water bodies in this area are the Hudson River, Upper New York Bay, Newark Bay, Kill van Kull, Arthur Kill, Passaic River, Hackensack River, and Raritan Bay, and their tributaries.

The proposed inland coastal zone boundary in this area would be the first road or cultural feature as in the Delaware River Area. This narrow boundary is appropriate because the highly developed state of this area confines direct coastal impacts. This area includes the industrialized waterfront with outmoded docks, abandoned piers, and closed industrial plants, as well as modern container ports, shipyards, and new industrial facilities. It also includes Liberty State Park and other sites which could one day accommodate future parks.

The general interest of the Coastal Management Strategy in this area is the same as in the Delaware River Area, although specific policies may well differ. The Strategy will address energy facilities, ports, marinas, and facilities affecting waterfront access in the Northeastern Area. The specific policies for each of these uses, however, will recognize the differences between the two areas.

The Hackensack Meadowlands Development District

This 19,600 acre district in Bergen and Hudson County is defined by the 1968 legislation establishing the Hackensack Meadowlands Development Commission (N.J.S.A. 13:17-1 et seq.), as an autonomous agency associated with the Department of Community Affairs. The District includes a large undeveloped expanse of salt marsh, disturbed land and built-up areas covering parts of 14 municipalities. It also includes the New Jersey Sports Complex.

The Meadowlands District is already managed by the legislatively-created Commission. Under the Coastal Management Strategy, this management system would remain unchanged. Inclusion in the coastal zone would simply enable the District to share the federal benefits of coastal zone management. These include funding for special projects and federal consistency with the Commission's programs.

Inclusion of some portion of the shorelands of the Meadowlands district within the coastal zone is required under the federal Coastal Zone Management Act because of the salinity level of the tidal waters of the District, as evidenced by the presence of Spartina alterniflora (salt marsh grass) which requires salt water to survive. Also, DEP exercises coastal management responsibilities already in the Meadowlands in the riparian lands management program, as much of the Meadowlands District includes land now or formerly flowed by the mean high tide. DEP's present riparian lands management and tidelands delineation programs in the Meadowlands are already carried out in close coordination with staff of the Hackensack Meadowlands Development Commission.

SECTION THREE: COASTAL POLICIES

Section Three: COASTAL POLICIES

Introduction

Decisions about uses of coastal resources should be based on a publicly-established and clearly-defined decision-making process. This section presents that framework. As the heart of the Coastal Managment Strategy, this section spells out coastal policies to guide public decisions about development and activities in the coastal zone. The Coastal Policies define more precisely DEP's interpretation of the findings of various coastal laws, including Sections 10 and 11 of CAFRA.

New Jersey's coastal policies define a new way of making coastal resource decisions of greater than local significance. This process involves analyzing each proposed decision using a three-step screening process. Each step features a discrete type of policy:

Step One	Use Policies
Step Two	Location Policies
Step Three	Performance Standards

Proposed developments and activities located in, or likely to affect New Jersey's coastal zone, and under the jurisdiction of the Coastal Management Strategy (as defined in Section Four: MANAGEMENT SYSTEM) will be evaluated in terms of this three-step screening process in the course of the public decision to encourage, permit conditionally, modify, discourage, or prohibit the proposed development or activity.

The implications of these terms in coastal decision-making should be explained. "Encourage" means a presumption that a project or permit application that meets the standard or is consistent with the policy will be approved. Proposals for a type of project not already present in the coastal zone will not be encouraged without detailed review of a specific application. "Discourage" implies a presumption that a project or permit application that does not meet the standard or is inconsistent with the policy will not be approved. "Permit conditionally" means that a project or application meeting the standard or carrying out the policy is likely to be approved, subject to some conditions. The terms "modify" or "prohibit" are self-explanatory.

In all cases, the Department's decision, using the policies, will be made using permit application or project review procedures, typically requiring an environmental impact statmenet (to a level of detail appropriate for the location, scale, and complexity of the proposed development or activity). It is important to recognize that DEP's review of a specific proposed development or activity may result in a decision at variance with the stated policy, but only in exceptional circumstances when the environmental impact statement presents compelling reasons to justify the variance. In general, use of the Coastal Policies will increase the predictability of the outcome of coastal decision-making.

Definitions of the three types of policies (and the three different steps in the screening process) may also be useful.

First, Use Policies represent specific policies on selected uses of coastal resources -- such as dredging, hotel-casinos, and onshore bases to support offshore oil and gas exploration -- that should be encouraged or discouraged in the coastal zone. Use policies indicate permissibility, or what may take place in the coastal zone.

Second, the Location Policy is to employ the Coastal Location Acceptability Method (CLAM), a logical and systematic method, developed by DEP-OCZM, to determine the acceptability of coastal land and water locations proposed for specific developments or activities. The location policy identifies geographic areas of concern, indicates priorities among some uses, and most important, considers both the sensitivity of coastal resources and the potential for development of locations. This second step defines where coastal developments and activities may take place.

Third, Performance Standards indicate specific performance standards concerning the degree to which development and activities may affect the built, natural, and socio-economic environment of the coastal zone. In general, these standards define thresholds of acceptable impact or spell out a standard on how a coastal development or activity takes place.

BASIC COASTAL POLICIES

Four basic policies constitute the substantive foundation or underpinnings for the Coastal Management Strategy. These policies represent fundamental choices to shape more specific policies to manage New Jersey's coastal resources.

First	Protect the coastal ecosystem
Second	Concentrate rather than disperse the pattern of coastal residential, commercial, industrial, and resort-oriented development and encourage the preservation of open space
Third	Employ a method for decision-making which allows each coastal location to be evaluated in terms of both the advantages and disadvantages it offers for development
Fourth	Promote the health, safety and welfare of people who reside, work and visit in the coastal zone

The DEP-OCZM recommends that these basic policies be recognized as the starting point for New Jersey's Coastal Management Strategy.

USE POLICIES

Introduction

Many types of development and uses are attracted to New Jersey's coastal zone. Each of these uses provides benefits, but also limits the possibility for other activities to take place by utilizing some fraction of the land, water, and air resources available in the coastal zone. Each coastal decision under the Strategy will be made by using the three step screening process. Prospective activities in the coastal zone will first be reviewed in terms of specific coastal land and water use policies. The second and third steps involve location policy and performance standards. This section of the Strategy presents specific use policies for New Jersey's coastal zone, followed by short explanatory statements.

GENERAL ENERGY FACILITY SITING POLICY

1. Energy facilities will be approved only after review by DEP and the New Jersey Department of Energy (P.L. 1977, C. 146, N.J.S.A. 52:27-1 et seq.) to insure the protection of both the built and natural environment of the coast and of public health, safety and welfare, to the maximum extent feasible. Energy facilities must demonstrate consistency with the master plan to be prepared by the Department of Energy for the production, distribution, consumption and conservation of energy. The overlapping responsibilities of the Department of Environmental Protection and the Department of Energy require early consultation between these two agencies to promote efficiency and the orderly siting in the coastal zone of clearly needed energy facilities.

Where the Department of Energy and the Department of Environmental Protection do not agree on a specific energy facility application (for example, concerning the need for a particular energy facility in the coastal zone, or for a specific proposed site for one type of energy facility), the disputed decision shall, in accord with state law, be submitted to the State's Energy Facility Review Board for final administrative action.

GENERAL OUTER CONTINENTAL SHELF (OCS) OIL AND GAS EXPLORATION AND DEVELOPMENT POLICY

2. Rapid exploration of the Mid-Atlantic, North Atlantic, and other offshore areas with potential reserves of crude oil and natural gas is encouraged,

as long as all activities related to these potential offshore energy resources are carried out in a manner that respects the built and natural environment of the coastal zone.

The decision of the U.S. Department of Interior to lease offshore tracts for crude oil and natural gas exploration presents New Jersey with new onshore and marine-related environmental problems and opportunities. New Jersey supports offshore exploration, recognizing the national need to identify new energy supplies, as long as this new industrial activity does not conflict with the State's second most important industry, tourism, which depends upon the high quality and public perceptions of the coastal environment.

ONSHORE SUPPORT BASES

3. Onshore support bases to support offshore oil and gas exploration, development, and production (including facilities for work boats, crew boats, pipeline barges, and storage facilities) shall be encouraged to locate in built-up urban areas of the coast that have land already committed to heavy or light industrial uses and adequate harbor facilities. Preferable locations for onshore support bases include urban waterfront areas where onshore physical, economic, social, and institutional impacts will be less than the impacts likely to take place in those less industrially developed areas which are more dependent upon tourism and the resort industry.

With offshore exploratory activity expected to begin off New Jersey in the Baltimore Canyon in early 1978, the offshore oil and gas industry is likely to seek onshore support bases closer to the offshore tracts than the present temporary bases established by the major oil, gas, and offshore service and supply companies at Davisville, Rhode Island. This policy recognizes that the New Jersey coast is favored by proximity to the offshore tracts as a site for onshore staging bases, and carries out the basic policy to concentrate rather than disperse industrial development in the coastal zone.

OFFSHORE PLATFORM CONSTRUCTION YARDS

4. Platform construction yards will be encouraged in built-up areas which have the requisite acreage, adequate industrial infrastructure, ready access to the open sea, adequate water depth, and where

the operation of such a yard would not alter existing recreational uses of the ocean and waterways in the area.

If offshore exploration proves successful, then the development phase of OCS activity in the Mid-Atlantic may require a site or sites for constructing the steel platforms used offshore, in addition to the platform construction yard tentatively planned for the vicinity of St. Charles on the Chesapeake Bay on the Delmarva Peninsula in Virginia. Platform yards typically do not have the adverse air and water quality impacts associated with some other industries. Platform construction yards are labor intensive and could exert potentially disruptive effects on the economy and social structure of undeveloped areas. For these reasons, offshore platform construction yards are encouraged to seek locations in the already developed areas of the New Jersey coast.

PIPELINES AND ASSOCIATED FACILITIES

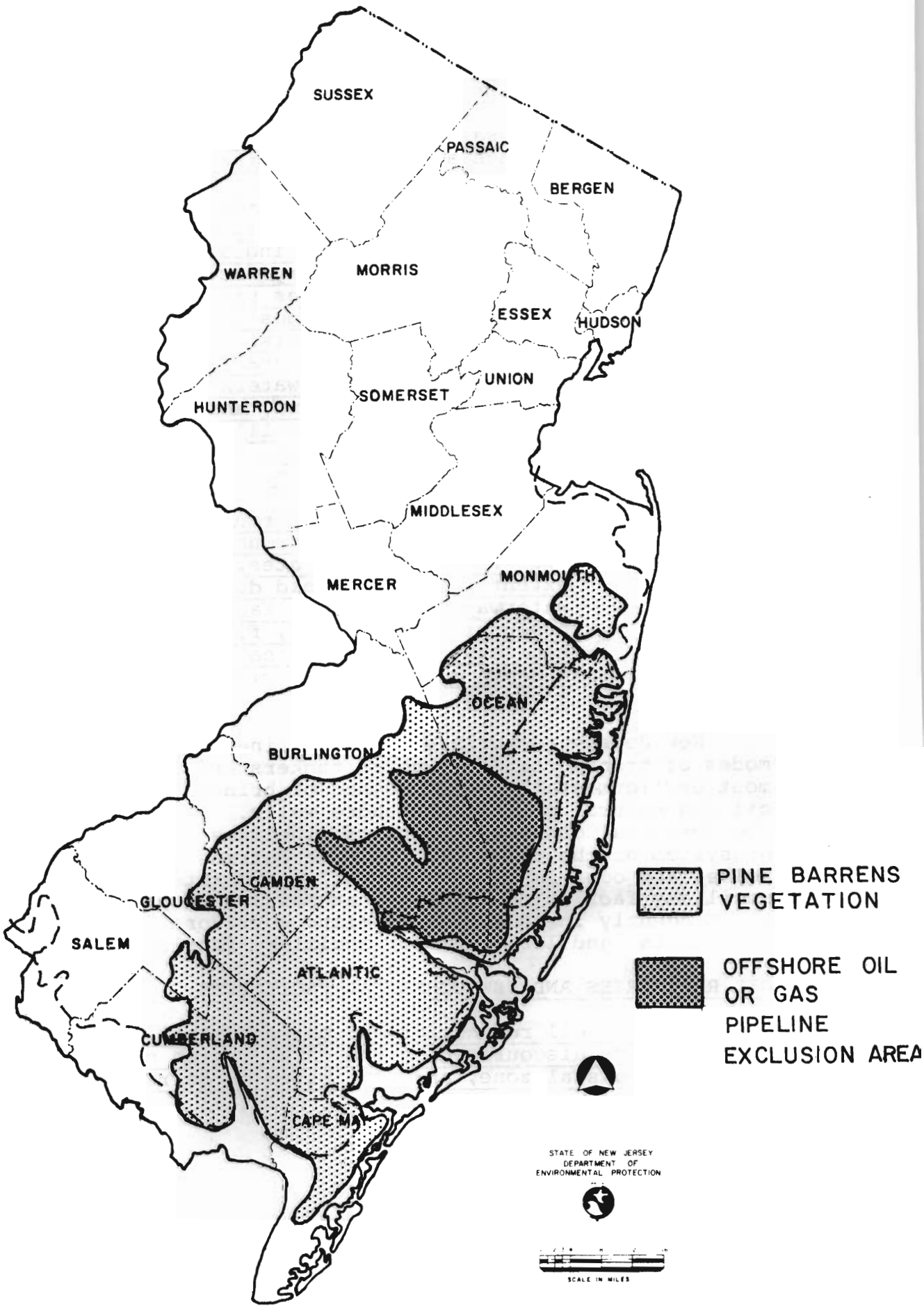
5. Crude oil and natural gas pipelines will be permitted to bring hydrocarbons from offshore New Jersey's coast to existing refineries and oil and gas transmission and distribution systems, subject to the following conditions:

   (a) The number of pipeline corridors, including trunk pipelines for natural gas and oil, shall be limited, to the maximum extent feasible, and designated following appropriate study and analysis by Department of Environmental Protection and the New Jersey federal, state and local agencies and affected industries,

   (b) The initial corridor shall, to the maximum extent feasible, be located along existing rights-of-way and shall avoid undeveloped regions of the Pine Barrens; specifically, the corridor shall avoid the Mullica River and Cedar Creek watersheds and portions of the Rancocas Creek and Toms River watersheds (the 760 square mile region identified by DEP as a proposed "critical area" for sewerage purposes and proposed non-degradation water quality standards) and other undeveloped parts of the Pine Barrens, and instead follow already existing developed or disturbed rights-of-way, such as the Atlantic City Expressway,

FIGURE 4

Coastal Policy on Pipelines:
Definition of Pine Barrens



(c) Major pumping stations and other ancillary facilities to the oil and gas pipelines shall be encouraged at locations outside of the coastal area designated by CAFRA and two miles inland of the ten foot contour interval elsewhere in the state,

(d) Proposals to construct oil and gas pipelines through all or part of the coastal zone shall be evaluated by DEP and the Department of Energy, in terms of the entire new potential pipeline corridor through the State of New Jersey, including all of the contemplated ancillary facilities, including but not limited to gas processing plants, oil storage terminals, booster stations, and other related facilities. These ancillary facilities shall preferably be located well inland from coastal waters and protected by adequate visual, sound, and vegetative buffer areas. The ancillary facilities along the pipeline shall also be located outside of the coastal zone to the maximum extent feasible,

(e) A pipeline corridor through the state coastal waters, as well as through the territorial sea of the United States, shall, to the maximum extent feasible, avoid dumps, heavily used waterways, geological faults, and especially productive vegetation, fish or shellfish habitats. Pipelines shall be trenched to a depth sufficient to withstand exposure by scouring.

New Jersey recognizes that pipelines, rather than other modes of transportation such as tankers and barges, are the most environmentally sound method of bringing ashore crude oil and natural gas from offshore wells. At the same time, the potential onshore effects of pipelines on the sensitive ecosystem of the coast and the Pine Barrens, and the visual, noise, and odor impacts potentially associated with the ancillary facilities require that New Jersey proceed cautiously and prudently in selecting pipeline corridors, specific alignments, and locations for ancillary facilities.

OIL REFINERIES AND PETROCHEMICAL FACILITIES

6. New oil refineries and petrochemical facilities are discouraged in the CAFRA region of the coastal zone, and prohibited on barrier islands.

Expansion or modernization of existing oil refineries and petrochemical facilities at existing sites will be encouraged if such expansion does not violate applicable state and federal air and water quality standards.

Oil refineries and petrochemical facilities will not be permitted in areas where they might conflict with the resort-tourism industry or areas of recreational or biological value.

CRUDE OIL STORAGE

7. Crude oil storage facilities will not be permitted on barrier islands. Storage facilities for crude oil, in the absence of refining facilities, will be permitted only in established ports and harbors and where new or expanded oil storage facilities will not contribute unacceptably to overall regional air or water quality degradation.

Crude oil storage facilities are not coastal-dependent and will not be permitted where they might limit recreational or open space uses of the coast.

TANKER TERMINALS

8. Multi-company use of existing and new tanker terminals will be encouraged to the maximum extent practicable consistent with anti-trust laws. New or expanded tanker facilities will be discouraged only if they would increase tanker operations and increase associated onshore development in a manner incompatible with the character of non-industrial parts of the coastal zone.

Onshore tanker facilities pose potential environmental impacts. Tanker terminals encourage secondary development activity that need not necessarily be situated near the coast. New tanker facilities will be encouraged in existing ports and harbors.

DEEPWATER PORTS

9. If a deepwater port were proposed, at the very least, its pipeline routing would be required to follow the pipeline policies above;

more broadly, the entire proposal would be carefull evaluated in terms of the potential positive and negative roles a deepwater port could play in protecting or harming the broad range of coastal resources.

Offshore tanker terminals, sometimes called deepwater ports, have the potential for reducing spills associated with tanker movements in coastal waters. Also, deepwater ports offer potential economies of scale as they may accommodate supertankers that are too big to enter New Jersey's ports. At present, while two deepwater ports are under active consideration along the Gulf Coast, no proposals for deepwater ports appear likely in the near future in New Jersey.

BASE LOAD ELECTRIC GENERATING STATIONS

10. New or expanded fossil fueled electric generating stations powered by coal and oil will be discouraged in "Preservation" and other environmentally sensitive areas, and will be directed toward relatively built-up areas, consistent with applicable air and water quality standards.

11. No further nuclear electric generating stations will be approved in the coastal zone unless: (a) the Department of Environmental Protection and the New Jersey Department of Energy are satisfied of the safety and risk potential of this energy technology, including any differences between offshore and land-based plants, (b) the two agencies are assured that operation and disposal of the spent fuel poses no unacceptable safety or environmental hazards to New Jersey residents, (c) the two agencies receive clear proof through the Department of Energy's Master Plan that nuclear facilities are needed and vitally important to the public health, welfare, and economic well-being of New Jersey residents, (d) the Department of Environmental Protection is assured that the location of the facility will not result in near-by population density increases over the operating lifetime of the facility which might make impossible suitable protective actions in the case of a serious accident, and (e) the Department of Environmental Protection and the Department of Energy are satisfied that no other feasible and economical energy alternative exists for the timely and efficient production of needed electrical power.

New Jersey's CAFRA region has two operating nuclear generating stations: Oyster Creek in Ocean County and Salem Unit 1 at Artificial Island in Salem County. Four nuclear plants are under construction: Salem Unit 2, Forked River in Ocean County, and Hope Creek Units 1 and 2, on Artificial Island in Salem County (the Hope Creek units received CAFRA permits in 1975). A floating nuclear plant, the Atlantic Generating Station Units 1 and 2, is proposed by Public Service Electric and Gas Company for site 2.8 miles off Little Egg Harbor Bay, about 12 miles from Atlantic City.

LIQUIFIED NATURAL GAS (LNG)

12. Until the risks inherent in LNG terminal operations are sufficiently identified and overcome, and until such terminals are found to be consistent with the public health safety, and welfare of nearby residents, LNG terminals shall be built only at sites remote from substantial concentrations of human populations. No LNG terminal shall be approved in the coastal zone until the Federal Power Commission (FPC) responds affirmatively to the petition by New Jersey and its neighboring states for the issuance of siting criteria that adequately consider the safety hazards associated with this energy technology. If the FPC does not respond positively to the petition by New Jersey and others, then New Jersey should attempt to create an interstate task force to define appropriate siting criteria for this type of energy facility, whose impacts could clearly affect several states.

LNG facilities have been proposed in recent years for Deptford and Logan Townships in Gloucester County, New Jersey, and on Staten Island, New York from where the LNG would be pipelined to New Jersey. Because tankering, transfer and storage of LNG pose significant risks to safety and health and the environment (which may not necessarily be restricted to one state) New Jersey recommends that the siting of LNG facilities be treated on a regional basis.

SOLAR AND WIND POWERED GENERATING PLANTS

13. Solar and wind powered generating plants, including experimental and demonstration projects, will be encouraged to locate in the coastal zone to the extent that these plants do not unreasonably affect scenic or recreational values and meet existing state and federal environmental requirements.

New energy technologies, such as solar and wind powered plants, should be encouraged as the Nation seeks imaginative responses to the energy challenge.

HOUSING

14. New residential development shall be located within, continuous with, or in close proximity to existing developed areas with appropriate infrastructure and public and private services able to accommodate residential development. New residential development will be permitted conditionally in other areas only if development will not have significant adverse effects, either individually or cumulatively, on coastal resources.

Housing is the most widespread use of New Jersey's coatal zone, and the potential for further housing development in the area is large. Between 1970 and 1973, a quarter of all residential building permits in the entire state were issued in Ocean and Monmouth Counties. Under CAFRA, DEP has issued construction permit for over 13,200 dwelling units in four years, including the period of the 1974-1975 recession.

The basic principle of the Coastal Management Strategy is that additional development which is concentrated and which respects the existing environment is desirable. Accommodation of growth, however, does not mean acceptance of past practices which have endangered the coastal environment and have led to shortages of public services and excessive municipal, state, and federal costs in providing these services. Recent residential development has been largely at very low density involving extensive use of land. Much of this growth has been discontinuous, isolated developments leapfrogging over sill-vacant land adjacent to settled areas. These low densities and sprawl patterns have led to high public service costs, have prevented organization of efficient public transit and are extremely wasteful of energy.

15. High rise housing, defined as structures six stories or greater, or more than sixty feet from grade, will be discouraged when: (a) at least one public road or park does not separate the proposed high rise site from coastal waters, (b) the largest dimension of any structure is oriented parallel with a beach or coastal waters, (c) the proposed structure would block the view of dunes, beaches, horizons, inlets, bays, or oceans that are currently enjoyed by existing residential structures, and/or (d) the proposed structure is out of character with surrounding transitional heights and residential densities.

Considerable recent residential development along the coast, from the Palisades to the barrier islands, has taken the form of high-rise, high-density towers. While conserving of land, some high-rise structures represent a visual intrusion locations, cause adverse traffic impacts, and casts shadows on beaches. Under CAFRA, DEP approved three high-rise structures in Atlantic City and denied CAFRA applications for for high-rise proposals in downtown Toms River (Ocean County). This policy strikes a balance, between banning high-rises and allowing tall residential structures anywhere in the coastal zone.

16. Hotel-motel developments and other visitor-serving facilities shall be located in existing developed areas, to the maximum extent practicable. New and expanded hotel-motel developments are encouraged in ocean front and bay front communities, provided that the proposed development is compatible in scale, site design, and architecture with surrounding developments and that induced traffic does not produce congestion causing unacceptable levels of carbon monoxide.

Hotel-motel development provide facilities vital to the resort economy of the coast, and are encouraged at appropriate locations. Under CAFRA, DEP has approved construction of more than 2,000 hotel and motel rooms in four years, including 991 rooms in Ocean County.

17. New, rehabilitated, or redeveloped hotel facilities in Atlantic City for casino gambling are encouraged. Hotel-casinos are encouraged to be part of a development scheme integrated with a planned transportation system providing direct access to the Boardwalk area, to the maximum extent feasible. Aggressive transportation planning to control vehicular access to the Boardwalk area would increase that area's capacity for hotel-casino development; otherwise, other locations may be more appropriate.

The approval by New Jersey voters in November 1976 of the constitutional amendment authorizing casino gambling in Atlantic City and subsequent legislative action (Casino Control Act, P.L. 1977, c. 110) limiting casino gambling to large-scale (500 rooms or more), high quality hotels has provided the Atlantic City part of the coast with a unique opportunity for planned revitalization. The advent of casino gambling poses a major challenge to state and local officials responsible for managing growth in the Atlantic City region.

The Department recognizes its shared responsibilities with Atlantic City for defining appropriate development patterns and designs for the location of major residential projects. To that end, DEP-OCZM expects to complete this fall a staff report on Atlantic City and the Coast, analyzing the full range of development problems and opportunities in Atlantic City. Also, DEP will continue its close cooperation with Atlantic City and Atlantic County officials and the team of consultants retained by the City to prepare a new Master Plan, scheduled for completion by May 1978.

This hotel-casino location and transportation policy concerning the Boardwalk vicinity has been formulated in consultation with Atlantic City and Atlantic County officials. This policy serves several purposes: (1) preserving Atlantic City's existing diverse neighborhoods, (2) facilitating public transportation solutions (such as bus, jitney, park-and-ride, or rail) to the problem of increased access to and in Atlantic City, (3) promoting pedestrian movements, (4) reducing pressure on vehicular systems, and (5) preserving the historic and low-rise residential character of the Gardiner's Basin and Inlet area.

18. Residential developments of single, and/or multi-family housing, that cluster development by concentrating construction on environmentally suitable segments of the site, while devoting the remaining undeveloped land to common open space and recreational purposes are encouraged.

The creation of more compact settlement patterns preserves open space, offers a broader distribution of density levels, minimizes public service and infrastructure costs, and reduces energy consumption. Clustering can be applied even to the lowest density housing construction (e.g. fewer than one unit per acre) to achieve more efficient land use than conventional lot-by-lot construction.

19. Housing developments that promote resort and recreational uses of the coast shall be encouraged.

Parts of the coast function economically primarily as resort areas. Housing developments, such as seasonal homes, motels, hotels, and campgrounds, that contribute to the resort economy are encouraged, particularly in parts of Cape May County.

20. Housing developments which contribute to a municipality's efforts to accommodate its fair share of low and moderate income housing, as defined by a fair share housing plan, shall be encouraged.

The State of New Jersey has worked for years to solve the complex and state-wide issue of exclusionary zoning and housing opportunity. In March 1975, the New Jersey Supreme Court, in Southern Burlington County NAACP v. The Township of Mount Laurel 67 N.J. 151 (1975) declared that a municipality must "presumptively make realistically possible an appropriate variety and choice of housing ...at least to the extent of the municipality's fair share of the present and prospective regional need..." In April 1977, the Governor issued Executive Order No. 35 which directed the Division of State and Regional Planning in the Department of Community Affairs to prepare a statewide fair share housing allocation plan. Developments in the coastal zone that contribute to meeting defined municipal fair shares are encouraged.

21. Campgrounds are encouraged on non-prime agricultural and non-prime forest lands, and at the edge of built-up areas where practicable. Campgrounds are discouraged from prime agricultural lands, prime forest lands, and special coastal land features such as beaches.

Campgrounds provide a low-cost means of visiting the coast to increasing numbers of people. The appeal of campgrounds near urban areas is largely untested in New Jersey. Campground impacts on the natural environment, however, particularly from waste disposal, are significant and must be mitigated.

22. New residential development involving the construction of lagoons, or other bulkheading, filling, and dredging of wetlands and other land at the water's edge, is discouraged.

The water's edge and wetlands areas of the coast are a limited natural resource. Residential development is not dependent on such locations. In fact, lagoon development and other water's edge development disrupts the coastal ecosystem and defaces the coastal landscape.

23. Residential developments of more than 250 units without barrier-free design, and therefore providing no access for people with physical handicaps, will be discouraged.

New housing in the coastal zone should be available to all people, including those whose physical handicaps have precluded such accommodation in the past.

PARKS AND RECREATION

24. Public and private parks and other recreational facilities which provide indoor and outdoor recreational opportunities to underserved areas will be encouraged, particularly if these facilities provide access and facilities to people of all ages and people with physical handicaps.

25. Proposed recreational developments, without structures or impervious surfaces, at the water's edge shall be preferred to other waterfront uses, to the maximum extent practicable. Development proposals involving waterfront sites shall analyze the recreational potential of the site and shall demonstate why a recreational use is not practicable.

26. New or expanded amusement and theme parks shall be discouraged from water's edge locations, although improvement of existing amusement parks, amusement piers and boardwalk areas is encouraged.

27. New residential or industrial developments that contain recreational areas will be encouraged.

The coastal zone provides a wide range of recreational opportunities which are used by people throughout the state and which make tourism the state's second largest industry. At the water's edge in most of the CAFRA area, recreation is the best land use both in terms of protecting natural resources and in terms of direct benefit to New Jersey residents. Unfortunately, recreation uses are not always economically feasible. The Coastal Management Strategy respects the recent national recognition that recreation is physically and mentally important for people of all ages, for city dwellers as

well as rural folk, for workers as well as students, and for the handicapped as well as the perfectly fit. Like all human activities, however, recreation places demands on natural resources so that recreational activities in some cases have to be limited at a particular site.

TRANSPORTATION

28. New and improved public transportation facilities, and related parking facilities, including bus, rail, air, and boat travel, shall be encouraged.

29. New or expanded road or highway projects shall be encouraged only if they will serve the demonstrated needs of existing settled areas, and the roads or highways do not limit physical or visual access to the waterfront.

30. Construction of bicycle and foot paths, and fishing catwalks and platforms on new bridges, shall be encouraged.

The current dominance of the automobile as a means of transportation in the coastal zone is undeniable. Yet automobiles use more of the limited energy and land resources than alternate modes of travel. Mass transit is the complex and essential alternative which will be promoted under the Coastal Management Strategy. Major new development can provide a stimulus to public transportation projects. Clearly, however, a state coastal management program will not by itself accomplish this task, and other transportation policies are necessary. Road construction, when necessary, should serve to assist establishment of compact, efficient settlement patterns. Bicycle and foot paths encourage healthful activity, as well as travel in a safe and pleasant setting.

INDUSTRIAL DEVELOPMENT

31. Industrial development shall be encouraged to locate or expand in existing settled areas, providing it is compatible with adjacent uses, including coastal recreation and tourism, and consistent with air and water quality standards. Only coastal-dependent industrial development will be permitted on or immediately adjacent to the water's edge.

The sensitive land and water features of the coastal zone, the relatively small amounts of available land, and the significant environmental impacts of most industrial development mandate a restrictive policy towards such development in the coastal zone. Industry of benefit to the state or region may be approved however, if it requires a coastal location and conforms to other Coastal policies.

MINING

32. New or expanded mining operation on land for sand, gravel, ilmenite, glauconite, and other minerals shall be discouraged except in areas adjacent to current mining

operations where a region's economic development depends upon the mined resource. Detailed reclamation plans, including mining procedures to prepare for reuse of a site after reclamation, shall be required before mining may begin.

Although New Jersey is not known as a mining state, sand, gravel, ilmenite, and glauconite are significant state products. While mining contributes millions of dollars to the state's economy, it also can cause soil erosion, water quality degradation, wildlife disturbance, and visual blight. Careful management of mining operations is therefore essential.

SOLID WASTE AND RESOURCE RECOVERY

33. Regional approaches to solid waste management, including resource recovery, are encouraged. Coastal developments are encouraged to include methods to recycle and recover resources, as well as reduce the volume of generated wastes.

34. Sanitary landfills must demonstrate that leachate will not enter ground and surface waters.

Current solid waste technology inevitably leads to negative environmental impacts. Chemical landfills have the worst impacts, but sanitary landfills and incinerators may also lead to air pollution and other enviornmental degradation. The key goals of the Coastal Management Strategy, therefore, are insuring that only necessary solid waste facilities are constructed, that the facilities are as efficient as possible from a regional perspective, and that evolving, less enviornmentally harmful technologies are adopted at the earliest practicable time.

AGRICULTURE

35. The maintenance of large, contiguous tracts of prime agricultural land for active farming use is encouraged. Conversion of any actively-farmed, prime agricultural land to non-agricultural uses is discouraged.

The development of agricultural land is of concern because of reduced food producing potential, reduced open space land, and increased hardships placed on farming families. In an age of world food and energy shortages, New Jersey has an obligation to avoid the permanent elimination of food producing land inevitably caused by the development of agricultural land. Agricultural acivities can, however, have negative impacts including soil loss, water quality degradation, clearing of valuable wildlife habitats, application of fertilizers and pesticides, and consumptive use of groundwater for irrigation.

SHORE PROTECTION

36. Both structural and non-structural solutions for managing shoreline sand movement shall be encouraged. First, structural solutions -- such as the construction of groins, jetties, and seawalls -- shall be encouraged where essential to protect highly built-up shorefront and public recreation beach areas, and where interruption of the littoral drift will not create unreasonable net adverse environmental impacts along the shoreline. Second, non-structural solution -- such as limiting development adjacent to eroding beaches, and undertaking beach nourishment projects -- shall be encouraged.

The result of continuing migration of New Jersey's beaches and inlets has been a continued, though erratic, recession of the shoreline accompanied by localized changes in shoreline orientation. Continuing erosion of the beaches, coupled with shorefront construction, has resulted in a narrowing of some beaches reducing their usefulness and attractiveness for recreation and has jeopardized the security of life and property.

The construction of coastal protection structures, although aimed at minimizing the damage which results from natural coastal processes and storm events, can increase coastal problems over the long term. Shoreline management and coastal development should respect natural coastal formations and processes, to the maximum extent feasible.

RECREATIONAL BOATING

37. New marinas for recreational boating shall be built only if the demonstrated regional need for recreational boating facilities cannot be met by the upgrading or expansion of existing marinas.

38. The development of dry storage areas, public launching facilities, and additional berthing space in existing marinas shall be encouraged, and non-water-oriented land uses along the waterfront that would preclude recreational boating support facilities shall be limited in order to encourage recreational boating.

39. Recreational boating facilities shall be designed and located in such a fashion as to not interfere with the needs of the commercial boating industry, to the maximum extent practicable.

Marinas help accommodate the large and growing interest in recreational boating and fishing. Unfortunately, they must of necessity be located on valuable and sensitive natural features at the water's edge. The construction and operation of a marina can cause serious environmental damage. These policies are designed to minimize the land area consumed by marinas by encouraging wise and efficient use of existing facilities and by discouraging small dispersed single purpose marinas throughout the shoreline.

PORT AND COMMERCIAL BOATING

40. Port-related development and marine commerce shall be encouraged only in established port areas, including the Districts of the Port Authority of New York and New Jersey, the Delaware River Port Authority, the South Jersey Port Corporation and only when the inadequacy of existing port facilities is clearly demonstrated and new port-related development is adjacent to existing port facilities. Non-water dependent development in port areas shall be permitted only to the extent that foreseeable water-dependent marine commerce uses are not preempted.

New Jersey's port areas are a regional, national and international resource. The existing ports contain unused and underused areas which could be refurbished to meet foreseeable increases in demand. Any added cost necessary for such rehabilitation would pay to improve the coastline both by revitalizing and beautifying existing derelict port areas and by minimizing the land necessary to meet the region's port needs.

DREDGING AND DREDGE SPOIL DISPOSAL

41. Maintenance dredging of existing navigation channels currently in use is encouraged.

42. New dredging shall only take place in those water types in which bottom disturbance is acceptable according to the Coastal Location Acceptability Method (CLAM). In these cases, the dredging is acceptable provided that acceptable oxygen, sediment and toxic pollutant levels are maintained during and after dredging.

43. Subaqueous disposal of dredge spoil is generally discouraged, except in limited areas where the disposal technique would not cause significant adverse impacts on the immediate coastal waters.

The dredging of coastal waters and disposal of dredge spoil is a potential environmental hazard. Dredging and sub-surface mining destroy bottom habitats, increase turbidity and re-introduce toxic substances trapped in bottom sediments into the water column. The disposal of spoil material produced by dredging can often cause more environmental damages than the dredging itself. In the warmer months and/or in low water quality areas, these conditions may lead to anoxic conditions. This is especially important in narrow sections used by anadromous fish during seasonal migrations. There are many cases where dredging is desirable but unnecessary dredging in sensitive areas where alternate sites exist is not in the best interest of the coastal zone.

Land disposal of dredge spoil is encouraged for such uses as highway grading, general landscape and site preparation grading, beach protection, dune-building, sanitary landfill and mining

reclamation, and surface permeability adjustment in swale-lagoon systems provided that the texture is suitable and the levels of toxic pollutants are within acceptable limits.

WASTEWATER TREATMENT

44. Wastewater treatment facilities which provide demonstrably needed service to existing settled areas, immediate extensions of such areas, or areas appropriate for infill development are encouraged.

45. On-site sewage disposal systems are encouraged where proper design, installation, and operation will be consistent with applicable ground and surface water quality standards.

46. Over the long-term, wastewater treatment systems that recharge the groundwater with highly treated effluents are encouraged, once appropriate demonstration projects in the Coastal Plain demonstrate consistently high quality effluents and acceptable recharge techniques.

47. Discharge of inadequately-treated sewage into surface waters is prohibited.

Proper treatment of wastewaters generated in the coastal zone is basic to the maintenance of the quality of coastal waters.

OCEAN DUMPING

48. Ocean dumping is prohibited within the state's coastal waters and should not be perpetuated beyond the 1981 deadline in ocean waters under federal jurisdiction.

At present, the existing sewage dumping site located about 12 miles southeast of the entrance to New York Harbor is used almost exclusively for disposal of sewerage sludge from large sewage treatment facilities in the northern New Jersey-New York metropolitan area. Ocean dumping of sludge at this and other sites in the Atlantic Ocean off New Jersey, combined with other factors, contributed to the massive Fishkill of the Summer of 1976.

LINEAR FACILITIES

49. In selected cases, linear connecting facilities such as roads, railroads and regional sewer lines shall be given a waiver from CLAM to locate on sensitive natural and cultural features. A waiver would be allowed, provided that special impact control measures are used which can control unacceptable impacts and are consistent with all Performance Standards.

Linear facilities present a special condition to coatal zone management. The facility must be connected to all points, no gaps are possible to avoid sensitive features or developed areas.

Though in most cases a straight line is the most advantageous economically, linear features often meander around sensitive features and existing developed sites. In some cases, features such as a marsh or stream may be unavoidable. In such cases, strict impact control measures can be employed during construction and operation. These measures include the use of special runoff controls and raising the structure on pilings or burial, in the case of pipelines.

LOCATION POLICY

Introduction

The acceptability for development of any location in the coastal zone shall be determined by using the Coastal Location Acceptability Method (CLAM).

Each location or type of location in the coastal zone is suited to certain types of development or to preservation because of the features it contains, some of which should be protected and some of which are needed for development. Wetlands, for example, are generally unsuited to any form of development, because their vital ecological role can be so easily destroyed. The developed, downtown areas of Asbury Park or Atlantic City, on the other hand, offer excellent potential for development because the utilities, sewers and other parts of the infrastructure are already in place, and because few if any natural features would be harmed.

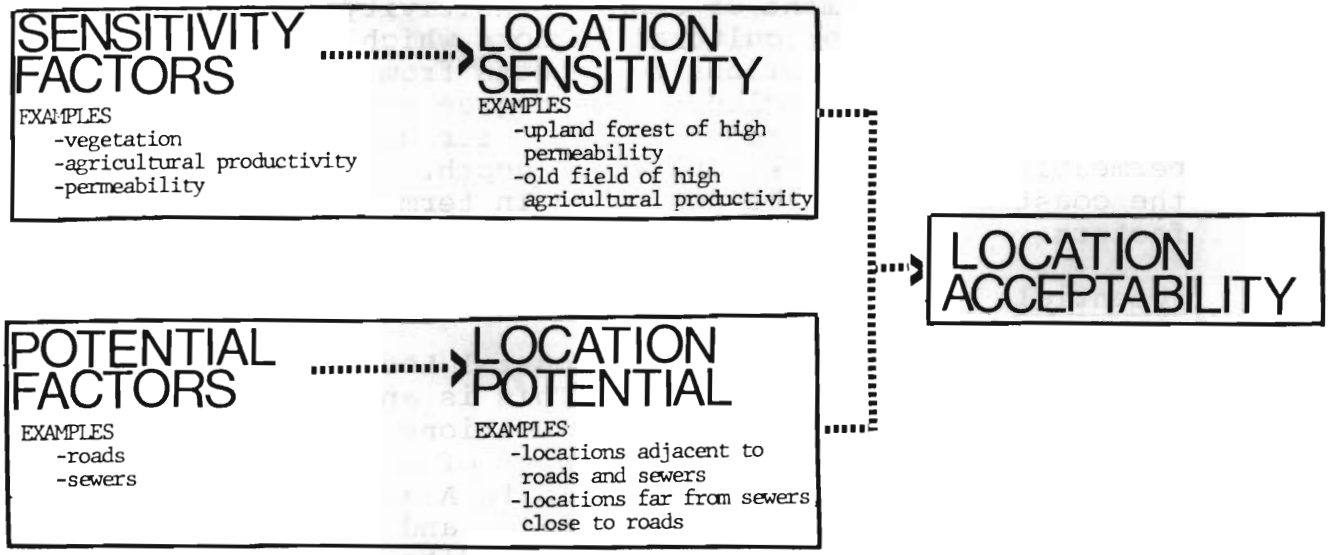
The acceptability for development of many other coastal locations, however, is much more difficult to determine. For example, what types of development should be encouraged on an upland area that is part prime farmland and part forest and adjacent to roads and other infrastructure? The Office of Coastal Zone Management has developed a Coastal Location Acceptability Method (CLAM) to provide a logical, orderly, increasingly detailed means to make judgements about the use of specified locations. CLAM uses information specific to each location type to evaluate the kinds of development which should be permitted.

CLAM enables a decision-maker to systematically and quickly evaluate the many factors which make up each location in the coastal zone. The location policy -- the use of CLAM -- is presented here in summary form. CLAM is explained in greater detail is Section Five of the BASIS AND BACKGROUND.

POLICY SUMMARY

CLAM has three elements: (1) an indication of the "sensitivity" to development of various land and water types, (2) an indication of the "potential" for development offered by various locations and (3) a mechanism for combining "sensitivity" and "potential" to arrive at an indication of the relative "acceptability" of a particular location (see Figure 5 for a graphic indication of these relationships).

FIGURE 5
THREE ELEMENTS OF COASTAL LOCATION ACCEPTABILITY METHOD (CLAM)-RELATIONSHIP OF SENSITIVITY, POTENTIAL & ACCEPTABILITY



Sensitivity

The first element of CLAM, "sensitivity," identifies the environmental or cultural factors which affect the vulnerability of locations to impacts from development. The factors considered include: the degree of existing disturbance, agricultural productivity, water quality, soil permeability, wildlife, and water depth. Each location in the coastal zone can be described in terms of these kinds of factors.

Potential

The second element of the Coastal Location Acceptability Method is "potential." This is an examination of the positive factors particular locations, or types of locations, offer for different types of development. For example, two undeveloped areas - Site A and Site B - may have similar vegetation and wildlife, and therefore offer equal "sensitivity" to development. Site A, however, may be far removed from any development, while Site B is near a major road, a sewer system with excess capacity and a water supply. Site B, then, offers higher "potential" for the development.

Typically, environmental planning has considered only "sensitivity." The Coastal Location Acceptability Method takes the next major step by incorporating "potential" in its analysis. This means that the state coastal agency will be considering the positive, as well as the negative, reasons to develop a particular site.

Acceptability

Once the "sensitivity" and "potential" of a location type are identified, the "acceptability" of a location for development, the third and final element of CLAM, can be determined. The "acceptability" is determined by making well planned trade-offs between "sensitivity" and "potential." The trade-off decisions are made according to the following principle: In locations with high "potential", the influence of "sensitivity" shall be lowered to allow intensive development, except in the most sensitive areas, such as wetlands, flood plains, and historic areas. In locations of low "potential", development shall be discouraged at all levels of sensitivity to promote concentration of development. The factors which determine the "potential" of a location for single family detached housing are given as an example. These factors include: access to roads, railroads, airports, surface water, sewers, public water supply, schools, and stores, soils suitable for septic tanks. Also considered are capacity, depth of seasonal high water table, vegetation and living resources.

CLAM uses six categories of "acceptability." These categories expand upon the three group continuum of Development, Conservation and Preservation that DEP-OCZM now employs under the Interim Land Use and Density Guidelines. The six categories are (1) High Intensity Development, (2) Moderate Intensity Development, (3) Water Bottom or Soil Conservation, (4) Water Column or Vegetation Conservation, and (5) Limited Preservation and (6) Preservation.

A major value of CLAM is that it provides a means for systematically evaluating the many factors which in combination make each site unique. This benefit, however, makes it difficult to provide a simple list or map indicating exactly where different types of development should be permitted. In general, CLAM is designed to preserve sensitive natural and built features of the coast including, but not limited to wetlands, barrier beaches and dunes, prime forest areas, and historic sites, and to encourage the location of development in, or adjacent to, built-up urban and suburban areas.

Further Development of the Location Policy

The Coastal Location Acceptability Method, as presented in this Coastal Management Strategy and described in greater detail in the Section Five of the BASIS AND BACKGROUND, can now be applied to individual coastal decisions. A major interim step in this direction will be DEP-OCZM's publication in late fall 1977 of A Pilot Study of Lower Cape May County: A Method For Coastal Resource Management, which is the first effort to apply CLAM to a specific area. Further development of CLAM during the next two years will enable its broader use as an advance indicator of appropriate patterns of coastal decisions.

Specifically, up to five major research efforts will provide DEP with information sufficient to publish lists and supporting maps showing acceptable locations for different types of development. An Estuarine Study focusing on the "sensitivity" element of CLAM was begun in September 1977, and an Opportunity Analysis focusing on the "potential" element will be undertaken later in the fall of 1977, pending the approval of NOAA. Mapping at scales of 1:250,000, 1:100,000, and 1:24,000 will complement the studies. Additional studies of the Socio-Economic Impacts of Coastal Development, and Settlement Patterns would further add to the usefulness of CLAM. These studies are elaborated upon in Section Five.

Conclusion

As a method of resource management, CLAM may appear complex. In fact, the theory of CLAM is straightforward. It is the classification of the geography of the coast into different categories based on "sensitivity", "potential", and "acceptability" that is somewhat complex, because the classification attempts to describe accurately and simplify the complexities and interdependencies of the built, natural, and socio-economic environment of the coast. In short, CLAM is a logical process for making decisions on whether specific locations are acceptable, for a specific proposed use or activity.

PERFORMANCE STANDARDS

The third step in the three-part screening process for coastal decision-making is a requirement that proposed coastal activities or developments meet certain performance standards.

First, some policies have implications on a site level for the grouping and design of structures and developments. These policies: (1) attempt to achieve as little disturbance as possible of existing resources such as wildlife and vegetation, (2) cycle resources, such as water rather than deplete them, (3) lessen the visual impact of structures by considering aesthetics, and (4) buffer potentially harmful uses from environmentally sensitive areas.

Second, other policies have strong regional implications for development patterns, the spatial configuration of development. Policies on energy consumption, secondary impacts, and settlement patterns operate on a larger than local level and imply a major rethinking about the acceptability of urban sprawl. The air pollution policy, for example, illustrates that many of our problems cannot be solved at a local level because the sources and effects cross municipal, county, and even state boundaries.

SHOREFRONT ACCESS

1. Public and private actions and development adjacent to coastal waters must provide for public access to the shorefront, including both beach and built-up waterfront areas. The term "access" includes visual access meaning the maintenance of waterfront views, direct physical access, and the indirect accessibility which can be provided by mass transit and appropriate supporting facilities such as hotels, campgrounds, and public bathhouses.

New Jersey's waterfront and shorefront areas are valuable scenic and recreation resources. These areas, maintained and protected by State tax revenues, as well as by local funds, should be made available to the maximum extent possible, to all state residents and visitors on an equitable basis. The Public Trust Doctrine buttresses this shorefront access policy. Some access problems persist in the coastal zone, as described in the final report of the New Jersey Beach Access Study Commission, Public Access to the Oceanfront Beaches: A Report to the Governor and Legislature of New Jersey (April 1977), prepared in part by DEP-OCZM.

COASTAL APPEARANCE AND DESIGN

2. New coastal developments shall be visually compatible, in terms of scale, height, materials, color, texture, and geometry of building and site design, with surrounding development and coastal resources to the maximum extent practicable.

The coast is a visual resource that can easily be marred by signs and buildings that block views and create visual clutter. Inappropriate design that ignores the coastal landscape and existing patterns and scale of development can degrade the visual environment and appearance of communities.

New Jersey has a strong architectural tradition of building housing with timber. Where practicable, compatability with this tradition is encouraged in the use of building materials. When other architectural modes are used, building designs should have visual integrity with their surroundings. Coastal development should be carefully scrutinized for the siting of structures, to be aesthetically compatible with other structures, the surrounding vegetation, and other coastal resources.

HISTORICAL AND CULTURAL RESOURCES

3. Coastal historical and cultural resources, including pre-historic and historic artifacts, buildings, districts, social networks and communities, shall be protected to the maximum extent practicable, with appropriate mitigating measures required if proposed coastal development would unacceptably affect the integrity of these resources.

The public interest requires the preservation of representative and unique archaeological and historical resources of the coast in order to provide present and future generations with a sense of identity for the people who lived and worked in the coastal zone.

The range of significant coastal cultural resources in New Jersey includes Indian artifacts, evidence of the State's maritime heritage, historic sites, oceanfront Victorian "gingerbread" architecture, and native crafts and technologies.

Artifacts, architecture, and communities, can all be protected for historical resource purposes. A sense of historic preservation can be accomplished by conserving, visually, enough of the structures and function of structures to give a sense that historic activities did take place. Also, where these locations are and the extent to which they will be protected will depend on where they were historically and the social value they hold for the inhabitants.

VEGETATION

4. Coastal development shall allow for the preservation of existing vegetation and the planting of new vegetation, to the maximum extent practicable.

The steady loss of vegetation is an inevitable result of urbanization. Vegetation stabilizes the soil, retards runoff and promotes infiltration, provides food and shelter to wildlife and is the aesthetic surrounding for recreation and domestic life. In general, the amount of vegetation on a site should be greatest in preservation areas and least in development areas. If the development site is forested, then at least 10 percent of the site should remain undisturbed. If the development site is built-up, a meadow, or a forest-meadow mixture, then at least 10 percent of the site should be planted with late successional forest trees and other appropriate vegetation.

WILDLIFE MANAGEMENT

5. The design of coastal development shall incorporate management techniques which favor or maintain native animal species habitat, diversity, and numbers to the maximum extent practicable.

In addition to preserving and conserving sensitive natural areas so that the habitats, spawning areas and feeding grounds are in adequate supply, wildlife management is an important aspect in developed areas. Desirable wildlife management techniques include: designating some undisturbed areas as wildlife refuges and restricting human (and dog and cat) access, linking areas of low disturbance of sufficient width, especially along waterways, to form wildlife movement corridors, increasing forest edge length by cutting clearings in uninterrupted forest, maintaining vegetative species diversity and providing wildlife food plantings.

SOIL EROSION

6. Coastal development will be encouraged to restrict soil loss during both construction and operation to the amount which would be expected under natural conditions of forest, slope and soil, to the maximum extent practicable.

Erosion is increased by many human activities including: construction practices such as clearing and grading, agricultural cultivation, and tree harvest. There are numerous problems related to erosion and subsequent sedimentation. These include loss of productive soils, destabilization of slopes, increased flooding due to reduced capacity of storm sewers and natural drainage channels, increased turbidity and siltation of streams, and decreased wetland productivity.

Many techniques are available to control sediment loss including minimizing the area of soil exposed at one time, baling and contour terracing the edge of construction, mulching and using swale lagoon drainage systems and wet and dry detention basins. Other illustrative techniques are found in Standards for Soil Erosion and Sediment Control in New Jersey.

The measures that control sediment loss are largely the same as those that contain runoff, and if the runoff requirements are met it is probable that the amount of soil loss will be acceptable. Probably the most satisfactory technique to meet these requirements is to establish a swale lagoon system using the natural topography where possible very early in the construction sequence and then using this system to control runoff both during and after construction.

RUNOFF

7. Mainland coastal development will not be permitted to increase the amount of runoff beyond that which would be expected under natural conditions of forest and soil cover, to the maximum extent practicable. Special precautions shall be taken in highly permeable soils near surface water bodies or wells so that contamination does not take place.

By returning water running off impervious surfaces to the ground within site boundaries, groundwater recharge is maintained, soil erosion lessened, contaminated runoff filtered by passage through the ground, and flash flooding and increased turbidity and pollution of streams controlled.

In order to meet this requirement, the runoff from impervious surfaces must be detained and allowed to percolate into the ground. Numerous techniques exist, including use of porous paving to minimize additional runoff generation, swale-lagoon systems and wet and dry detention basins. If the development intensity and the drainage characteristics of the soil make it impossible to meet this requirement on a single site, several sites or an entire neighborhood may be aggregated into a "runoff district" that does meet these requirements. Runoff within the district may be piped to runoff detention areas.

WATER USE

8. Proposed coastal development shall demonstrate that anticipated demand for water will not cause unacceptable ground or surface water disturbance. Disturbances of concern shall include saline intrusions into fresh water aquifers, lower water levels, and alteration of surface water bodies.

In some areas of the coastal zone, localized mismanagement of groundwater, a primary source of water, is becoming an increasing problem. This applies especially to areas in Monmouth, Salem and Cape May counties. Problems stem from over pumping of groundwater and reduction of aquifer recharge due to urbanization, leading to a lowering of water table that may change the base flow conditions of streams, or increase salt water intrusion into the groundwater.

In the long term, demonstration projects will be encouraged to establish the criteria and operational data for recycling water through groundwater recharge.

EFFLUENT DISCHARGE

9. Coastal development shall not discharge toxic or hazardous substances, such as industrial wastes, and radioactive materials, into fresh and salt water bodies, including groundwater, in the coastal zone. Coastal developments shall conform with all applicable effluent standards.

Most of the natural, commercial, recreational, industrial, and aesthetic resources of the coastal zone affect or are affected by surface and coastal water quality. Specific coastal zone water quality problems include pollution by nutrients, pathogenic organisms, toxic and hazardous wastes, thermal discharges, suspended sediments, and saline intrusion into freshwater resources. These pollutants can lower water quality sufficiently to prevent desired water uses.

COOLING SYSTEMS

10. New or expanded electric generating stations, refineries, petrochemical facilities and other industrial facilities shall minimize the use of once-through cooling systems, in favor of air cooling, cogeneration, and recycling of water, to the maximum extent practicable, in order to protect coastal waters and the marine environment. Once-through cooling systems, if used, shall employ the best available design technology, and mitigation measures to minimize the intake and mortality of all forms of marine life.

Power plants and other industrial facilities use and discharge huge volumes of water. Some species of marine life cannot tolerate warmer waters; most species cannot tolerate sudden shifts in water temperature. Entrainment of marine organisms kills phytoplankton, fish larvae, and small fish as water is drawn from the sea for cooling systems.

BUFFERS

11. Developments in the coastal zone must include undeveloped vegetated buffer areas of appropriate size to protect sensitive natural features, screen impacts and separate incompatible uses. In some cases, buffers shall be required to keep sufficient distance between conflicting human activities, such as agriculture and housing or recreation and heavy industry.

Vegetated areas of appropriate size have a limited capacity to assimilate pollutants and stabilize natural processes. When situated around sensitive natural areas, vegetated buffers provide protection from the negative impacts of development. When located between conflicting uses, buffers may minimize or eliminate potential conflicts resulting from noise, odor, air pollutants or hazardous sites or processes.

ENERGY CONSUMPTION

12. Coastal development that uses building design, construction techniques, site design, and regional development patterns that conserve energy shall be encouraged.

Structures designed to maximize natural heating and cooling effects require significantly less energy than other development. This saving of energy can be accomplished through use of a microclimate analysis and use of the many planning principles and designs which are becoming increasingly available. Such design will lower costs to the builder and the user. Even in the short run, some of the most effective energy conservation techniques add little or no cost to projects.

These design techniques include solar heating, especially for water heating; the most efficient types of insullation; siting and orienting structures such that exposure to the sun is maximized in the winter and minimized in the summer - with landscape design (such as scattered deciduous trees) to reinforce exposure control; the use of waste heat from industry; and other architectural designs such as awnings.

At a larger scale, this policy can be accomplished through the encouragement of concentrated, rather than dispersed, development throughout the coastal zone.

AIR

13. Coastal development shall conform with all applicable emissions regulations, ambient air quality standards and deterioration criteria.

New Jersey's air quality is significantly influenced by the heavy concentration of industry, the heavy volume of automobile traffic in selected areas, the state's location near two large urban concentrations and, in general, transport of pollutants from areas outside the state. Of greatest concern is the control of carbon monoxide (CO), sulfur dioxide (SO_2), oxides of nitrogen (NO_x), volatile organic substances (frequently termed hydorcarbons (HC)), particulates, odorous compounds and hazardous substances.

Sources of air pollution can have effects at considerable distances from the source. Problems of equity and effectiveness limit the degree of local variation in emission standards that is possible.

Ambient air quality standards are set on the basis of effects on health or property and are the same everywhere.

Deterioration criteria can vary with location, and time, depending upon actions which can be taken, under the federal Clean Air Act, to preserve, protect and enhance air quality with due consideration given to economic growth, careful evaluation of all consequences and adequate public participation in the decision-making process.

SETTLEMENT PATTERNS

14. Coastal development which increases the intensity of use in existing urban centers, or fills in areas of sprawled settlement with clustered settlement is encouraged. Traditional subdivisions and settlement sprawl which make inefficient use of the land either at site or at regional scale, are discouraged.

Recent residential development has been largely at very low density. Much of this growth has been discountinuous, isolated developments, leapfrogging over still-vacant land adjacent to settled areas. These low densities and sprawl patterns have led to high costs for public services and infra-structure, and are extremely wasteful of energy. In addition, they have prevented organization of efficient public transit.

SECONDARY IMPACTS

15. Proposed uses which will induce development inconsistent with other coastal policies are discouraged.

Some development, such as roads, industry, and regional sewer interceptors, induces further development. Infrastructure construction is the most important item in this category but other uses that generate employment or further services uses are also included.

In general, any use that affects the "potential" of any other use to locate in the vicinity of the proposed use falls into this category of secondary impacts.

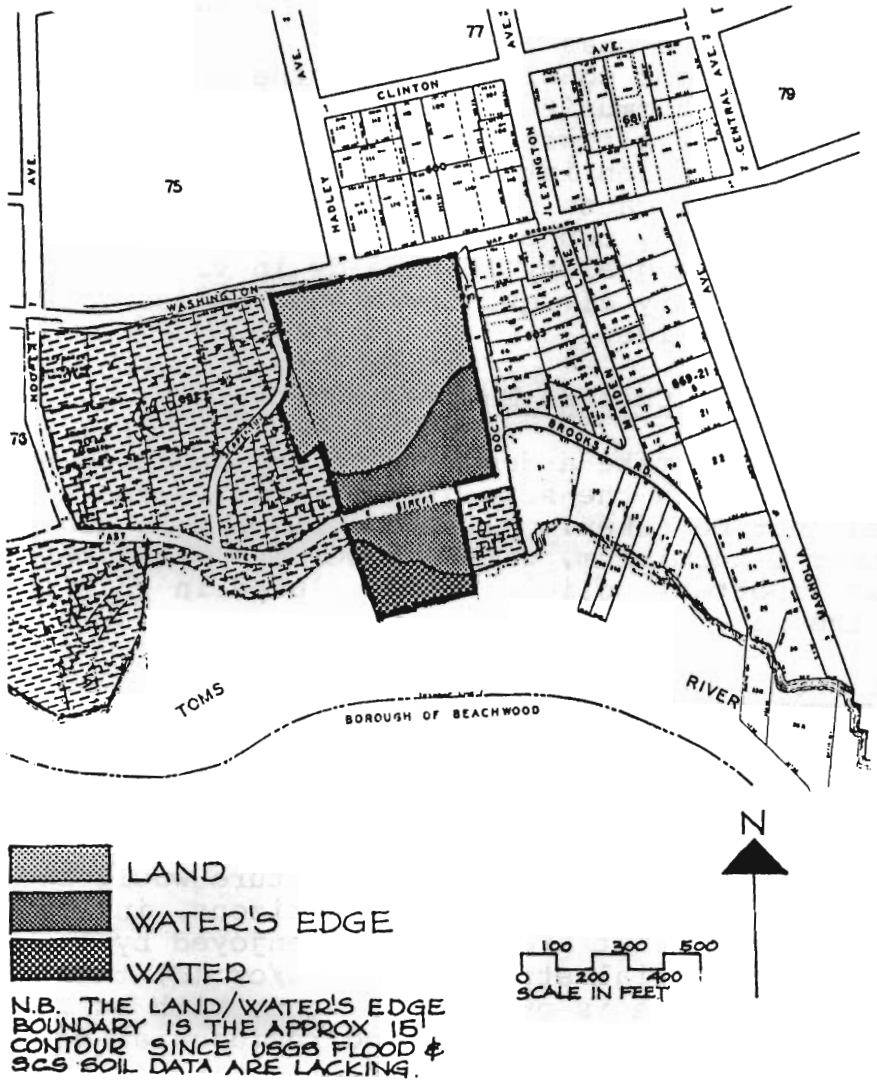
USING THE COASTAL POLICIES: THE TOMS RIVER HIGH RISE

This part of the Strategy takes one actual development that went through the CAFRA permit application process in 1974 -- the Toms River Condominium high-rise (CA# 73-003, decided July 10, 1974, CAFRA Opinion No. 1) -- and analyzes the proposed development using the three step screening process of the Coastal Policies: Step One - Use Policies, Step Two - Coastal Location Acceptability Method (CLAM), and Step 3 - Performance Standards. A comparison of the DEP permit decision under CAFRA in 1974 with the result derived by using the three step screening process demonstrates how to use this decision-making tool.

Location and Character of Site and Region

The site is a 9.5 acre waterfront tract in Toms River, Ocean County, bordered by the Toms River (south), Serpentine Road (west), Washington Street (north), and Dock Street (east). East Water Street lies within the site. The site has extensive vegetation, including several large trees.

TOMS RIVER HIGH RISE SITE



The neighborhood is low-density residential. Surrounding homes are a mix of old large and newer smaller. The streets are shaded by large, trees some over a century old. Washington Street is in transition from residential to commercial, but the facades retain the historic charm of the neighborhood. Toms River is an area of historic interest because of its pre-revolution port, battle site, coal docks and the so-called "Mott Place" house, and is also of interest to post-Civil War, New York yachting devotees.

Proposal

The developer proposed a high priced, 220 unit, 10 story condominium with parking for 340 automobiles, and the provision of recreational amenities.

DEP Denial Under CAFRA

The following reasons were explained in the DEP opinion for the denial of the project:

(1) it is not compatible with the existing land use
(2) it is not consistent with the environmental design of the coast
(3) it is not consistent with the existing scenic and community character (historic, small town)
(4) the project would be an abrupt high-density intrusion into a low density area
(5) it will cause severe traffic problems in an already congested location
(6) the air quality is already in violation of the primary air quality standards for carbon monoxide.

DEP Review Under Coastal Management Strategy

In order to make a decision on any development project, all three steps in the screening process of the coastal policies must be taken. All three steps were analyzed for Toms River Condominium, with the results shown below. Only the most important policies are included in this illustrative use of the screening process.

Step 1: Use Policies

1. High rise housing, defined as structures six stories or greater, or more than sixty feet from grade, will be discouraged when:

.....(c) the proposed structure would block the view of dunes, beaches, horizons, inlets, bays, or oceans that are currently enjoyed by existing residential structures, and/or (d) the proposed structure is out of character with surrounding transitional heights and residential densities.

Step 2: Location Policy (CLAM)

CLAM has three parts: Part A - Sensitivity, Part B - Potential and Part C - Acceptability. The first two are mentioned here. Acceptability is described in the last section, with the results of the other policy steps.

Part A - Sensitivity of Site for Development

The site south of East Water Street adjacent to the river is classified as Water's Edge, which has a high sensitivity to development. In Water's Edge areas, only low intensity uses, such as walking and nature study, are permissible. The land area to the north of East Water Street shows low sensitivity to development.

Part B - Potential for Development

The sewers, road access, potable water supply, proximity to town facilities and visual-physical access to water all indicate a strong potential for development.

Step 3: Performance Standards

1. New coastal development shall be visually compatible in terms of scale, height, materials, color, texture, and geometry of building and site design, with surrounding development and coastal resources, to the maximum extent practicable.

2. Coastal development shall conform with all applicable emissions regulations, ambient air quality standards and deterioration criteria.

3. Coastal historical and cultural resources, including pre-historic and historic artifacts, buildings, districts, social networks and communities, shall be protected to the maximum extent practicable, with appropriate mitigating measures required if proposed coastal development would unacceptably affect the integrity of these resources.

Conclusion: Location Acceptability and Meeting Performance and Use Requirements

The specific use, high rise housing, may in this case unacceptably block the coastal views and would be out of character with the surrounding transitional heights and residential densities. Step 1 on Use Policies, therefore, recommends a discouraged status.

Based on the Coastal Location Acceptability Method (CLAM), the Land portion of the site is an acceptable location for this intensity of develpment. However, when the performance requirements of the Coastal Policies are examined, it is clear that the specific type of development is discouraged. The development would negatively impact air quality, coastal appearance, vegetation, and coastal historical and cultural resources.

Section Four: MANAGEMENT SYSTEM

Section Four: MANAGEMENT SYSTEM

The policies of the Coastal Management Strategy will be implemented primarily through permit and performance standard programs currently administered by the State. In addition, the Coastal Policies will be used to help guide funding decisions at the State level and State responses to proposed activities of other levels of government. Local governments and regional and interstate agencies will be urged to respect the Coastal Policies in their planning and individual decisions. Federal agencies will, for the most part, be required to follow the Coastal Policies, after U.S. Department of Commerce approval of New Jersey's coastal program, by the "Federal Consistency" provision of Section 307 of the federal Coastal Zone Management Act. Lastly, the Coastal Management Strategy will be shared and discussed with staff of the other state resource management planning programs.

The Management System to implement the Coastal Management Strategy is based on the following procedural principles:

1. Consider only coastal resource and coastal land and water use decisions of greater than local significance.

2. Create mechanisms to insure that decisions on coastal land and water uses are made at the lowest practicable level of government, consistent with these guiding principles.

3. Create a system of public decision-making that clearly outlines the responsibilities of developers and public officials to reach decisions on use of coastal resources in a timely manner, consistent with an adequate assessment of the effects of proposed development on coastal resources.

4. Provide information in understandable terms to citizens, interest groups, and public agencies about uses of coastal resources.

5. Protect the rights of property owners. The expectations of some property owners may, however, be affected by coastal management decisions, policies and regulations made in the broad public interest.

State Role

The Department of Environmental Protection is responsible for implementing the Coastal Management Strategy, and for continuing coastal planning. Agencies within the Departments

of Community Affairs, Energy, Labor and Industry, and Transportation, however, can actively help carry out the program by utilizing the Strategy policies in their coastal-related planning and regulatory activites.

The Strategy will provide a common set of policies for the direct administration by the Department of Environmental Protection of three laws: the Coastal Area Facility Review Act of 1973, Wetlands Act of 1970, and the State's riparian statutes. In addition, the policies will be applied to other appropriate statutes affecting the coastal zone, within the legal constraints of these laws.

Department of Environmental Protection

The Legislature has entrusted management of the three major coastal laws to the Department of Environmental Protection (See Figure 6, DEP Organizational Chart). In addition, the Governor has designated DEP as New Jersey's coastal planning agency under Section 305 and more recently under Section 308, the Coastal Energy Impact Program, of the federal Coastal Zone Management Act. Within DEP, the Office of Coastal Zone Management (DEP-OCZM) has the coastal planning responsibility. DEP-OCZM also administers the CAFRA permit program.

The coastal responsibilities of DEP are concentrated in the Division of Marine Services. This Division includes the Office of Coastal Zone Management, Office of Wetlands Management, and the Office of Riparian Lands Management to administer the three major coastal laws. The Division also includes Bureau of Marine Law Enforcement. The Office of Shore Protection in the Division, is the lead agency for beach erosion control programs and efforts to maintain state waterways. A major responsibility of this Office is the setting of priorities for spending shore protection funds.

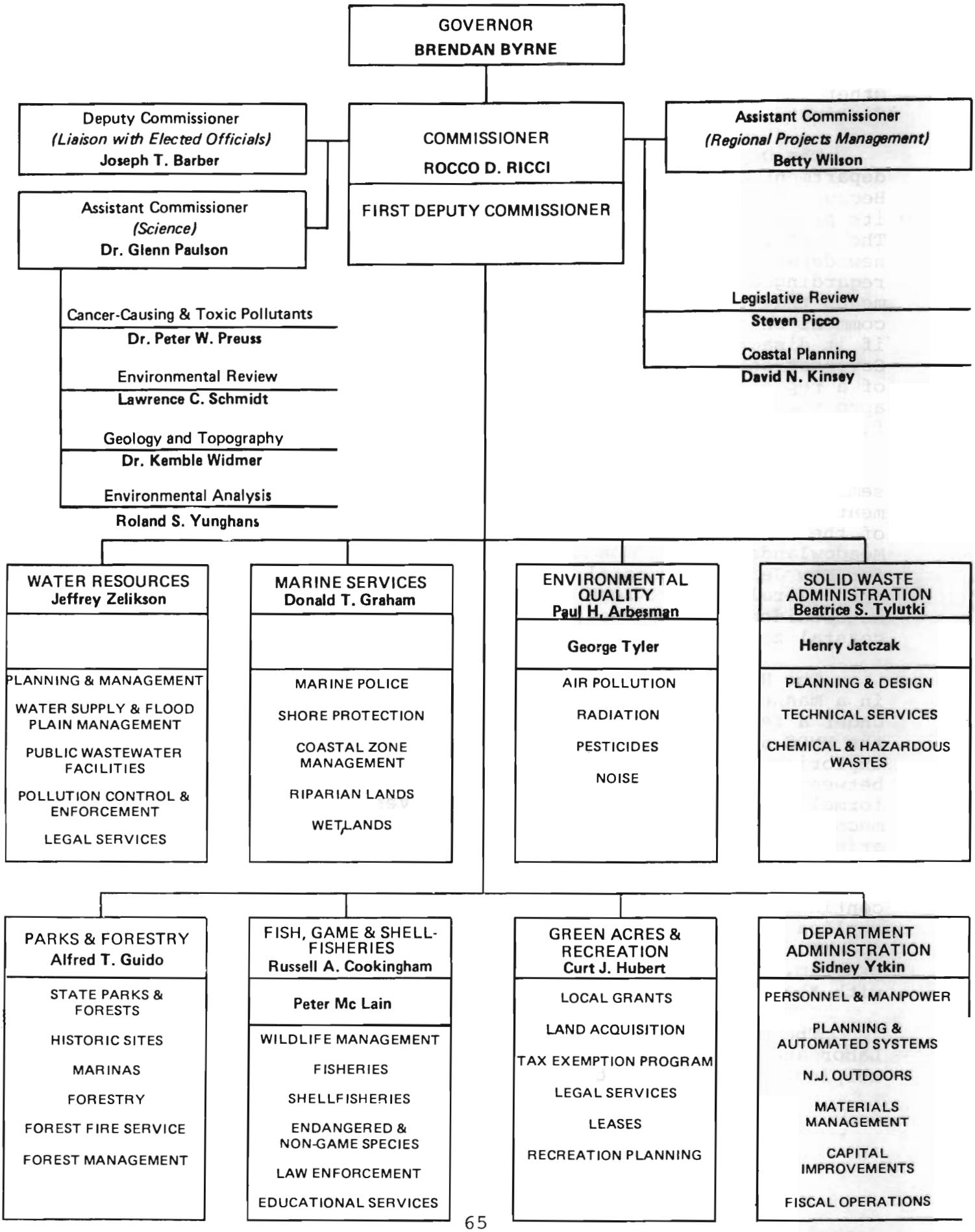
The Division of Water Resources in DEP will also play an important role in the implementation of the Strategy. This Division is responsible for water quality planning and maintenance, flood plain management and also administers the Stream Encroachment Act, and a number of other statutes related to water quality. These laws, to the extent statutorily permissible, will be administered with respect for the Coastal Policies in this Strategy.

Other State Agencies

While serving as the lead coastal agency, DEP will continue to work closely with other state agencies. The other departments with regulatory responsibilities to manage development in the coastal zone are the Departments of Agriculture, Energy, Community Affairs, and Transportation, and, on an advisory basis, the Department of Labor and

FIGURE 6

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
ORGANIZATIONAL CHART AS OF AUGUST 1, 1977



Industry. Each of these Departments also has a planning responsibility which is discussed in a later part of this section entitled "Relationship to Other Resource Management Plans". The Coastal Management Strategy will be the focal point for discussions between staff from DEP and from the other departments to determine how the related, though distinct, sets of coastal efforts can best be coordinated.

The Department of Energy will be the most significant department, other than DEP, in the management of the coast. Because the Department was only established July 11, 1977, its procedures and policies are not yet fully developed. The Department of Energy Act, however, makes clear that the new department will be considered a part of any decision regarding energy in the state. For the coastal zone, this means that the Department must have an opportunity to comment on any permit application pending before DEP, and, if it disagrees with the decision, it may request that the Governor establish an Energy Facility Review Board composed of a representative of each department plus a third member appointed by the Governor. The Review Board will make the final decision on the energy facility permit application.

The Department of Community Affairs (DCA), through its semi-autonomous agency, the Hackensack Meadowlands Development Commission (HMDC), oversees the planning and development of the Hackensack Meadowlands. Because at least part of the Meadowlands must be considered a part of the coastal zone for New Jersey's coastal program to receive approval under the federal Coastal Zone Management Act, HMDC's actions will be considered, in effect, the management of a part of the coastal zone.

The HMDC has operated since its creation in late 1968 in a manner largely consistent with the Coastal Policies. Under a federally approved coastal program in New Jersey, the HMDC and DCA roles would remain unchanged. DEP-OCZM is exploring preparation of a memorandum of understanding between the two departments (DEP-OCZM and DCA-HMDC) to formalize the common goals and objectives, and to outline a mechanism for resolution of specific conflicts which could arise.

DCA and the Department of Labor and Industry will continue to participate in the review of CAFRA permit applications. This participation has been part of DEP's operating practice since the beginning of the CAFRA permit program, although it is not required by law, as it is now with the new Department of Energy.

The Office of Business Advocacy in the Department of Labor and Industry plays a particularly important role in helping to guide industry to appropriate locations, during

the pre-application phase of the CAFRA permit process. The new Division of Travel and Tourism in the Department of Labor and Industry shares a common goal with DEP-OCZM in seeking to promote the resort and tourism industry of the coast.

Lastly, the location and operation of transportation and agriculture facilities in the coastal zone can be significantly affected by actions of the Department of Transportation and Agriculture respectively. The Department of Transportation administers permit programs for twenty-five roadway and roadway border construction activities. The Department of Agriculture, and DEP, acting through the State Soil Conservation Committee, administer the Soil Erosion and Sediment Control Act.

Relationship With Other Resource Management Plans

The Coastal Management Strategy is one of several resource management plans to be produced by agencies of the State of New Jersey. Other plans currently underway by agencies within the Department of Environmental Protection include the State Comprehensive Outdoor Recreation Plan (SCORP), Water Quality and Supply Plans, Flood Plains and Tidelands Delineation, Solid Waste Planning, and Air Quality Planning. An Energy Master Plan and a State Development Guide Plan are being developed by the Departments of Energy and Community Affairs respectively.

The staff of the Office of Coastal Zone Management has met with and shared work products with representatives of the other state agencies with planning responsibilities. The Coastal Management Strategy is one of the first major plans to be completed and, therefore, can serve as a focal point for more specific discussions to insure consistent and cooperative planning within the state. This section of the Strategy briefly summarizes the purpose of each of the major planning programs.

The New Jersey Comprehensive Outdoor Recreation Plan (SCORP), being prepared by the Green Acres Program in DEP, addresses the adequacy of open space for existing and projected demands, and the accessibility of recreation resources for all segments of the population. The plan will qualify New Jersey for funding under the Federal Land and Water Use Conservation Fund Program. SCORP will be presented to the Governor and will be made public at approximately the same time as the Coastal Management Strategy. In addition to studying recreation needs and uses, SCORP will also include inventories of federal, state, county, municipal and private recreation resources. The major policies in SCORP include emphasizing urban open space, recreation facility development, increasing public access to recreation resources through mass transit and developing barrier free recreation facilities.

Water quality planning is being conducted by planning boards in six counties and by the Division of Water Resources in DEP under Section 208 of the Federal Water Pollution Control Act. The plans will be completed between October 1977 and 1980 in different parts of the state. Through a federal agreement between the Department of Commerce and the Environmental Protection Agency, and through a working relationship at the state level between the Office of Coastal Zone Management and the Division of Water Resources, the policies of the two programs will be coordinated and made consistent. The water quality planning seeks institutional and technical alternatives to control and abate water pollution. The key policies of the program are to protect the sources of potable water supply, control toxic and hazardous substances, control pollution from area wide sources, and protect environmentally sensitive areas.

The Division of Water Resources is also responsible for supervising the development of a Water Supply Master Plan. The plan, financed by the State Water Conservation Bond Fund, will produce recommendations for water supply projects to meet the state's water needs. It will also include proposals for coping with drought conditions and other emergencies. The plan is expected to be completed by Spring 1979.

The Solid Waste Administration (SWA) in DEP is responsible for the development of a statewide plan to maximize use of resource recovery and minimize the adverse environmental impacts of solid waste. The state has been divided into twenty-two districts (21 counties and the Hackensack Meadowlands Development Commission). Each district is responsible for developing a ten-year plan to meet the solid waste needs for each municipality within the region. The SWA is responsible for coordinating the district planning through the development of a statewide plan and for providing guidelines, especially in the area of hazardous waste, for use by the twenty-two planning districts. The SWA will develop its final guidelines and criteria for district planning by January 1978.

The Bureau of Air Pollution Control in DEP's Division of Environmental Quality has enacted and is developing programs to attain National Ambient Air Quality Standards, under the requirements of the federal Clean Air Act. The attainment of standards for photochemical oxidants for the entire state, for carbon monoxide in central business districts, for particulates in Camden and Jersey City and the maintenance of clean air levels throughout the state are the major problems to be addressed. The strategies for the attainment of standards and the analysis of maintenance issues are expected to be submitted to EPA by Spring 1978.

The Tidelands Delineation Program, conducted by the Office of Environmental Analysis, under the direction of the Office of DEP's Assistant Commissioner for Science, is a multi-year project to map the extent of State-owned tidelands by delineating the mean high tide line. The program will require several years to complete because of the complex issues of land ownership to be resolved.

State agencies outside DEP have other planning responsibilities. The recently-established Department of Energy must complete an Energy Master Plan by July 1978. This plan will consider the production, distribution, consumption, and conservation of energy in the state.

The Department of Community Affairs (DCA) is developing a State Development Guide Plan under the provisions of the Federal Housing and Community Development Act and under the general authority that established the Division of State and Regional Planning in DCA. The major policies determined to date are to maintain the quality of the environment, preserve the open space necessary for an expanding population, provide space and services to support continued economic expansion and enhance the quality of life in urban areas. The State Development Guide Plan is scheduled for completion at approximately the same time as the Coastal Management Strategy.

Local Government, Regional, and Interstate Agency Role

Municipal and county governments, and regional and interstate agencies have significant planning and, in some cases, regulatory roles in the coastal zone. These responsibilities are not formally affected by the Coastal Management Strategy.

This formal relationship will hopefully continue to spawn more cooperative state-local and state-regional relations. DEP will work to widely publicize the Coastal Policies and to encourage their adoption in county and municipal master plans and zoning ordinances, and in regional plans. In addition, DEP-OCZM will work directly with local governments and regional planning agencies to determine how best to share the considerable amount of data generated already and anticipated in the future under the coastal zone management program. DEP will also continue to share information on individual project applications with the appropriate local governments and regional agencies. These efforts will aim to increase understanding and to minimize conflict.

Municipal and county land use authority will continue without change under the Coastal Management Strategy. Development proposed in the coastal zone will be subject to all applicable local regulations as well as to state stan-

dards or permits. A locally approved proposal cannot be constructed without receipt of relevant state approvals, and likewise, a State-approved project must receive appropriate local approvals.

Federal, state and local agencies are not the only governmental groups concerned about New Jersey's coastal zone. At least thirteen interstate and regional agencies have jurisdictions which include part of the coastal zone. Some have largely a planning and advisory function, while others have significant decision-making responsibility.

The planning agencies and organizations include the Wilmington Metropolitan Area Planning Coordinating Council (WILMAPCO), Tri-State Regional Planning Commission, and the Delaware Valley Regional Planning Commission (DVRPC). These groups have professional planning staffs and a strong interest in the future of the Delaware, Pennsylvania, New Jersey, and New York region. DEP-OCZM will continue to solicit and welcome their comments and advice.

Other agencies with administrative and regulatory responsibilities will be more formally integrated into the implementation of the Strategy. Memoranda of understanding between DEP-OCZM and selected regional agencies may be desirable or necessary to insure consistency between state and regional coastal policies. These agencies include the Port Authority of New York and New Jersey, Interstate Sanitation Commission, Palisades Interstate Park Commission, Delaware and Raritan Canal Commission, Delaware River and Bay Authority, South Jersey Port Corporation and Delaware River Basin Commission. As appropriate, specific agreements will be made with each agency.

Federal Role

Successful management of New Jersey's coastal zone depends upon continuing coordination between DEP and the many federal agencies with an interest in the coastal zone. The form of this coordination after the Coastal Management Strategy is approved by the U. S. Department of Commerce will be different from the form in the planning period.

State-federal relations during the three year planning period have been characterized by an increasing two-way sharing of information and opinions. The twenty-nine potentially relevant federal agencies (See Appendix 7) will be asked to comment on New Jersey's coastal program to be submitted under the federal Coastal Zone Management Act. An agency may raise objections to a state's program before the Secretary of Commerce approves the program. The Secretary may accept or overrule the federal agency comments.

After New Jersey's coastal program is approved by the Secretary of Commerce, the "federal consistency" provisions of the Coastal Zone Management Act require Federal agencies to administer their activities, regulatory functions, and assistance programs to state and local governments in a manner consistent with the state program. While gaining an understanding of federal involvement in the coastal zone, DEP-OCZM is working with federal agencies to develop a process for state review of federal actions.

An inconsistent determination by the state agency is not necessarily the final word. A federal agency can appeal a state's ruling to the Secretary of Commerce on the grounds that the proposed federal action is consistent with the objectives of the federal Coastal Zone Management Act or is necessary in the interest of national security.

Federal actions potentially affecting the coastal zone include activities and development projects such as national parks and highway construction, permits and licenses for activities such as dredging and the siting of nuclear power plants, and federal assistance such as grants for watershed protection and flood prevention.

New Jersey will work with federal agencies to insure that actions taken under relevant federal programs are consistent with the Strategy. Appendix Seven includes a list of major federal actions affecting the coastal zone.

The next step in state-federal coordination is the establishment of workable organizational arrangements for "federal consistency". The state review procedures will vary depending on the type of federal action. DEP-OCZM will monitor direct federal activities and assistance programs through the existing Office of Management and Budget (O.M.B.) Circular A-95 Project Notification and Review process. For some federal activities, DEP-OCZM will receive project notification through the National Environmental Policy Act (NEPA), Environmental Impact Statements or public notice requirements such as the Corps of Engineers notices. For those agencies or projects which do not use the A-95 review process or send public notice, the State will request project notification as part of the federal agency's procedure when undertaking any activity in and/or directly affecting the coastal zone.

To ensure state review of applications for federal permits and licenses, DEP-OCZM intends to circulate, among all federal, state, and local government agencies and other prospective applicants, a list of federal permits and licenses which must be certified as consistent with the approved Coastal Management Strategy prior to submission of

the permit application to the federal agency. Where a CAFRA, Wetlands, or Waterfront Development (riparian) permit is required, issuance of the permit can substitute for certification. For those federal actions not included in any of the above mentioned procedures, alternative means will be devised.

While the consistency provisions of the federal Coastal Zone Management Act were written to incorporate federal actions into the coastal management program, an opinion by the U.S. Attorney General has interpreted a provision of the Act to mean that all lands owned by the United States are excluded from a state's coastal zone. The consistency provisions do, however, give the State authority to require federal agencies conducting activities with spill-over impacts beyond the excluded land, to conduct such activities in compliance with the approved state program.

Major federal land holdings in the coastal zone include Fort Dix, Lakehurst Naval Air Station, Barnegat and Brigantine National Wildlife Refuges, the Army Corps of Engineers Pedricktown Disposal Area, and Gateway National Recreation Area at Sandy Hook. A list of major federal lands in the New Jersey coastal zone is included in Appendix Seven.

The federal Coastal Zone Management Act includes several other provisions which will be part of the Management System of the Strategy. In addition to the funding for planning which New Jersey has been receiving and the funding for administration New Jersey will receive after its coastal program is approved by the Department of Commerce, the Federal Act as amended provides funding for a "Coastal Energy Impact Program" and "Shorefront Access Acquisition." The Act also offers New Jersey the opportunity to designate an Estaurine Sanctuary.

Lastly, the federal role in the Management System may include the designation of Marine Sanctuaries under Title III of the Marine Protection, Research and Sanctuaries Act of 1972. This Act authorizes the Secretary of Commerce to designate as Marine Sanctuaries areas of ocean waters (up to tidal limits) for the purpose of preserving or restoring them for their conservation, recreation, ecological or esthetic value.

State designation of an area will not preclude all development, but rather is intended to assure that any allowed uses are compatible with the existing value of the area. DEP-OCZM has submitted a list of recommended potential sites for federal consideration, and plans to work with NOAA in the Department of Commerce during and after the site selection process.

Conclusion

The Management System of the Coastal Management System relies entirely on existing state legislation for its authority. This legislation will apparently be sufficient for New Jersey to receive program approval from the Department of Commerce under Section 306 of the federal Coastal Zone Management Act. In the future, however, it may be desirable to consider legislative reforms to combine and simplify coastal permit programs, and to delegate to county or municipal governments specified state coastal regulatory responsibilities.

Section Five: NEXT STEPS IN COASTAL MANAGEMENT

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The Coastal Management Strategy is a major, but far from final, step in the management of New Jersey's coast. This section describes the uses which will be made of the Coastal Policies, how the Strategy will be made operational and the next coastal planning tasks.

Uses of Coastal Policies

New Jersey's Coastal Policies will serve four major purposes, guiding four kinds of decision-making:

(1) regulatory
(2) consistency
(3) funding
(4) planning and advocacy

First, the Coastal Policies will serve as the standards to determine the permissibility of proposed activities and developments that come under the regulatory scope of the program. Most regulatory determinations will be made by a permit application process. The coastal policies will also guide the definition of regulations that establish performance standards. The primary use of New Jersey's coastal policies will be for regulation.

Here is an example of a use of a policy in a regulatory situation. Assume the following policy: "Development may cause only minimal feasible interference in scarce, rare or endangered wildlife habitats". Applying this standard, the coastal agency then approves a permit for construction of a subdivision whose site plan scrupulously avoids a special on-site wildlife habitat and controls disturbance in a surrounding buffer area.

Second, the Coastal Policies will serve as the standards to determine the consistency of proposed actions with the Strategy. Two forms of "coastal consistency" are built into the structure of the national program of coastal zone management. New Jersey's coastal policies will be used to determine the consistency with the approved Strategy, of federal activities, development projects, licenses, permits, and financial assistance to the State and local governments under Section 307 of the Coastal Zone Management Act. A coastal consistency determination will also be made on contemplated uses of financial assistance under the Coastal Energy Impact Program, created under Section 308 of the Coastal Zone Management Act, as amended in 1976.

Also, the state coastal agency may be called upon to use these policies for A-95 reviews of federal assistance applications and review of Environmental Impact Statements prepared under the National Environmental Policy Act. From time to time, the state coastal agency is also likely to receive requests for advice or comments on the adequacy or appropriateness of plans and proposals by government agencies and private interests; the coastal policies provide a visible basis for offering an informed comment on the consistency of these plans and proposals.

Third, funding decisions that affect coastal resources may also be guided by coastal policies. In particular, three state aid, direct state financing, and state assistance programs administered by DEP involve coastal decision-making:

(1) The Green Acres Open Space Acquisition and Outdoor Recreation programs of grants to local governments and direct DEP efforts,

(2) The Shore Protection program of matching grants to local governments, and

(3) The New York Harbor Cleanup Program of grants for clearing the waterfront of derelict wharfs and debris. This program is currently underway largely with Federal funding, and scheduled for considerable expansion subject to passage of a bond issue in November 1977.

Also, coastal policies may guide decisions on applications for Shorefront Access funds authorized by Section 315 of the Coastal Zone Management Act, as amended.

Fourth, planning and advocacy actions by the state coastal agency will be guided by coastal policies. The state coastal agency should continue to monitor coastal concerns and take an active role in promoting the interests of the coast.

For example, New Jersey's Beach Shuttle Experiment in the summer of 1977 was a demonstration project to explore the feasibility of increasing public access to barrier islands without relying upon increasing individual passenger car traffic. In this manner, one aspect of a general policy on public access to the coast was carried out.

Refinements and further detailing of the Strategy will also take the defined coastal policies as a starting point. The brief recent history of coastal zone management in New Jersey suggests that new issues may arise quickly, and place new pressures on coastal resources. The DEP-OCZM's present activities concerning casino gambling in Atlantic City, as well as the onshore challenge of coping with oil and gas exploration off New Jersey's coast, represent the type of planning and advocacy actions that should continue under an approved Strategy.

Making the Strategy Operational

Much of the substance of the Coastal Management Strategy has been adopted as operating policy of the Office of Coastal Zone Management as it was developed. The Interim Land Use and Density Guidelines for the Coastal Area, for example, though narrower in scope and much less specific in detail, placed into the CAFRA permit application review process many of the concepts advanced in the Strategy. Similarly, the pre-application conference has been recommended to CAFRA, Wetlands and riparian permit applicants for several years.

The completion of this Coastal Management Strategy, therefore, will not mark a sharp break with the past. CAFRA permit applicants, for example, will still be able to rely upon the Interim Guidelines as indicative of DEP policy, but the Strategy will provide them with further detail and insight into the policies. One important DEP project during the next year will be preparation of a Developer's Handbook which will replace the Interim Guidelines, by describing and detailing the policies and procedures of the Strategy in a format which can be used quickly and easily by developers, municipal officials, state permit review staff, and interested citizens. In addition, the Coastal Policies may be incorporated into revised Rules and Regulations for CAFRA.

Next Coastal Planning Tasks

The next steps in coastal planning begin with the public meetings DEP-OCZM will convene throughout the coast to discuss this Strategy. The meetings will be part of a process of reviewing and revising this document. During this winter, DEP will then recommend that the Governor submit to the National Oceanic and Atmospheric Administration (NOAA), New Jersey's Coastal Zone Management Program for the CAFRA segment. In January, 1978, DEP-OCZM expects to receive its fourth year of planning funds from NOAA-OCZM, and during the following year the state will prepare and submit for federal approval a management program for the other parts of the coastal zone.

Coastal Zone Management in New Jersey must be a continuing process. The submission of this Coastal Management Strategy to the Governor and Legislature is an important milestone, but it does not signal completion of the task. To some extent, the next steps in coastal planning must be directed toward preparation of New Jersey's submission of a management program for the CAFRA area and for the other parts of the coastal zone. At this point, however, it is appropriate to begin looking past the deadlines for formal program submissions to some of the tasks New Jersey will be able to undertake both during the next year and under a federally-approved New Jersey Coastal Zone Management program.

The next tasks described in this section include both the continuation of efforts already begun, as well as the initiation of new projects. This section, perhaps more than any other part of the Strategy, is likely to be significantly revised and expanded.

The next tasks are organized, for the purpose of discussion, into seven groups: Coastal Location Acceptability Method (CLAM), Mapping, Developers' Handbook, State-Local Relations, Management System, Coastal Awareness, and Selected Issues in Coastal Zone Management. In general, future coastal zone management efforts in New Jersey will build on the work already done to make policies more specific, to make them readily understandable through publications and maps, and to implement them through increasingly straightforward procedures based on increasing state-local cooperation.

1. Coastal Location Acceptability Method

The Coastal Location Acceptability Method (CLAM) introduced in the Coastal Policies section is an ambitious and potentially detailed aide to coastal decision-making. As presented in the Strategy, CLAM can now be used to guide coastal decisions. The "Estuarine", "Potential", and "Socio-Economic Impacts" analyses described in Section Three, however, will enable DEP to use CLAM to formulate increasingly specific coastal policies which can be used in advance of specific permit applications or funding requests.

2. Mapping

Few states are small enough to allow for the responsible mapping of a coastal zone management program at a scale equivalent to municipal zoning maps. Yet statewide maps in New Jersey can be an invaluable tool for appreciating the location and distribution of coastal resources, and the implications of certain coastal policies.

DEP-OCZM will undertake three mapping programs during the next year. The maps, at scales of 1:250,000, 1:100,000, and 1:24,000, will chart natural, social, and economic features of the coastal zone. The resulting series of maps will show the spatial distribution of many of the generic land and water types and uses noted in the Coastal Policies Section. The maps will be made available for public use.

3. Developer's Handbook

This Strategy and most coastal zone management publications are written for a diverse audience. As New Jersey's coastal program becomes firmer and more specific, it will be appropriate to prepare a handbook for developers, and others such as local officials and interested citizens, who will have to work with the program on a day-to-day basis.

The handbook would use the results of the Coastal Location Acceptability Method studies to indicate specific policies and performance standards. In addition, the handbook would provide advice to developers on effective ways to build acceptable development in the coastal zone. Furthermore, a major focus of the handbook would be a description of available techniques to promote energy conservation. Some of the advice would be in the form of a reference, such as a list of businesses which supply solar heating units or pervious paving, while others would include specific information, such as energy-conserving site designs.

One major part of the developer's handbook would be based on a study of settlement patterns. This study would emphasize examination of the environmental impacts and the marketability of cluster housing both in New Jersey and elsewhere. The study would be designed to bring to the attention of developers settlement patterns, perhaps rare or unfamiliar in the New Jersey coastal zone, which have been proven elsewhere to be both economically sound and environmentally sensitive. The study would recommend actions by state agencies and by private developers to increase the acceptability of cluster housing in New Jersey.

4. State-Local Relations

A major goal of the Coastal Management Strategy is to increase coordination on coastal decision-making between state and local governments. During the next year, efforts to achieve this goal will focus on increasing the role of counties in coastal planning.

DEP-OCZM plans to offer continued funding beginning in January 1978 passed through from NOAA-OCZM, to coastal counties on a contractual basis. The contracts would build from the similarly-funded county work on energy facility siting being conducted in 1977. Although the scopes of the contracts will be arranged with each participating county, the general framework is that each county would designate a staff member to analyze the Strategy in terms of county needs and in terms of the plans and ordinances of each affected municipality. The county representative would make recommendations for resolving any identified conflicts. In addition, the county representative would serve as a regional information officer for DEP-OCZM, explaining coastal management policies and plans, and distributing, and perhaps writing, relevant publications. The county representatives will also evaluate the current state-local coastal decision-making process, and perhaps recommend changes. Lastly, each county representative would provide a county viewpoint on each local CAFRA, Wetlands and riparian permit application.

5. Management System

The design of a clear, comprehensive and coherent system to implement the Strategy will be a primary goal of DEP-OCZM during the next year. This will involve examination both of existing laws and programs, and of the possibility of creating new coastal legislation to determine how the needs and opportunities of the coastal zone may best be addressed.

6. Coastal Awareness

Coastal zone management has an educational function as well as the better known regulatory role. A citizenry aware of the attractions, opportunities, fragility, and importance of the coast will lead to effective management in the long run.

DEP-OCZM will continue the coastal information series which produced four publications in the past year. The series may use a variety of formats to explore and explain natural and coastal resources and issues of concern in the management of the coast. One specific publication to be revised for 1978 is the "Guide to New Jersey's Beaches" distributed this summer.

In addition, during the next year, DEP-OCZM will prepare a portable display on coastal zone management in New Jersey for exhibit at shopping malls, libraries, fairs, boat shows, and other public events.

7. Selected Issues in Coastal Zone Management

DEP-OCZM plans to refine and further explore each issue discussed in the Strategy. This section lists five of the issues for which relatively specific plans have already been formulated.

7a. ENERGY: During the next two years, DEP-OCZM, working with the Department of Energy, will develop coastal siting criteria and lists of suitable sites for energy facilities, including nuclear plants, conventional power plants, LNG plants, and OCS facilities. This work will grow from the considerable energy research already underway through DEP-OCZM staff, and under contract by county planners and university researchers. DEP-OCZM's energy planning contracts with coastal counties will be continued in 1978 to permit implementation of findings and policies developed in 1977. One final product should be an energy handbook incorporating specific siting criteria and permit requirements.

7b. TOURISM: Although tourism is the second largest industry in New Jersey, surprisingly little is known about it. Efforts to maintain and enhance the industry must often, therefore, be based largely on intuition. DEP-OCZM, in coordination with the new Division of Travel and Tourism in the Department of Labor and Industry, plans to gather more information on tourism using previous research and staff work or an outside consultant. The study would seek to learn what attracts visitors and how more could be attracted, and the impacts tourism has on New Jersey socially, as well as economically and environmentally. For example, one question which must be answered is whether many summer employees of tourism-related business choose, or are forced to accept, unemployment for close to two-thirds of the year.

7c. BOATING: Recreational boating is increasingly popular in New Jersey and nationally, and the need for boating facilities grows accordingly. DEP-OCZM proposes a study of recreational boating to determine the need for additional or upgraded marinas and other facilities and the criteria which should be used in their siting.

7d. ATLANTIC CITY: Atlantic City, with its ocean, sunbathing and swimming, boardwalk, and amusement area, and pressures for energy facility development and casino gambling, offers a laboratory of conflicting pressures in the coastal zone. DEP-OCZM will shortly produce a report describing and supporting coastal policies addressed specifically to development in Atlantic City. In addition, DEP-OCZM will continue to work closely with City and County officials and the City's team of planning consultants in the belief that the wise redevelopment of Atlantic City is important to the future of the coastal zone both directly and as a model for other areas facing similar, though less severe, conflicts.

7e. BEACH AND WATERFRONT ACCESS: DEP-OCZM will continue to support and, where feasible, initiate efforts to promote access to beaches and other waterfront areas. The Office will seek the role of a catalyst in insuring that the work of the Legislative New Jersey Beach Access Study Commission is carefully reviewed, and that the highly successful demonstration Beach Shuttle service to Island

Beach State Park is continued and expanded. In addition, DEP-OCZM will determine the best use of Shorefront Access funds to be made available by NOAA-OCZM after New Jersey's coastal program is approved.

Conclusion

The specific items noted in this section on Next Coastal Planning Tasks are but a sampling of what coastal zone management in New Jersey will be doing in the coming year. DEP-OCZM will prepare and publically distribute two documents this winter which will provide a more complete and detailed description of the next steps in coastal zone management.

First, DEP will ask the Governor to submit to NOAA-OCZM a revised edition of this Strategy for program approval for the CAFRA Segment of the coastal zone. Second, DEP-OCZM will prepare a grant application to NOAA-OCZM for fourth year coastal zone management funding to begin January 1978. The grant application will include a detailed listing of all tasks and projects to be undertaken during the next year, including an identification of their estimated cost.

Section Six: CONCLUSION-IMPLICATIONS OF THE COASTAL MANAGEMENT STRATEGY

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The New Jersey coastal zone management program is designed to have very real impacts on the coast. If the program is successful, the coast will be different than it would otherwise have been. This section of the Coastal Management Strategy provides an early estimation of its implications by first explaining how the Management System works, second describing the changes in the ground rules for coastal development, third exploring the effects of the Strategy on people and property values in the coastal zone, and last describing a vision of the future built and natural environment of the coast.

How The Coastal Management System Works

The Coastal Management Strategy, to some extent, presents policies and procedures which evolved in recent years through the administration of the three coastal permit programs, CAFRA, Wetlands, and Riparian. Developers are encouraged to meet with DEP staff for a "Pre-application Conference" when their plans are still flexible, so that they may discuss the relative merits of several alternative development schemes before they become locked into one set of plans. Similarly, developers are encouraged to consult with DEP staff at or before the time they meet with local officials.

Application for any of the three coastal permits must be accompanied by an evaluation of the project's impact on the environment, typically in the form of an Environmental Impact Statement (EIS). The level of detail required in the EIS varies, depending upon the nature and location of the proposed development. Once a permit application is submitted, it is reviewed by the appropriate office in the Division of Marine Services and by other appropriate state agencies subject to the Rules and Regulations adopted for each permit program. The application is also shared with municipal and county agencies. The application will now be reviewed on the basis of the Coastal Policies in Section Three of the Strategy.

All CAFRA permit applications, and major Wetlands and Riparian permit applications, are then discussed at a public hearing. For CAFRA applications, a written staff Preliminary Analysis is shared with the applicant prior to the hearing. After the public hearing and after the receipt of all requested information from the applicant, the Director of the Division of Marine Services makes the final decision.

Decisions of the Department can be appealed. All CAFRA permit decisions can be appealed to the DEP Commissioner or

to the Coastal Area Review Board composed of the Commissioners of Community Affairs, Environmental Protection, and Labor and Industry. Waterfront Development (riparian) permit decisions by DEP can be appealed to the Natural Resource Council. In addition, all decisions regarding energy facility siting can now be appealed by the New Jersey Department of Energy to a review board composed of representatives of each Department and a third member appointed by the Governor. Beyond those administrative appeals, permit decisions can be appealed to the Appellate Division of Superior Court.

The Strategy will also guide DEP funding decisions and recommendations affecting the coastal zone. Green Acres projects in the coastal zone and Shore Protection projects, for example, will all be evaluated in terms of their consistency with the Coastal Policies. (See "Uses of Coastal Policies" in Section Five: NEXT STEPS IN COASTAL MANAGEMENT).

Changes in Ground Rules For Coastal Development

The Coastal Management Strategy will have implications on what, where and how development is located in the coastal zone. The pattern of development in the coastal zone has not always met the Basic Coastal Policies or the more specific Coastal Policies identified in this Strategy. Simply stated, most new development in the coast will have to be concentrated rather than dispersed, and built in a way that respects the coastal ecosystem.

This section includes on the following pages depictions of the implications of selected coastal policies.

People and Property - Effects of the Coastal Management Strategy

The value of property in the New Jersey coastal zone will be affected by the coastal zone management program. Although the exact changes are impossible to predict, certain trends can be anticipated. In the short term, land on which further development is discouraged by the Strategy is likely to decrease in value, while the price of land on which development is encouraged will probably rise. Examples of these patterns in New Jersey can already be seen in the wetlands, where the resale price declined markedly after passage of the Wetlands Act of 1970, and in Atlantic City where land values have risen dramatically after passage of the Casino Referendum in November 1976.

In the long term, the effect of coastal zone management on property value is even harder to predict. Property values which initially fall in preservation areas may later rise on selected sites either as the value of proximity to the surrounding areas are more widely appreciated through, for example, an increase in New Jersey's attraction as a tourist resort, or as acceptable development techniques become economically feasible.

Figure 7a: Recommended Changes in Coastal Development

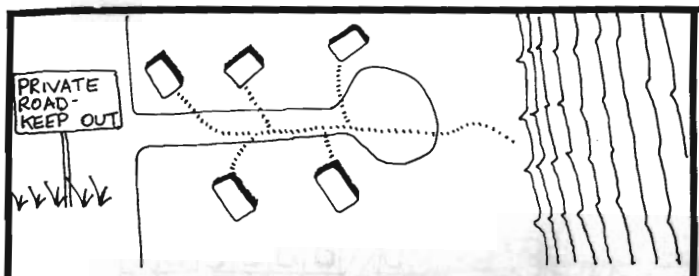
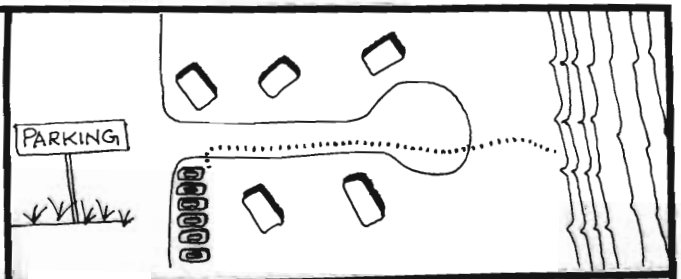
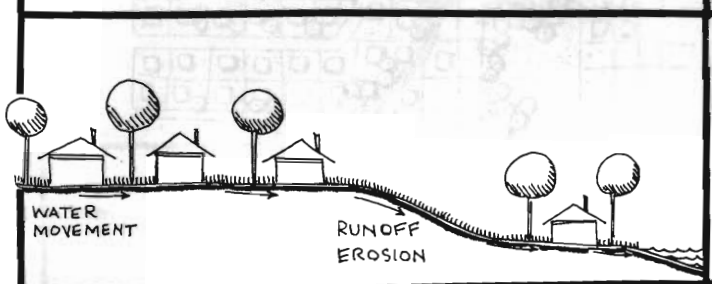
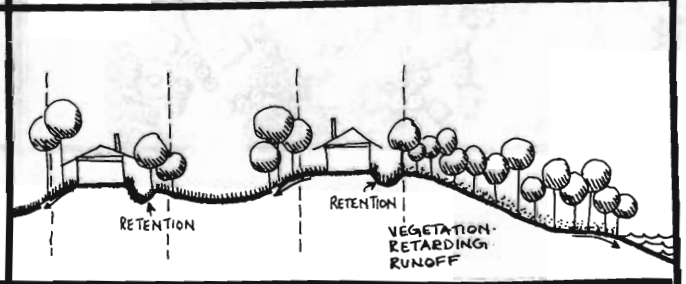
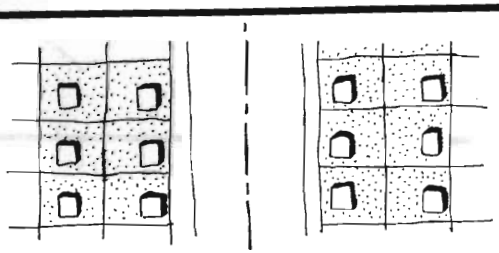
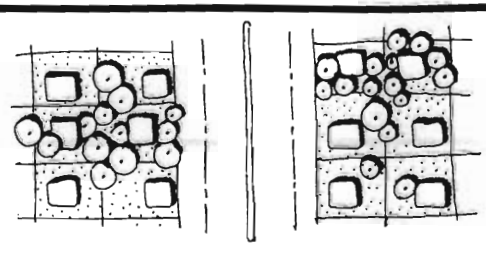
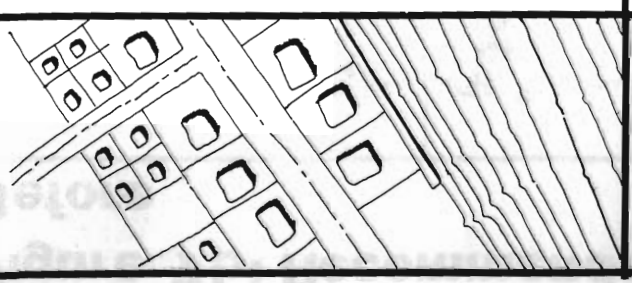
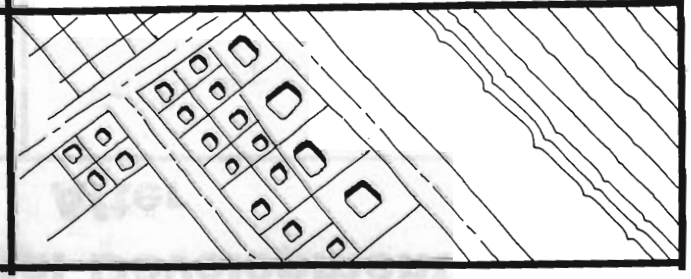
Before	Policies	After
	SHOREFRONT ACCESS: Public and private actions and development adjacent to coastal waters must provide for public access to the shorefront, including both beach and built-up waterfront areas. The term "access" includes visual access meaning the maintenance of waterfront views, direct physical access, and the indirect accessibility which can be provided by mass transit and appropriate supporting facilities such as hotels, campgrounds, and public bathhouses.	
	RUNOFF AND EROSION: Mainland coastal development will not be permitted to increase the amount of runoff beyond that which would be expected under natural conditions of forest and soil cover, to the maximum extent practicable. Special precautions shall be taken in highly permeable soils near surface water bodies or wells so that contamination does not take place. Coastal development will be encouraged to restrict soil loss during both construction and operation to the amount which would be expected under natural conditions of forest, slope and soil, to the maximum extent practicable.	
	VEGETATION: Coastal development shall allow for the preservation of existing vegetation and the planting of new vegetation, to the maximum extent practicable.	
	SHORE PROTECTION: Both structural and non-structural solutions for managing shoreline sand movement shall be encouraged. First, structural solutions--such as the construction of groins, jetties, and seawalls--shall be encouraged where essential to protect highly built-up shorefront and public recreation beach areas, and where interruption of the littoral drift will not create unreasonable net adverse environmental impacts along the shoreline. Second, non-structural solution--such as limiting development adjacent to eroding beaches, and undertaking beach nourishment projects--shall be encouraged.	

Figure 7b: Recommended Changes in Coastal Development

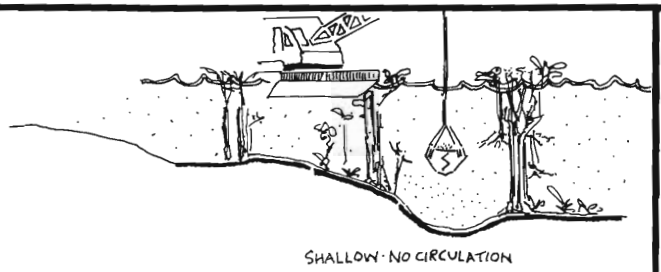
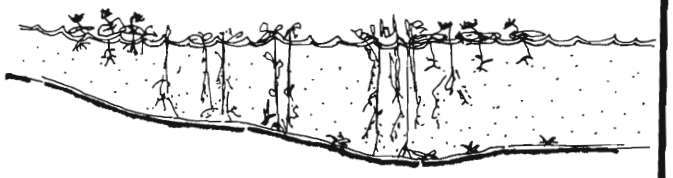
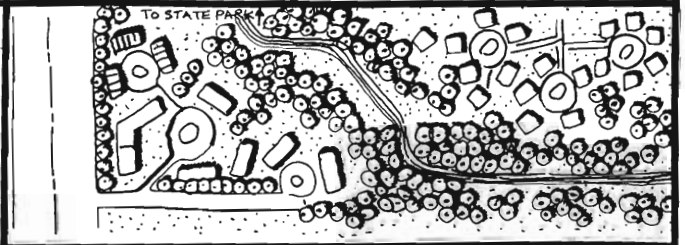
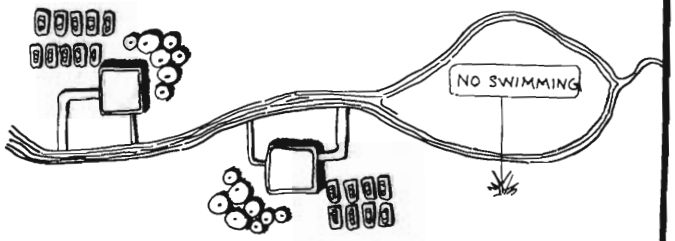
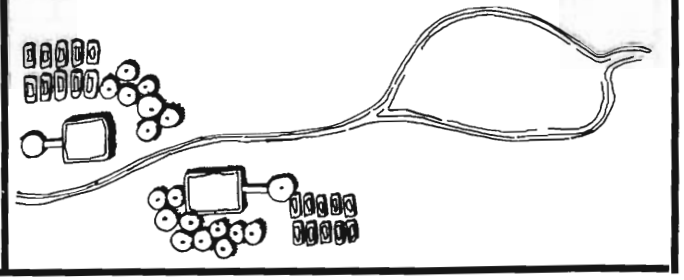
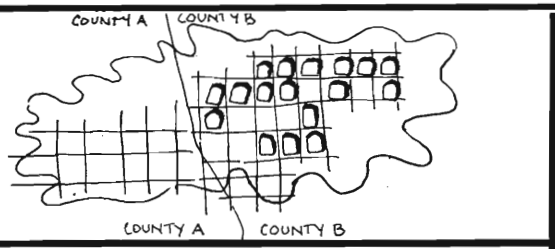
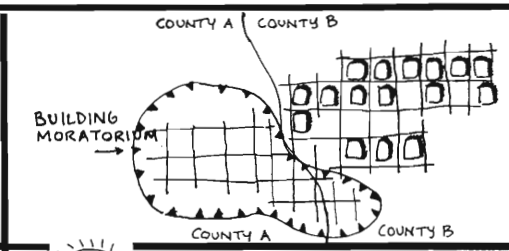
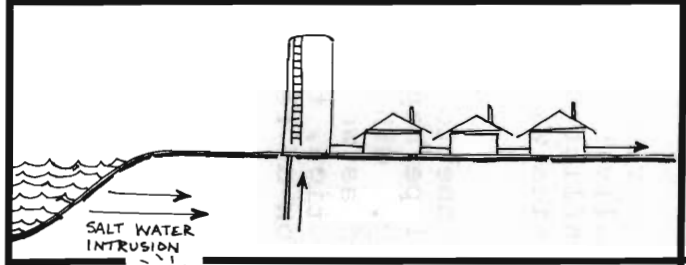
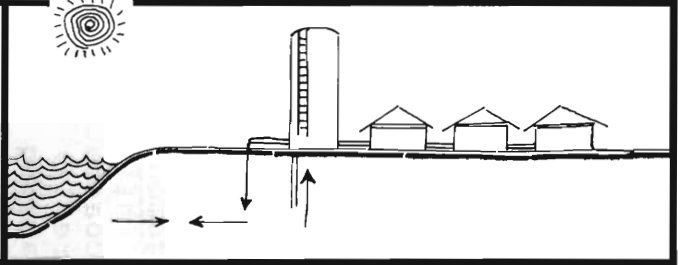
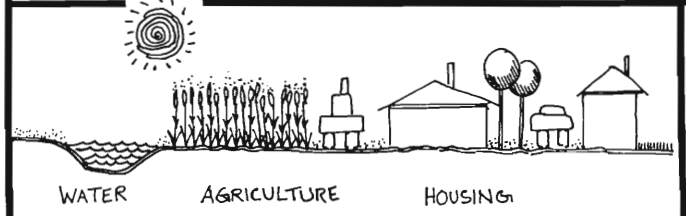
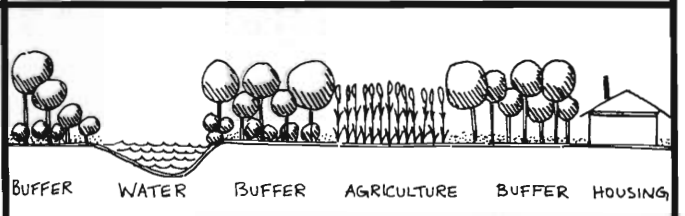
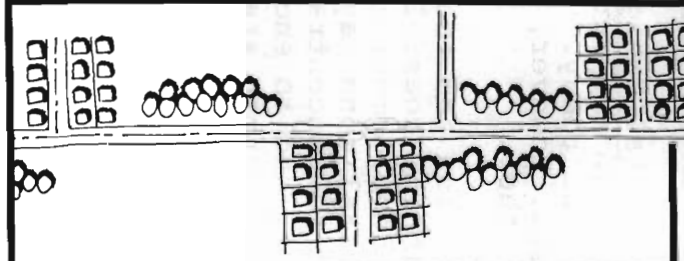
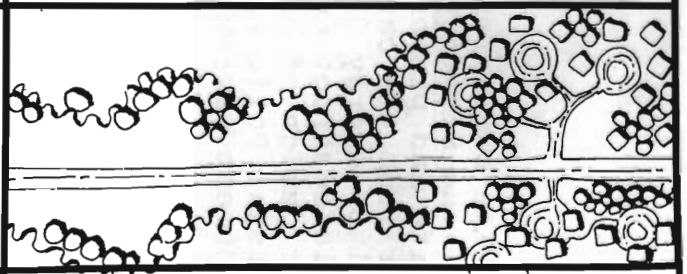
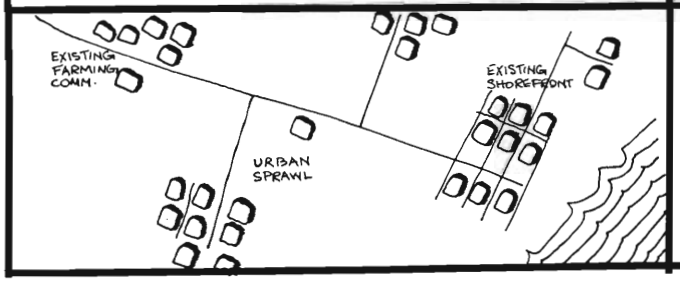
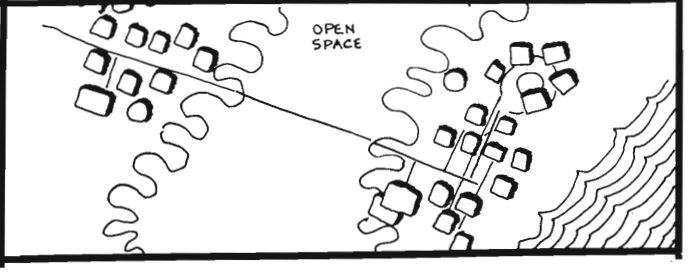
Before	Policies	After
	DREDGING AND DREDGE SPOIL DISPOSAL: Maintenance dredging of existing navigation channels currently in use is encouraged. New dredging shall only take place in those water types in which bottom disturbance is acceptable according to the Coastal Location Acceptability Method (CLAM). In these cases, oxygen, sediment and toxic pollutant levels are maintained during and after dredging. Subaqueous disposal of dredge spoil is generally discouraged, except in limited areas where the disposal technique would not cause significant adverse impacts on the immediate coastal waters.	
	COASTAL APPEARANCE AND DESIGN: New coastal developments shall be visually compatible, in terms of scale, height, materials, color, texture, and geometry of building and site design, with sourrounding development and coastal resources to the maximum extent practicable.	
	WILDLIFE MANAGEMENT: The design of coastal development shall incorporate management techniques which facor or maintain native animal species habitat, diversity, and numbers to the maximum extent practicable.	
	EFFLUENT DISCHARGE: Coastal development shall not discharge toxic or hazardous substances, such as industrial wastes, and radioactive materials, into fresh and salt water bodies, including groundwater, in the coastal zone. Coastal developments shall conform with all applicable effluent standards.	

Figure 7c: Recommended Changes in Coastal Development

Before	Policies	After
	AIR: Coastal development shall conform with all applicable emissions regulations, ambient air quality standards and deterioration criteria.	
	WATER USE: Proposed coastal development shall demonstrate that anticipated demand for water will not cause unacceptable ground of surface water disturbance. Disturbances of concern shall include saline intrusions into fresh water aquifers, lower water levels, and alteration of surface water bodies.	
	BUFFERS: Developments in the coastal zone must include undeveloped vegetated buffer areas of appropriate size to protect sensitive natural features, screen impacts and separate incompatible uses. In some cases, buffers shall be required to keep sufficient distance between conflicting human activities, such as agriculture and housing or recreation and heavy industry.	
	SETTLEMENT PATTERNS: Coastal development which increases the intensity of use in existing urban centers, or fills in areas of ~~sprawled~~ settlement with clustered settlement is encouraged. Traditional subdivisions and settlement sprawl which make inefficient use of the land either at site or at regional scale, are discouraged.	
	ENERGY CONSUMPTION: Coastal development that uses building design, construction techniques, site design, and regional development patterns that conserve energy shall be encouraged.	

The wise and careful use of coastal resources, encouraged throughout the Strategy, is likely to prevent the disastrous loss of life and property which can result from coastal storms, or from the careless design or planning of major industrial or energy facilities. In addition, the slower, more subtle destruction of property caused by the improper placing or design of development will be lessened by adherence to the Coastal Policies outlined in Section Three and through the development review process described in Section Four.

In conclusion, the Coastal Management Strategy will be added to the countless factors which influence the value of property in the coastal zone. Most coastal land owners will probably notice no change, and few are likely to experience hardship. The continuing coastal planning efforts will work to mitigate any hardships to individuals which do arise as a result of the Strategy. For example, the expansion of the joint DEP-Department of Agriculture Farmland Preservation project for the acquisition of development rights in Burlington County to other agricultural areas in the coastal zone might assist those farmers whose land may have a lower resale value for development purposes as a result of the policy in Section Three encouraging maintenance of agricultural lands.

While the Coastal Management Strategy will have varying effects on individual land owners, it is designed to have a net positive impact for this and future generations by accommodating needed development while maintaining the open spaces and natural features and areas which make the coast an attractive place to live, work and visit.

The Built and Natural Environment of the Coast

This Coastal Management Strategy envisions a future coastal zone of New Jersey with virtually the same activities as are present today. To minimize conflict between noncompatible uses, however, similar activities will be located near each other.

Recreation and tourism will continue to be the largest industry in the coastal zone, and will perhaps expand as a result of development in Atlantic City. Other urban areas in the coastal zone may be revitalized as well, as a result of efforts to concentrate new construction, to develop urban waterfronts, and to encourage expansion of recreational activities in urban areas.

Other industries will be located in inland parts of the coast. Single family detached housing will continue to be common, but the coastal zone will have increasing numbers of cluster development, contributing to more efficient settlement patterns.

The ocean waterfront from Sandy Hook to Cape May will be devoted almost exclusively to recreation and commercial fishing. An exception may be made for limited areas near Atlantic City to serve as onshore support bases for oil and gas exploration, and perhaps development, of the Outer Continental Shelf.

The inland areas of the coastal zone nearest the ocean will continue to provide housing and commercial services for seasonal and year round residents. Portions of the coast further inland will also provide housing and agricultural land, as well as locations for some industries.

As this vision is realized, some positive results will be directly visible, such as the halt in the indiscriminate high-rise construction along the Atlantic Ocean shoreline. Other changes in the coastal zone will be less visible, and perhaps take more time such as changes in water quality, renewed swimming in now polluted waters, and a revised public attitude towards the ocean and the coast.

BASIS AND BACKGROUND TO THE COASTAL MANAGEMENT STRATEGY

Section One: A Profile of the Coast

The coast of New Jersey serves multiple purposes and presents contrasting images to different people. This profile features key items that briefly describe the built and natural environment, economy, and institutions of the coast of the entire state. This profile examines both the CAFRA portion of the state, as well as the rest of the coast.

- The "Coast" is not just the "Shore". The tidal waters penetrate into seventeen of New Jersey's twenty-one counties (all but Sussex, Warren, Hunterdon, and Morris counties). The tide extends up the Delaware River even to Trenton, one hundred twenty miles from the ocean. Because of the flat topography of the coastal plain, in some places tidal tributaries reach ten miles inland from the Delaware River. Tides also extend through the Hackensack Meadowlands, in northern New Jersey.

- The Jersey coast has long been a recreation area for the state, Northeastern United States and Canada. Millions of people fish, swim, sunbath, and spend summers at the resort communities, strung along the state's Atlantic oceanfront, that constitute the "Shore". In the late 1800's, Presidents of the United States vacationed at Monmouth and Cape May County resorts. The 1964 Democratic Convention and annual conventions and pageants have focused national attention on Atlantic City, now under new pressure as the area for the first casino gambling on the East Coast.

- 242 of New Jersey's 567 municipalities border tidal waters and can be considered part of the coast. Parts of 126 different municipalities make up the Coastal Area under the Coastal Area Facility Review Act. More than one half of New Jersey's seven million residents live within 10 miles of tidal waters.

- The coast is the favored location for major energy facilities in New Jersey, with six approved nuclear generating station units, five existing major oil refineries, two proposed sites for liquified natural gas (LNG) facilities, and oil and gas pipelines criss-crossing the state.

- The industrialized waterfront of the Hudson River, Newark Bay, Arthur Kill, Raritan Bay and the Delaware River includes both outmoded docks, abandoned piers, and closed industrial plants, as well as modern container ports, shipyards, and new industrial facilities.

- Certain coastal counties are among the fastest growing in the state. In particular, Ocean County is one place where relatively inexpensive new housing may still be built and purchased. Cape May, Atlantic, and Ocean counties also have a very high proportion of senior citizens among their residents.

- The coastal areas of Cumberland and Salem counties along the Delaware River harbor relatively undisturbed wetlands and forests, a distinctive rural character, and the site of the New Jersey Tea Party of the American Revolution, in Greenwich Township, Cumberland County.

Section Two: Chronology of Coastal Management

October, 1972	Congress passed the Coastal Zone Management Act (P.L. 91-583).
June, 1973	New Jersey enacts the Coastal Area Facility Review Act (CAFRA), Chapter 185, Laws of 1973.
September 19, 1973	CAFRA takes effect. DEP begins program of coastal regulation of major facilities.
June, 1974	Governor Byrne designates DEP as coastal planning agency under Section 305 of the federal Coastal Zone Management Act. DEP receives first program development grant from NOAA-OCZM.
July, 1974	DEP denies first permit application under CAFRA, a high-rise in Toms River, Ocean County.
January, 1975	Coastal Area Review Board unanimously upholds DEP's denial of the Toms River high-rise CAFRA permit application.
February, 1975	DEP holds first public meetings of coastal planning process for federal state and local agencies and citizens and interest groups in Toms River, Ocean County.
September, 1975	DEP submits An Inventory of the New Jersey Coastal Area to the Governor and Legislature.
December, 1975	DEP creates Office of Coastal Zone Management, within its Division of Marine Services, merging coastal planning and CAFRA permit programs into a single unit.

February, 1976	Appellate Division of Superior Court upholds constitutionality of the CAFRA statute in upholding the decisions of the Coastal Area Review Board and DEP in the Toms River high rise denial under CAFRA.
July, 1976	DEP releases Interim Land Use Density Guidelines for the Coastal Area; holds six regional public meetings.
July, 1976	Congress amends the Federal Coastal Zone Management Act to include elements for planning for shorefront access, coastal erosion, and energy facilities and creates the Coastal Energy Impact Program.
August, 1976	U.S. Department of the Interior leases first tracts off the coast of New Jersey for offshore oil and gas exploration (Lease Sale No. 40).
September, 1976	Commissioner Bardin submits "Alternative Management Strategies for the Coastal Area" to the Governor and Legislature.
October, 1976	Alternatives for the Coast - 1976 released.
November, 1976	Casino Gambling Referendum approved by voters, authorizing hotel-casinos in Atlantic City.
November-December, 1976	DEP holds seven regional public meetings on Alternatives for the Coast - 1976.
January, 1977	Twelve coastal counties begin joint state-county OCS and energy facility planning projects. Federal district court nullifies initial offshore oil and gas leases.
April, 1977	CAFRA Rules and Regulations on permit applications adopted.

August, 1977	United States Court of Appeals (Second Circuit) overrides district court and approves leases in August 1976 by the U.S. Department of the Interior of tracts off the coast of New Jersey for offshore oil and gas exploration.
September, 1977	Submission by the Commissioner to the Governor and Legislature of the selected Coastal Management Strategy for New Jersey.
December, 1977	Estimated date for submission by the Governor to NOAA-OCZM of a CAFRA Segment of the coastal zone management program for federal approval.
June, 1978	Estimated date for submission by the Governor to NOAA-OCZM of the management program for the other parts of the coastal zone.
September, 1978	Estimated date for Federal approval of New Jersey's management program for the CAFRA segment of coastal zone.
April, 1979	Estimated date for federal approval of entire New Jersey Coastal Zone Management Program.

Section Three: Background Studies

The Coastal Management Strategy is based upon research undertaken over the past three years. The most significant work culminated in publications and reports which are summarized below. Many of the reports were reproduced and widely distributed and are available upon request from DEP-OCZM, while others were intended as in-house working documents available for review by interested people.

In February, 1975, in cooperation with the American Arbitration Association, DEP began an experiment to validate the environmental data for the Strategy. This experiment involved two large public meetings and several subsequent workshops. By January 1976, agreement was reached on data in nine natural resource categories. The categories are: bathymetry, flood areas, geology, groundwater, land use, slope, soils, tidal wetlands and vegeatation.

In September 1975, DEP published an Inventory of the New Jersey Coastal Area which defines and discusses the diverse resources, problems and opportunities of New Jersey's coast in order to indicate the range of issues that constitute the agenda for coastal zone management.

In June 1976, DEP-OCZM compiled "An Inventory of Environmental Law in New Jersey", which includes a description of all New Jersey land use, water quality, air pollution, and living resources laws related to coastal zone management. This is an in-house document which is continually updated.

As part of efforts to clarify the laws affecting development in the coast, DEP-OCZM in September, 1977, completed a briefing paper on "Riparian Law and Coastal Zone Management in New Jersey", which sets forth how riparian law could be utilized to implement New Jersey's coastal zone management program. A similar paper on "Water Pollution Control and Planning Law and Coastal Zone Management" is also being prepared.

In July 1977, DEP-OCZM completed "Area (208) Water Quality Planning and the New Jersey Coastal Zone Management Program: Opportunities for Interagency Coordination," a paper detailing the relationship between coastal zone management planning and water quality planning being conducted under Section 208 of the Federal Water Pollution Control Act, by the Division of Water Resources in DEP.

DEP-OCZM is also completing a report for public release entitled New Jersey's Nominated Areas of Public Concern which describes 176 areas of the state nominated by interested people.

In July 1976, DEP released Interim Land Use and Density Guidelines for the Coastal Area of New Jersey, prepared with the assistance of Rivkin Associates of Washington, D.C. This document classifies land and water features in the coastal area in terms of relative suitability for development. The Interim Guidelines have provided an advance indication of the likely decision on CAFRA permit applications to developers, municipal officials, and others, and have also served as a focal point for discussion and debate in the development of the Coastal Management Strategy.

In October 1976, Alternatives for the Coast - 1976 was published to indicate the scope of policy alternatives DEP-OCZM was evaluating for the coastal zone, their implications and the principles that helped shape them. DEP-OCZM expanded upon the policy alternatives in twenty-three issue papers published between November 1976 and early 1977. The topics covered were: Agriculture, Air Resources, Beach Access, Cultural Resources, Estuarine and Wetland Resources, Flooding, Ocean Resources: Living, Mineral, and Physical (three papers), Sand Movement and The Shoreline, Solid Waste Disposal, Transportation, Upland Living Resources: Endangered Rare Animals, Endangered Rare Vegetation, and Upland Wildlife Habitat (three papers), Upland Mineral Resources, Views and Landscapes, and Water Resources: Groundwater, and Surface and Coastal Waters. A separate paper on White Cedar Stands was completed in early 1976.

The ability to handle a wide variety of data and turn it into usable information is a prerequisite to coastal resource management. In cooperation with the American Arbitration Association, Rockefeller Foundation, Rutgers University, and Princeton University, DEP-OCZM tested the development of information packages on an automated basis. The project, called the "Intuitive-Interactive Model", produced draft information packages on air pollution, construction noise, physical impact, industrial energy demand, odor pollution, residential energy demand, solid waste, and waste demand and urban runoff. One distinctive feature of the model is the ability of interested users such as developers or municipal officials to work directly, or "interact", with the computer. The findings of the project will help DEP in considering the ultimate design of an information system to assist coastal decision-making.

In December 1975, the Department of Environmental

Protection invited the energy industry to provide basic information on coastal energy siting to be used in preparing the energy facility element of New Jersey's coastal zone management program. The results of this "Call for Information" (somewhat paralleling the "Call for Nominations" of OCS tracts by the U.S. Department of Interior) were published by DEP-OCZM in March 1977. The state's three major electric utilities responded in considerable depth to the "Call." DEP-OCZM's concern with the development of energy facilities is further reflected in two contractual studies undertaken by research groups at Rutgers University and Princeton University. The study by Princeton's Center for Environmental Studies, entitled Who's in Charge? - Governmental Capabilities to Make Energy Siting Decisions in New Jersey, received financial support from the Federal Energy Administration, which sponsored a similar effort in each of the states associated with the Mid-Atlantic Governors Coastal Resources Council (New York, New Jersey, Delaware, Maryland and Virginia). It was published in September 1977. The Rutgers study, prepared by the Center for Coastal and Environmental Studies and entitled Onshore Support Bases for Offshore Oil and Gas Development Implications for New Jersey, is expected to be released in October 1977.

The Office of Coastal Zone Management served as staff to the Commissioner of DEP in his capacity as an active ex-offio member of the New Jersey Beach Access Study Commission, which released a report to the Governor and Legislature on beach access in April 1977. This report examined beach use, budgets, fees and ownership and recommended that DEP prepare a "Beach Management Act" bill to incorporate its recommendations.

DEP-OCZM has also had contracts with the Department of Community Affairs (DCA) and the Department of Labor and Industry (DLI) to prepare background land use and socio-economic studies about the coast. DCA produced information concerning: "Coastal Zone Housing Issues", County Land Use Issues in Atlantic, Cape May, Cumberland, Monmouth, Ocean, and Salem Counties (six papers), "Growth Centers and their Implications", "Sewerage Facilities", "Transportation Systems" and "Water Supply".

The Department of Labor and Industry prepared the following papers: "Background Paper: Economic Perspectives on New Jersey Tourism", "Economic Development Model", "Economic Impact of the New Jersey Tourist Industry", "Economic Inventory", "Economic Issues and Problems in Northeastern Region of New Jersey Coastal Zone", "Economic Issues and Problems in Southern Region of the New Jersey Coastal Zone," "Some

Perspectives on New Jersey Agriculture", "Some Suggested Issues in CZM", "State Business Taxes", "Statistical Overview with County Profile Abstracts" and "Economic Profiles" on Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean, Salem Counties (nine papers) and "Municipalities in Burlington and Middlesex Counties".

Mapping

During the last three years DEP-OCZM has published several map series. These maps are available to the public. The Inventory of the New Jersey Coastal Area - 1975 describes where these maps are located and how to use them. The Third Year Coastal Zone Management Program Development Grant Application provides a detailed list of the mapping in the first two years of the program. During the third year (1976-1977), extensive mapping was also done as part of DEP-OCZM's pilot study Lower Cape May County. Samples can be found in Appendix Four of the Strategy.

Samples of maps found in Interim Land Use and Density Guidelines have been previously published in Guiding the Coastal Area of New Jersey. Wetlands maps are on file with each county recording officer and are also available for public inspection in DEP's Office of Wetlands Management. Flood plain hazard area maps, as delineated by DEP's Division of Water Resources are available for public inspection.

The mapping in this Strategy does not identify specific sites for development. The work to date has avoided extensive and expensive mapping (New Jersey's Wetlands maps cost $2 million to produce) until carefully defined policies have been spelled out.

Section Four: Public Concerns and Constraints to Coastal Management

Public concerns for the coast, expressed at meetings and workshops, in correspondence and in the press, have helped shape the Coastal Management Strategy presented here. In particular, the DEP-OCZM staff have met with state-wide environmental groups, county and municipal officials and agencies, representatives of the oil and gas industry, home builders, marine trade representatives, and many other groups and individuals concerned about the coast. These concerns have helped chart the future directions of the coastal management program.

People care about the coast. People also have concerns for jobs and places to live, as well as longer term concerns that succeeding generations be able to enjoy the Jersey Coast that we know today. Also, many people suggest that parts of the coast cry out for revitalization and restoration. Some concerns are conflicting. Some people seek a stronger state role in resource management decisions, while others seek just the opposite.

The public process of coastal planning has helped surface numerous concerns about the way land and water use decisions are made in New Jersey.

Considerable concern has been expressed for ground water quality, urban run-off, problems of soil erosion, beach access, the effects of coastal storms, shoreline erosion, wildlife habitat protection, and preservation of wildlife diversity and marsh productivity in the coastal ecosystem. Many other concerns expressed are of regional and of state-wide interest, and not necessarily directly or even indirectly related to coastal matters. The strong concern expressed by some groups for preservation of the coastal wetlands is the best example of this concern for a resource of state-wide significance.

The concerns perhaps expressed most often relate to regulatory programs themselves, at all levels of government and for all types of objectives. The application forms, permit fees, and perceived time delays appear to cause public resentment overshadowing the intended benefits of the programs.

Some public concerns reflect severe constraints to coastal management in New Jersey. The most fundamental impediment to wise land use in New Jersey is the real property tax system. Forced municipal reliance on real property tax has led to inter-municipal rivalry for "good ratables," and thwarted people's open space aspirations. The municipal interest in short term ratables sometimes overshadows the long term objectives for the well being of the coast.

Other constraints include the scope and sheer complexity of the agenda of coastal zone management. It is in the coastal zone that development pressures are most intense and natural resources can be most threatened by development. This broad agenda, ranging from dredge spoil disposal to nuclear power plant construction, from protection of resting spots on interstate and international flyways for migratory fowl, to protection of panoramas from the intrusive effects of high-rise towers, requires a management strategy that is flexible to change, sufficiently specific to indicate to public officials and private interests the implications of the strategy, and responsive to the concerns of the citizenry.

Section Five: PROPOSED COASTAL ZONE BOUNDARY

The Coastal Management Strategy indicates the boundary of the coastal zone proposed for New Jersey's coastal program to be submitted for approval to the U.S. Department of Commerce. This section describes that proposed coastal zone in greater detail through a set of maps and a list of municipalities, at least part of which are in the proposed coastal zone boundary under federal law.

Maps

Several maps indicate generally the geographic extent of the proposed coastal zone boundary. Figure 1 indicates the four different regions of the coastal zone. Figure 2 provides an index to the seven section maps that follow showing the relationship of the proposed coastal zone (on a map at a scale of 1:250,000, where one inch equals about four miles) to municipal boundaries and interstate, state, and county roads.

Next, to give a more detailed indication of the proposed coastal zone boundary concept, three Illustrative Coastal Zone Boundary Maps (Figures 4-6) show the boundary on a section of a U.S. Geological Survey topographic quadrangle map, at a scale of 1:24,000 whre one inch equals about one-half mile. These illustrative section maps demonstrate that important coastal land and water features, such as tidal flats, are included in the proposed coastal zone. These maps also demonstrate how DEP-OCZM applied the principle of using the first cultural feature upland of coastal waters to draw the proposed coastal zone boundary. While only three small illustrative section maps are presented here, the proposed coastal zone boundary has been drawn on a complete set of U.S.G.S. topographic quadrangle maps, and available for public inspection in the Trenton offices of DEP-OCZM.

Finally, Figure 7, a map at a scale of 1:100,000, where one inch equals about two miles, shows the relationship of the Hackensack Meadowlands Commission District to the municipal boundaries and road system of Hudson, Bergen, and Essex counties.

A note of caution is important here. The boundary for the coastal zone is a proposal at this stage. Also, federal lands would be excluded from the coastal zone, as required by the federal Coastal Zone Management Act.

FIGURE 1

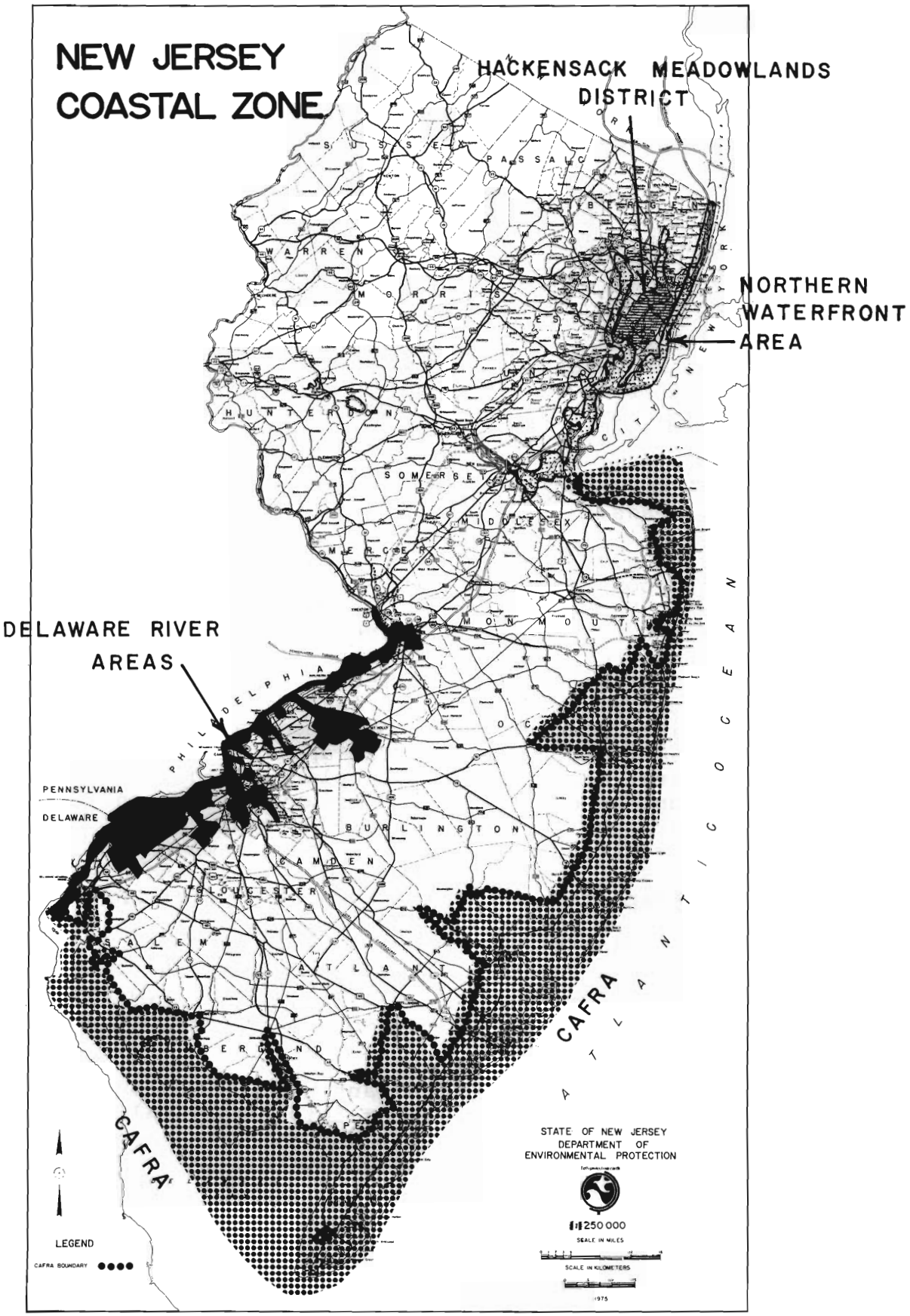
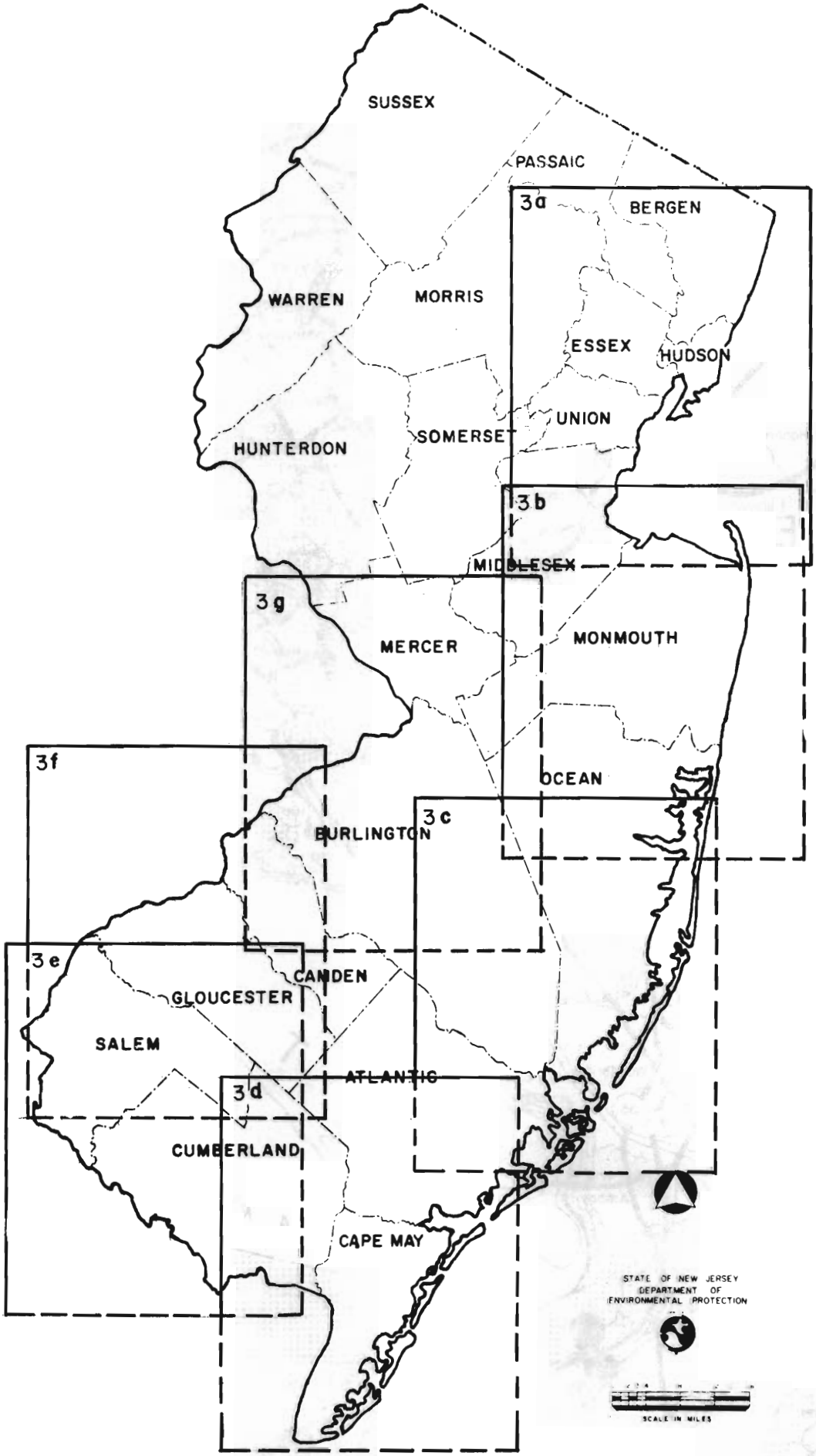
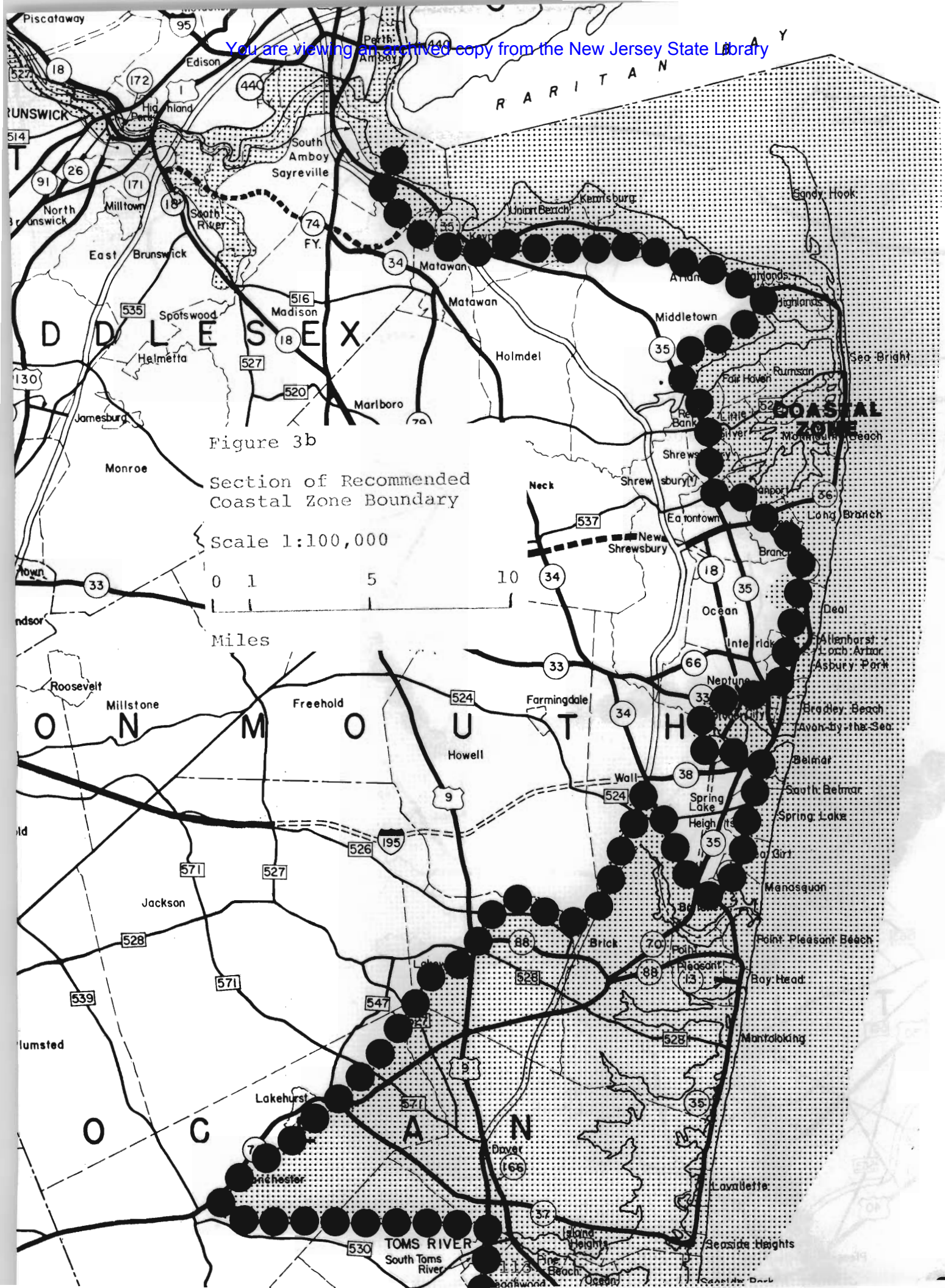


FIGURE 2: PROPOSED COASTAL ZONE BOUNDARY INDEX MAP





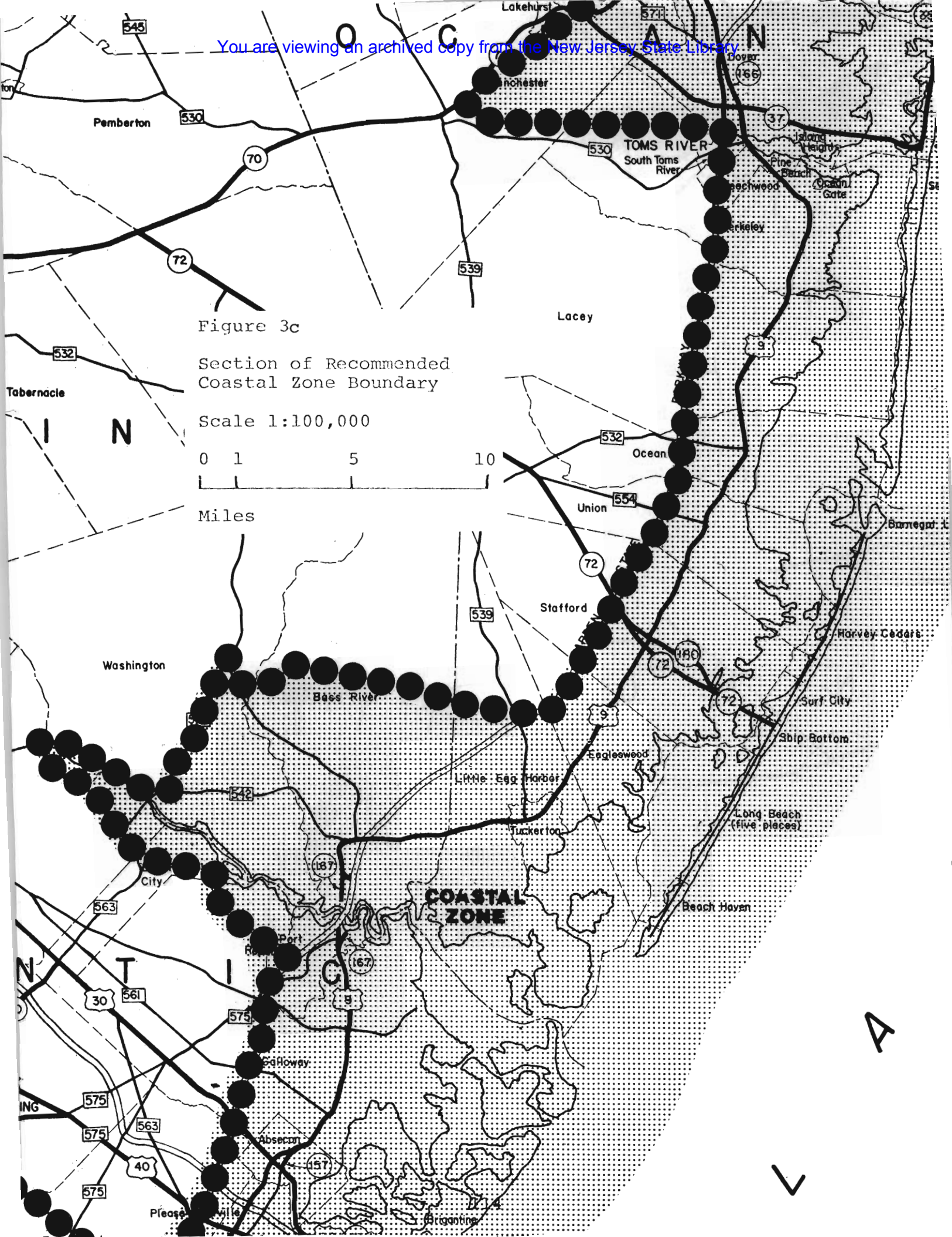


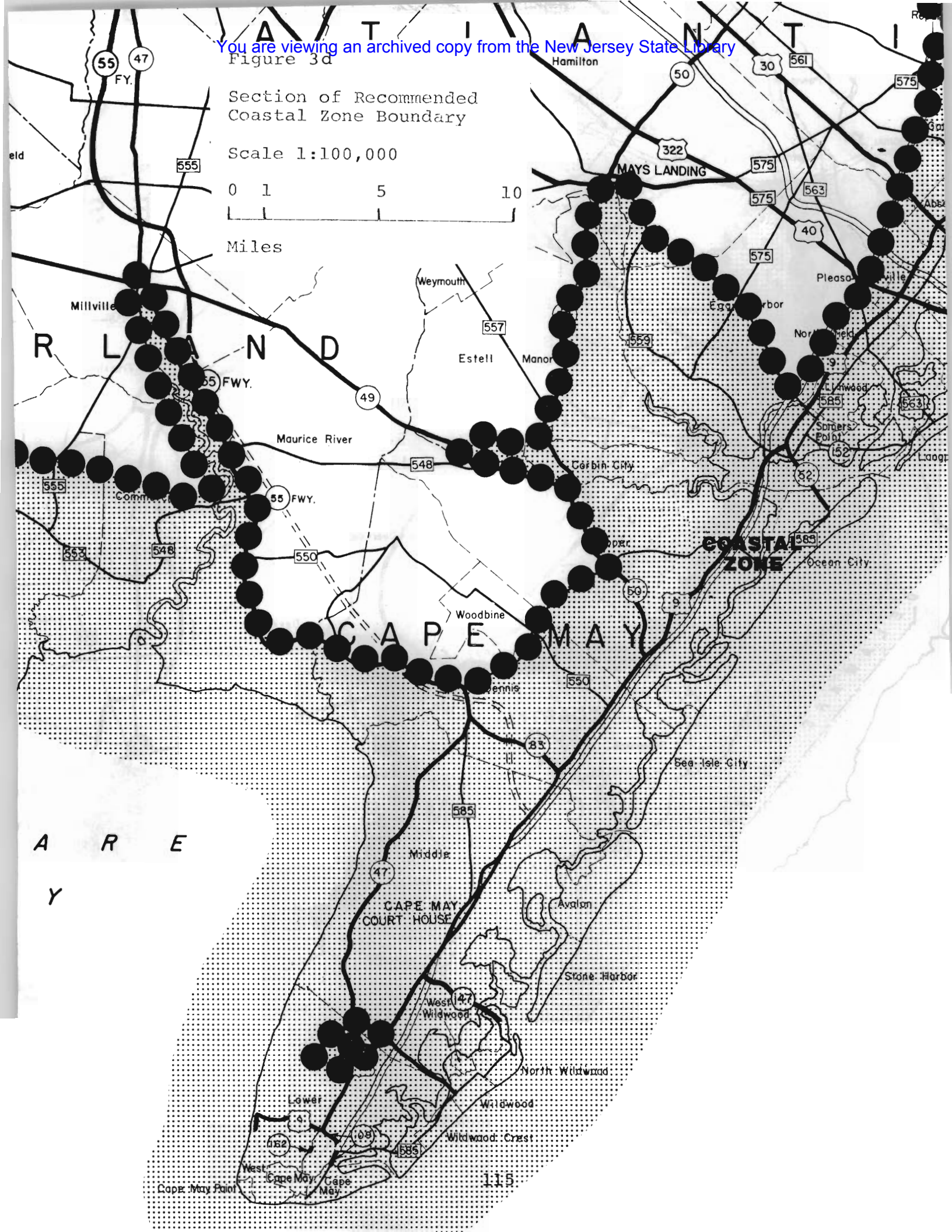
Figure 3c

Section of Recommended Coastal Zone Boundary

Scale 1:100,000

0 1 5 10

Miles



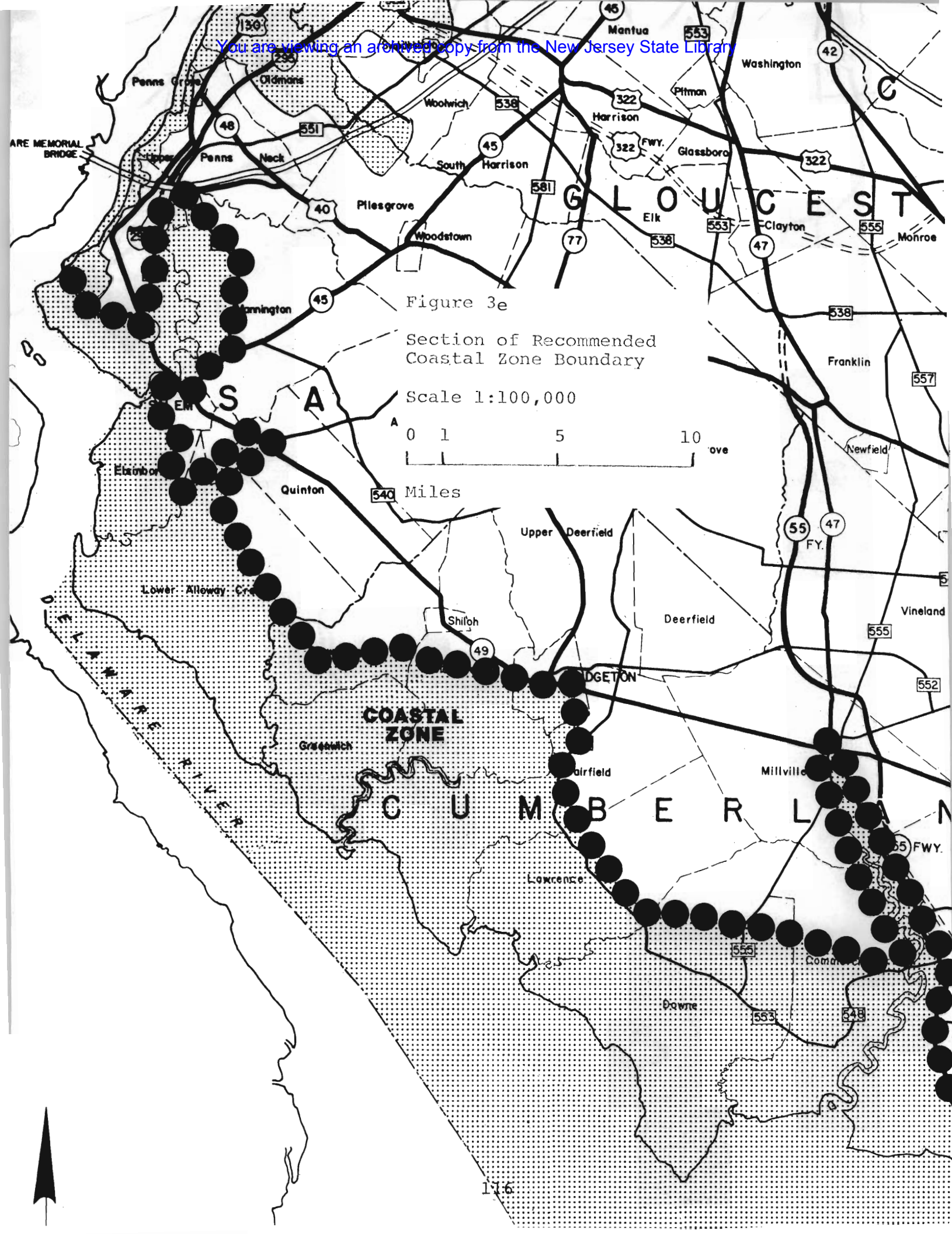


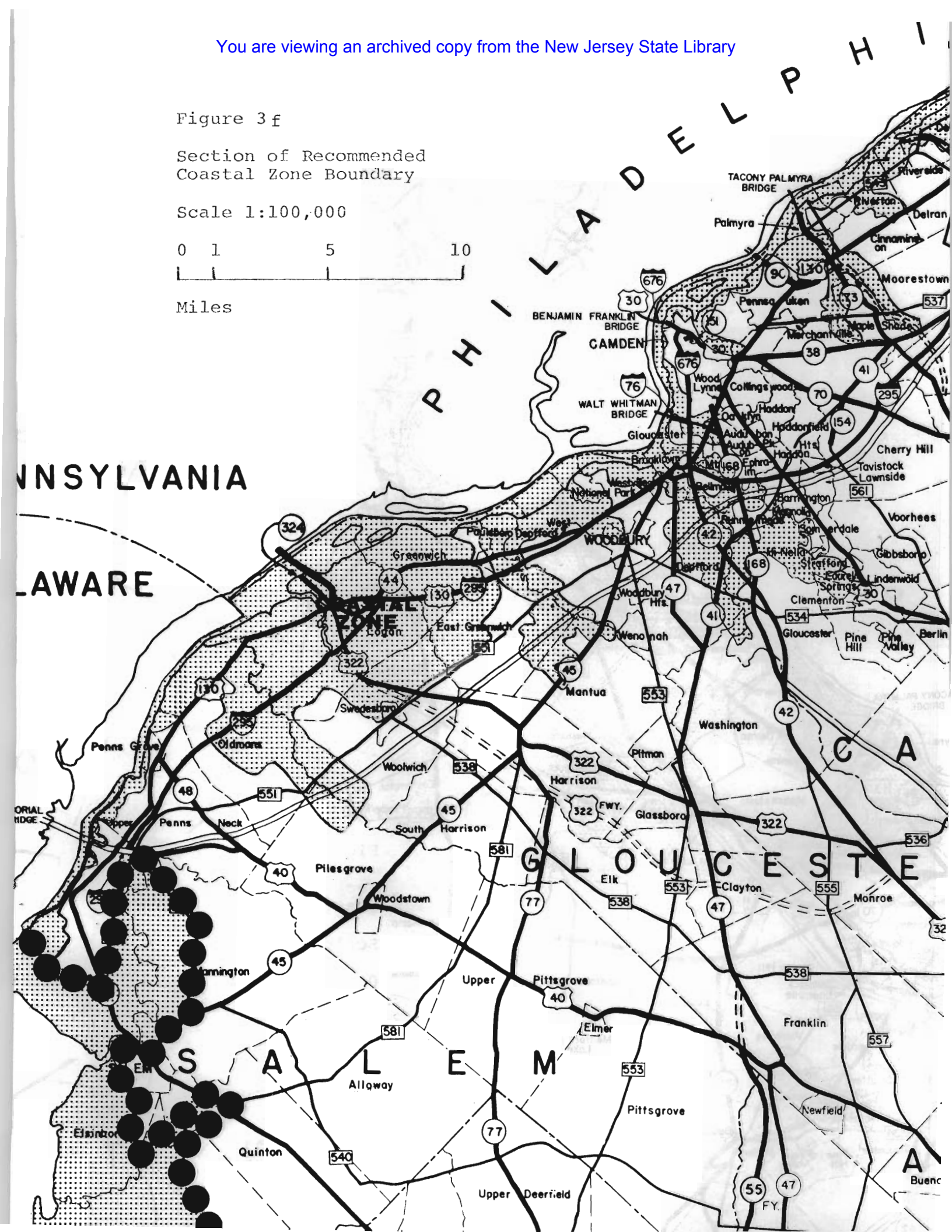
Figure 3f

Section of Recommended
Coastal Zone Boundary

Scale 1:100,000

0 1 5 10

Miles



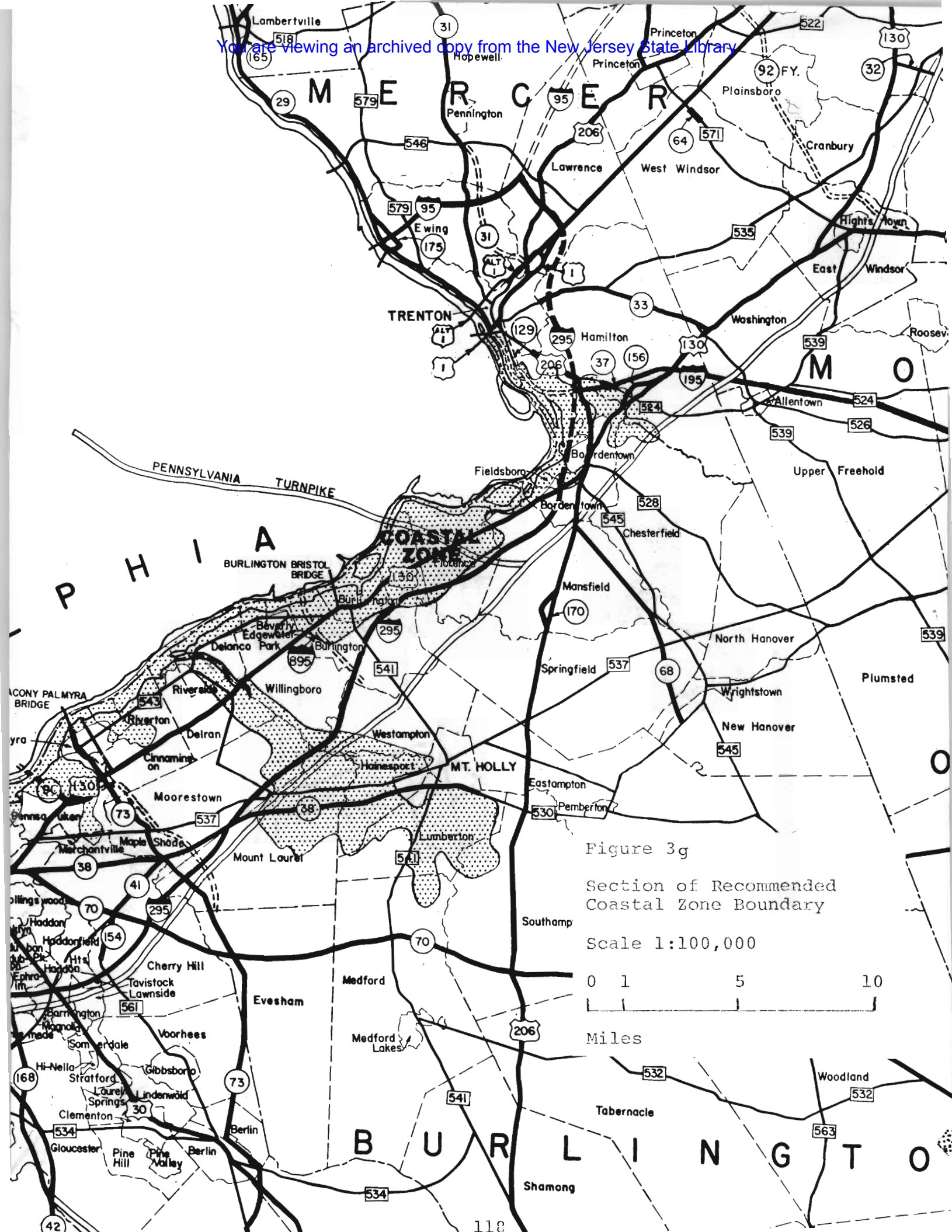


Figure 3g

Section of Recommended Coastal Zone Boundary

Scale 1:100,000

0 1 5 10

Miles

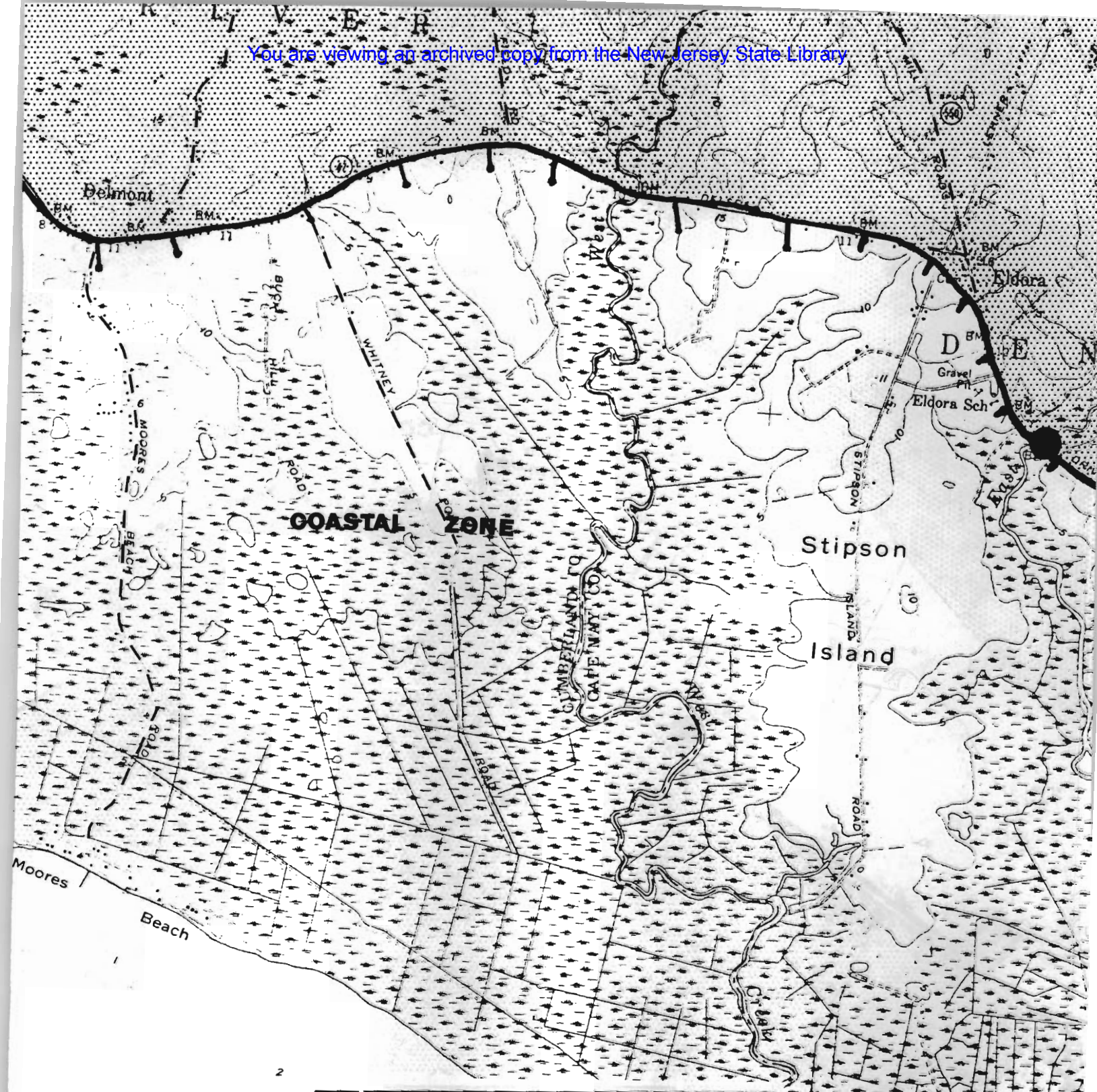
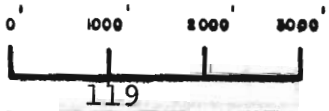


FIGURE 4
Illustrative Coastal Zone Boundary Map, CAFRA Area, (Eldora, Cape May County)

SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE. SCALE 1:24,000



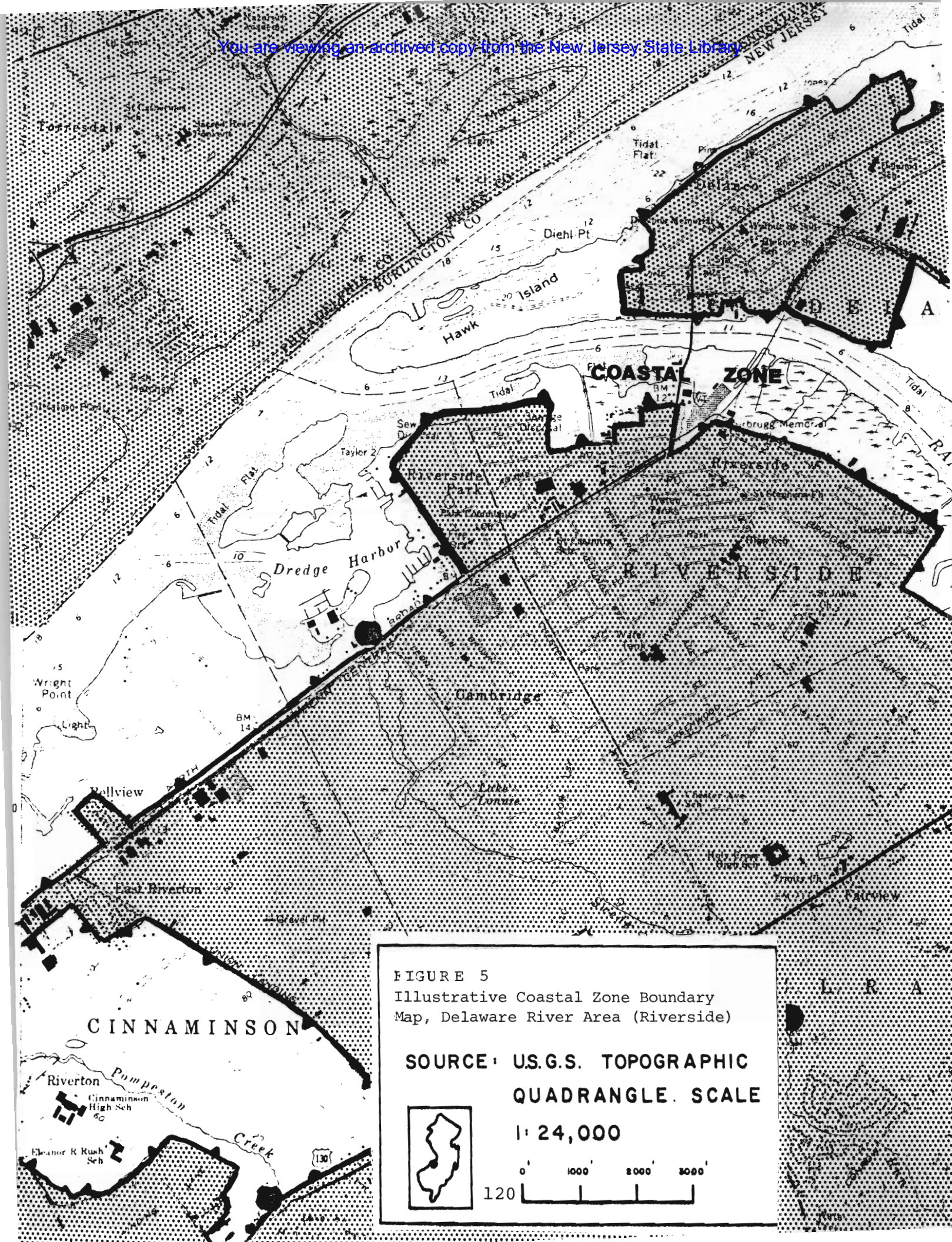


FIGURE 5
Illustrative Coastal Zone Boundary Map, Delaware River Area (Riverside)

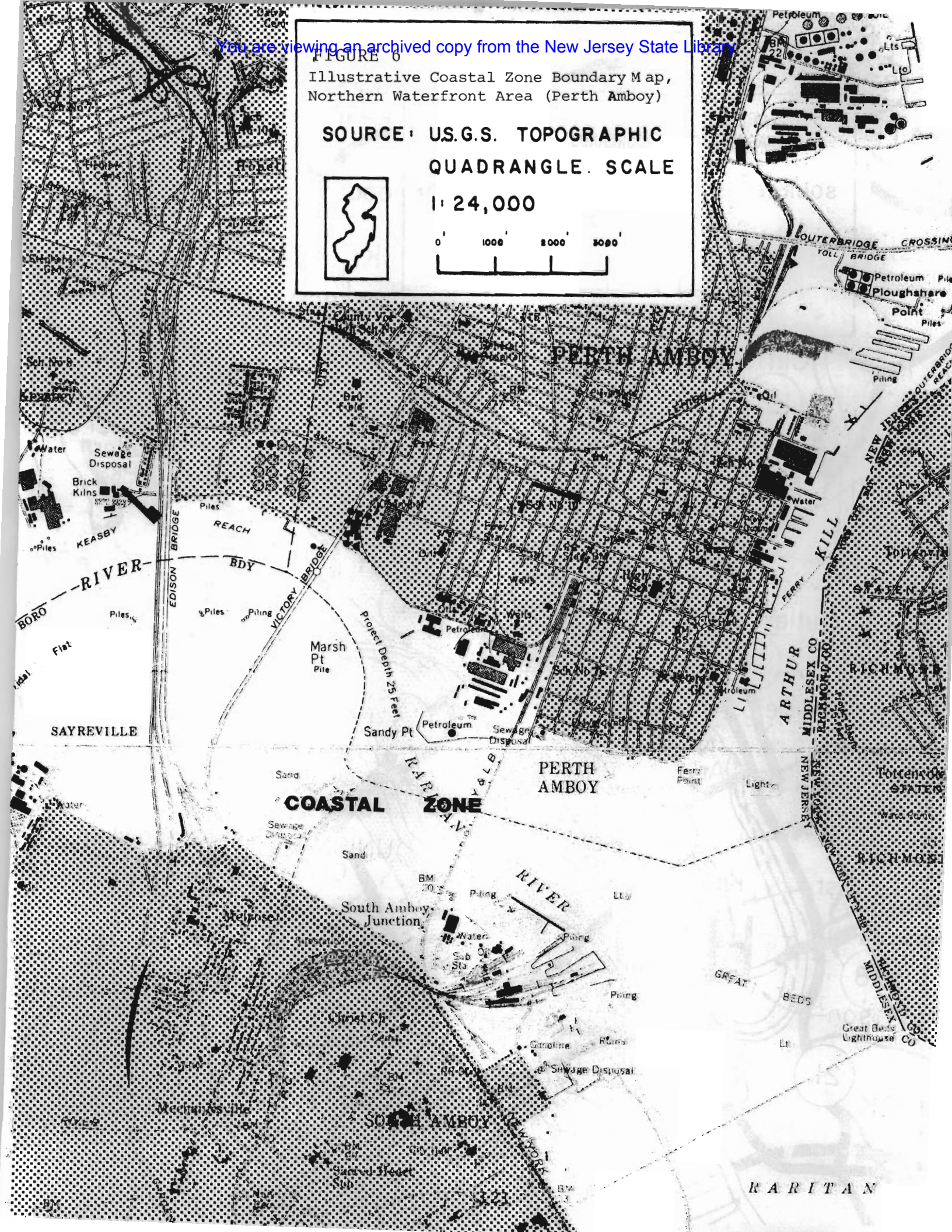
SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE. SCALE 1:24,000

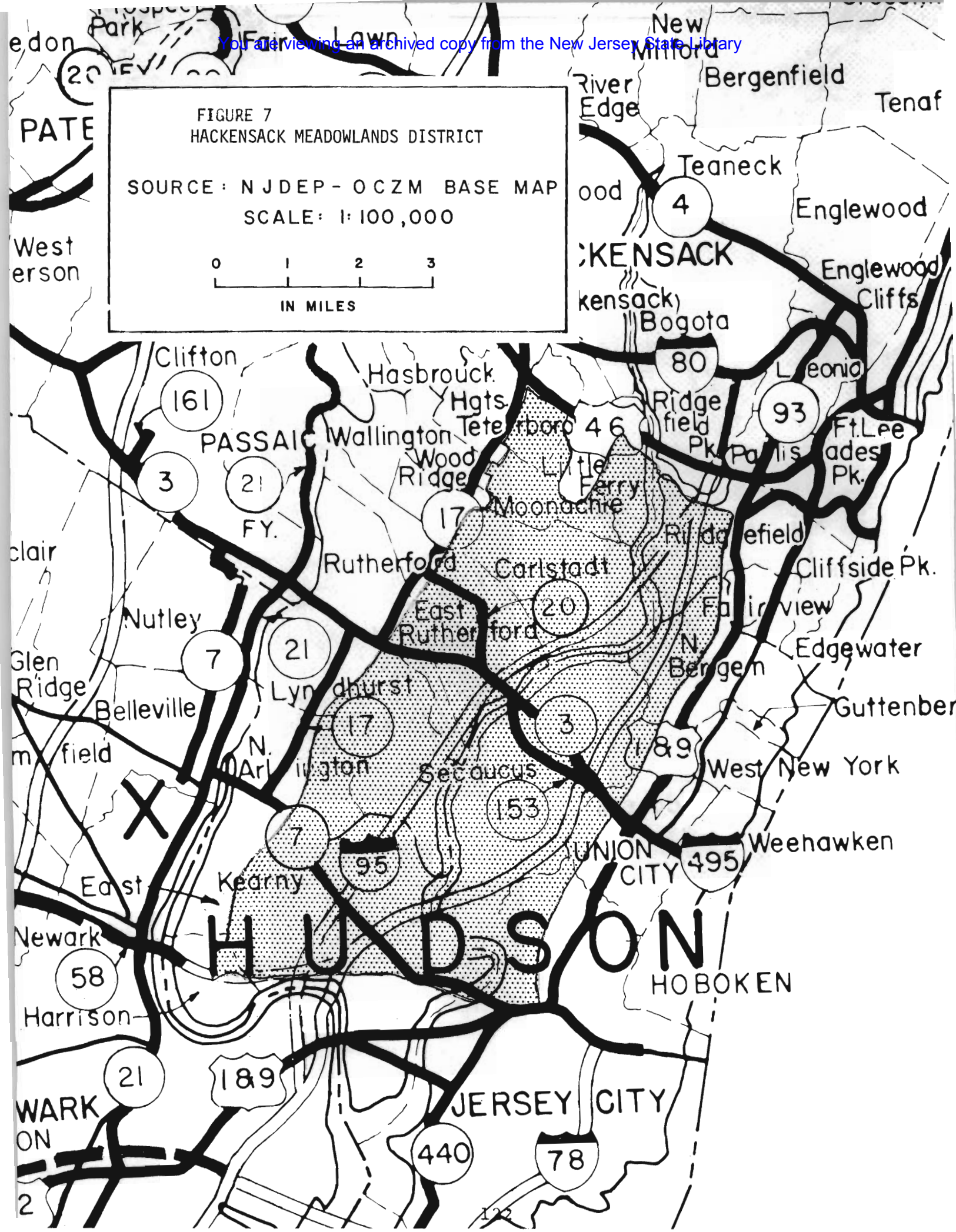
120 0' 1000' 2000' 3000'

FIGURE 6
Illustrative Coastal Zone Boundary Map,
Northern Waterfront Area (Perth Amboy)

SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE. SCALE 1:24,000

0 1000 2000 3000





Municipalities In The Proposed Coastal Zone

All or part of 242 of New Jersey's 567 municipalities are included in the proposed coastal zone. The municipalities are listed below, by county, divided into three of the four regions of the coastal zone: CAFRA, Delaware River Area, and Northern Waterfront Area. The municipalities in the Hackensack Meadowlands District are listed in the Northern Waterfront Area.

CAFRA AREA

Middlesex County

Old Bridge Township

Ocean County

Lakewood
Manchester Township
Lakehurst Borough
South Toms River
Beachwood Borough
Berkeley Township
Lacey Township
Ocean Township
Union Township
Stafford Township
Eagleswood Township
Little Egg Harbor
Point Pleasant Beach Borough
Point Pleasant Borough
Brick Township
Bay Head Borough
Mantoloking Borough
Dover Township
Lavallette Township
Seaside Heights Borough
Seaside Park Borough
Island Heights Borough
Pine Beach Borough
Ocean Gate Township
Long Beach Township
Harvey Cedars Borough
Surf City Borough
Ship Bottom Borough
Beach Haven Borough
Barnegat Light Borough
Tuckerton

Monmouth County

Matawan Township
Hazlet Township
Keport Borough
Holmdel Township
Middletown Township
Atlantic Highlands
Red Bank City
Shrewsbury
Eatontown
Oceanport
Deal Borough
Allenhurst
Loch Arbour Village
Interlaken
Asbury Park City
Neptune Township
Neptune City
Wall Township
Belmar
Spring Lake Heights
Sea Girt
Manasquan
Brielle
Union Beach
Keansburg
Sea Bright
Rumson
Fair Haven
Little Silver
Monmouth Beach
Long Branch City
Bradley Beach
Avon by the Sea
South Belmar
Spring Lake
Highlands

Burlington County

Bass River Township
Washington Township

Cape May County

Middle Township
Lower Township
Ocean City
Sea Isle City
Avalon
Stone Harbor
West Wildwood
Wildwood
North Wildwood
Wildwood Crest
West Cape May
Cape May
Cape May Point
Upper Township
Dennis Township
Woodbine Borough

Salem County

Lower Alloways Township
Quinton Township
Elsinboro Township
Salem Township
Mannington Township
Upper Penns Neck
Pennsville

Atlantic County

Mullica
Egg Harbor City
Galloway Township
Port Republic City
Egg Harbor Township
Hamilton Township
Weymouth Township
Estell Manor Township
Corbin City
Absecon
Brigantine
Atlantic City
Pleasantville
Northfield
Ventnor City
Margate
Longport Borough
Linwood
Somers Point

Cumberland County

Greenwich
Maurice River Township
Commercial
Millville
Downe
Lawrence
Fairfield
Bridgeton
Hopewell
Stow Creek

DELAWARE RIVER AREA

Burlington County

Beverly City
Bordentown City
Bordentown Township
Burlington City
Burlington Township
Chesterfield Township
Cinnaminson Township
Delanco Township
Delran Township
Edgewater Park Township
Fieldsboro Borough
Florence Township
Hainesport Township
Lumberton Township

Camden County

Audubon Park Borough
Barrington Borough
Bellmawr Borough
Brooklawn Borough
Cherry Hill Township
Gloucester City
Gloucester Township
Haddon Township
Hi-Nella Borough
Laurel Springs Borough
Lindenwold Borough
Mount Ephraim Borough
Oaklyn Borough
Pennsauken Township

Burlington County - Cont.

Mansfield Township
Maple Shade Township
Medford Lakes Township
Moorestown Township
Mount Holly Township
Mount Laurel Township
Palmyra Borough
Riverside Township
Riverton Borough
Southampton Township
Westhampton Township
Willingboro Township

Gloucester County

Deptford Township
East Greenwich Township
Greenwich Township
Logan Township
Mantua Township
National Park Borough
Paulsboro Borough
Swedesboro Borough
Wenonah Borough
West Deptford Township
Westville Borough
Woodbury City
Woolwich Township

Camden County - Cont.

Runnemede Borough
Somerdale Township
Stratford Borough

Salem County

Olmans Township
Penns Grive Township
Pennsville Township
Pilesgrove Township

Mercer County

Hamilton Township
Trenton City

NORTHERN WATERFRONT AREA

Bergen County

Alpine Borough
Bogota Borough
Carlstadt Borough
East Rutherford
Edgewater Borough
Englewood Cliffs Borough
Fairview Borough
Fort Lee Borough
Garfield City
Hackensack City
Little Ferry Borough
Lyndhurst Township
Moonachie Borough
New Milford Borough
North Arlington Borough
Oradell Borough
Ridgefield Borough

Essex County

Belleville Town
Newark City
Nutley Town

Hudson County

Bayonne City
East Newark Borough
Guttenberg Town
Harrison Town
Hoboken City
Jersey City
Kearny Town
North Bergen Township
Weehawkin Township
West New York Town

Bergen County - Cont.

River Edge Borough
Rutherford Borough
Teaneck Township
Teterboro Borough
Wallington Borough

Passaic County

Clifton City
Passaic City

Somerset County

Franklin Township

Union County

Elizabeth City
Linden City
Rahway City

Middlesex County

Carteret Borough
East Brunswick Township
Edison Township
Highland Park Borough
New Brunswick City
Old Bridge Township
Perth Amboy City
Piscataway Township
Sayreville Borough
South Amboy City
South River Borough
Woodbridge Township

Section Five: Explaining CLAM (Coastal Location Acceptability Method)

Table of Contents

****

I. INTRODUCTION

This section explains in greater detail how CLAM, the Coastal Location Acceptability Method developed by DEP-OCZM, works. The concept is basically simple. Figure 8, originally presented in the initial CLAM overview in the Coastal Management Strategy, sketches the relationships among: (1) the "sensitivity" of a location, (2) the "potential" for development of a location, and (3) the "acceptability" of developing a location. "Acceptability" is based on combining and evaluating the "sensitivity" and "potential" of coastal locations, or simply stated, the advantages and disadvantages a site may offer for development.

As a method of resource management CLAM may at first appear complex. The theory of CLAM is simple. The actual classification of coastal locations into sets or categories of "sensitivity", "potential", and "acceptability" and into ranges of land and water uses is, however, somewhat complicated. CLAM is a tool; it provides a structured approach for organizing the complexity of the built and natural environment of the coast. To explain the concepts involved, DEP-OCZM assembled categories indicating representative locations with gradations of high or low "sensitivity" and "acceptability".

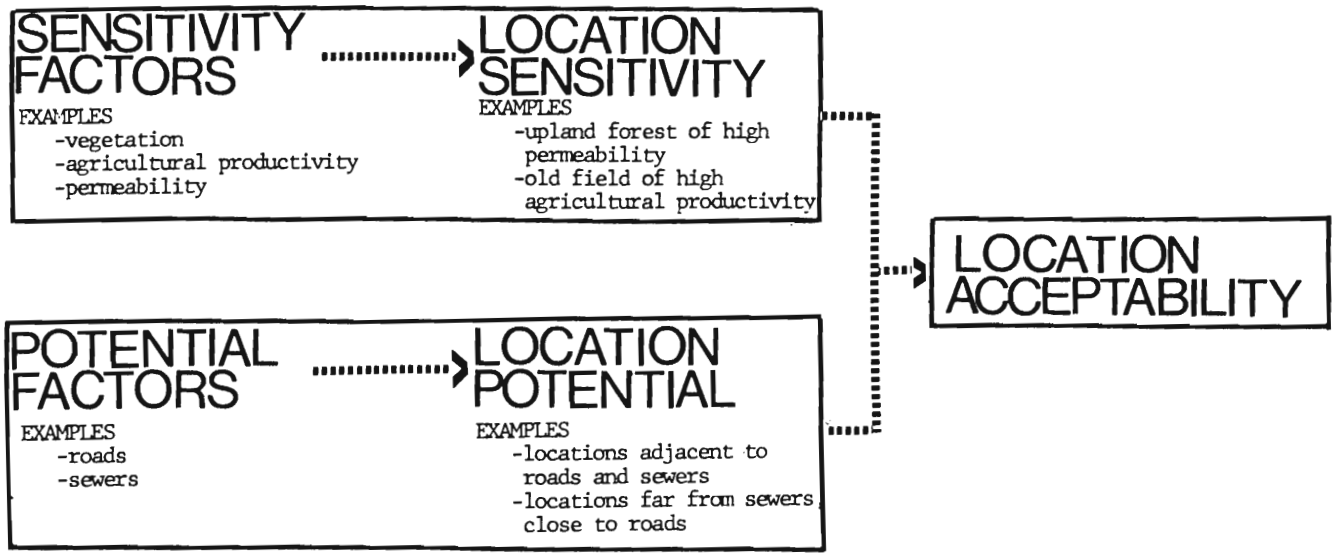
At the end of using CLAM for a location decision, the analyst should be able to answer two questions:

(1) What types of development are "acceptable" on a proposed site?

(2) What sites are "acceptable" for a proposed activity or development?

Environmental analyses, socio-economic analyses, land and water use planning analyses, extensive factor and synthesis mapping, and debates on planning theory by DEP-OCZM staff produced CLAM. A staff project, reported in the document A Pilot Study of Lower Cape May County: A Method of Coastal Resource Management (September 1977), has provided the vehicle for developing CLAM, using a 60 square mile land and water area with most of the resource types

FIGURE 8
THREE ELEMENTS OF COASTAL LOCATION ACCEPTABILITY METHOD (CLAM)-RELATIONSHIP OF SENSITIVITY, POTENTIAL & ACCEPTABILITY



and processes present that may be found anywhere in the Coastal Plain of New Jersey. For this reason, this section spells out how CLAM works, using illustrative maps from the Lower Cape May County pilot project. After defining "sensitivity", "potential", and the ranges of "acceptability" in text and chart, this section includes a glossary of terms used and concludes with the next steps in developing CLAM.

II. DEFINING THE SENSITIVITY OF LOCATIONS

Sensitivity varies from one physiographic region to another because the natural processes that determine sensitivity vary between regions. Figure 9 shows the distribution of major physiographic regions in New Jersey. The two regions within the coastal areas are the Appalachian Piedmont and the Atlantic Coastal Plain. The analysis discussed below applies only to the Coastal Plain, the most important and extensive coastal area. Further study will develop a similar analytical framework to determine sensitivity in the Piedmont.

This part identifies and briefly explains the factors which, in combination or separately, determine the "sensitivity" of locations in the Coastal Plain. Coastal locations, which are combinations of these factors, are then arranged into a gradient of increasing vulnerability to impact, and therefore increasing "sensitivity" to development. Five categories of "sensitivity" have been chosen: low sensitivity, moderate sensitivity, moderately high sensitivity, high sensitivity and preservation areas. These categories and their representative locations are shown in Figures 10 and 11, and are discussed in the text.

The classification of sensitivity presented here is a general representation of a more detailed DEP-OCZM classification found within A Pilot Study of Lower Cape May County. In most cases, only the most important factors (or those which, though less important, are more illustrative) which characterize a location's "sensitivity" are mentioned here.

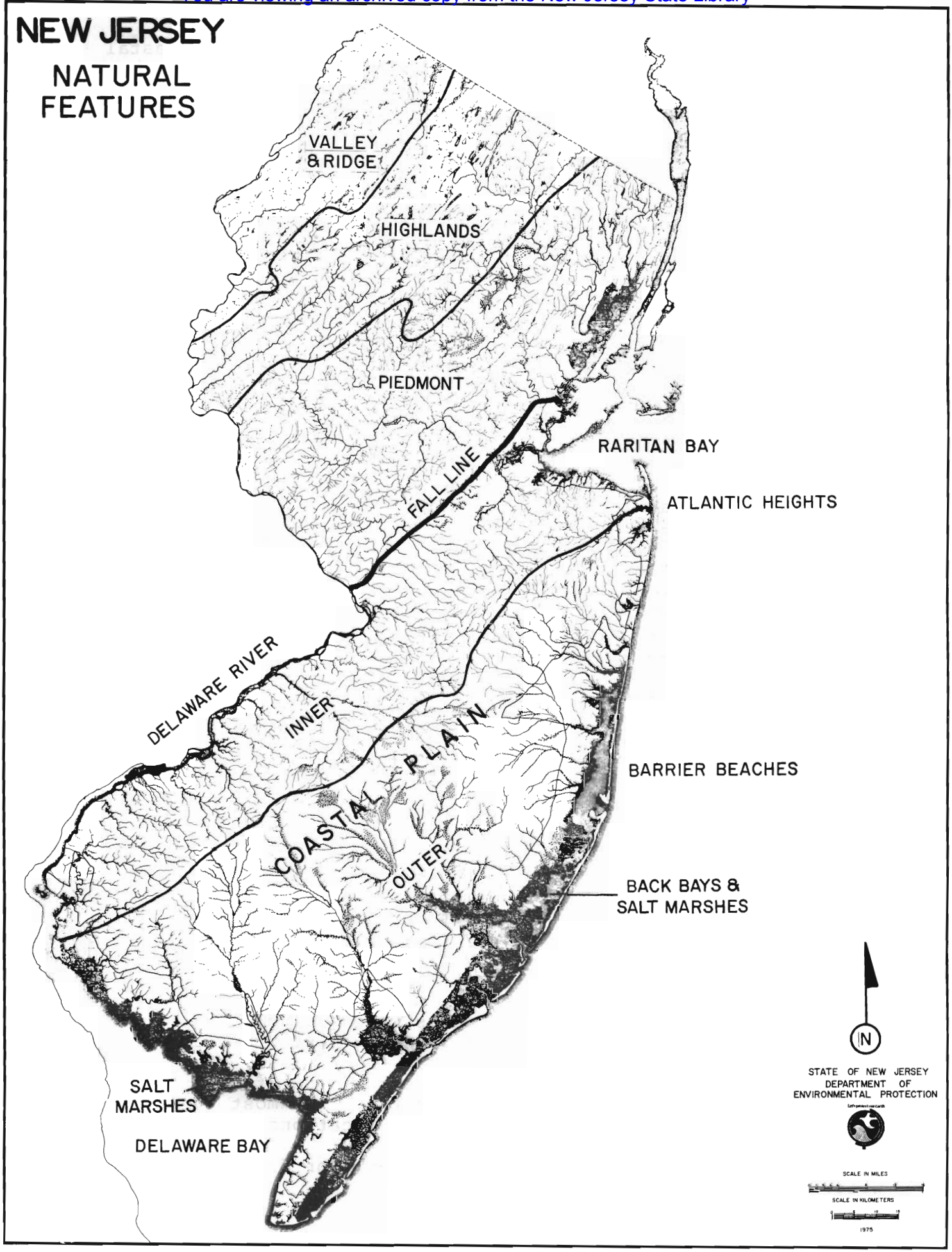
A. Sensitivity Factors

Several factors, such as agricultural suitability and shoreline mobility, have been used in determining which of the five "sensitivity" categories each of the coastal locations fall within. Since the locations mentioned below are only examples, an understanding of the relative importance of sensitivity factors in the determination of sensitivity categories is important.

By far the most important process on both land and the water's edge that influences "sensitivity" is the amount of water on or near the surface. The more water on or near the surface, the greater the "sensitivity" and the greater the likelihood of transmitting degrading impacts. Assimilative capacity is the most important factor that affects sensitivity in water locations.

Different sensitivity factors are used for different land and water types.

FIGURE 9



1. LAND LOCATIONS

The first level of classification of land areas is by the amount of water present. The three basic land types are upland, dry terrace and wet terrace, as depicted in Figure 10 (refer to the Glossary of terms within this section).

Three factors have been used to further identify land locations and determine "sensitivity" within each of the three land locations. They are, from highest to least influence in the determination of the "sensitivity" of each location: soil fertility, disturbance, and permeability.

(a) Soil Fertility (Agricultural Capability and Woodland Suitability): Fertile, well-drained or moist, gently sloping, workable soils are valued as agricultural areas. These soils are the product of millenia of soil-forming processes. Once paved, they are irreparably lost.

(b) Disturbance: This factor indicates the levels of soil and vegetation, which are both valued resources. Since there is a larger time investment in soil formation, productive soils influence "sensitivity" more than does the existence of vegetation.

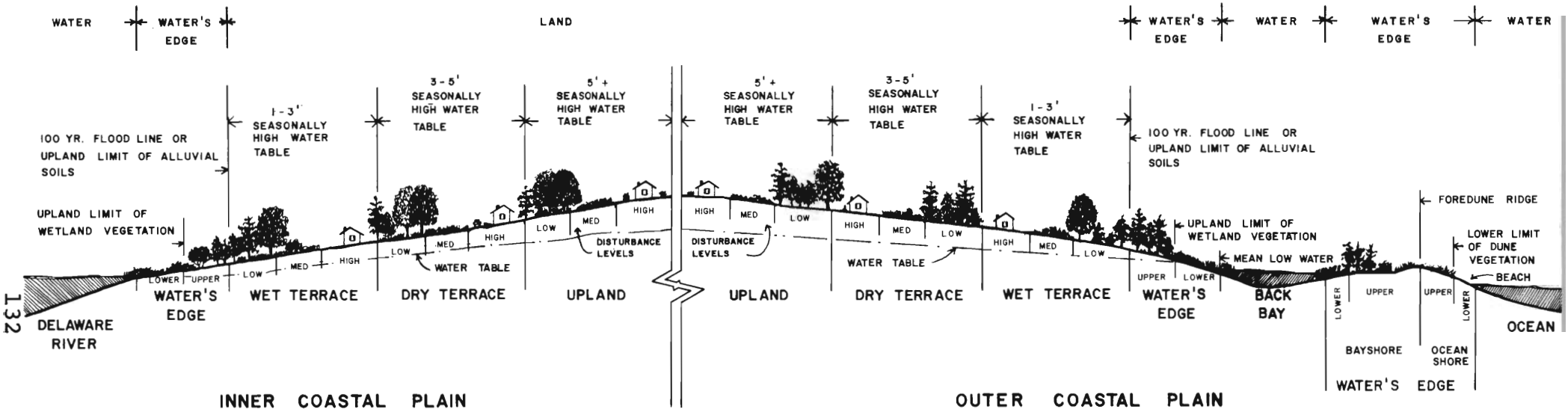
(c) Permeability: Soil permeability is of importance because it controls the rate at which surface water enters groundwater aquifer. Highly permeable soils are valued. High and low permeability may initiate the transmission of pollutants through or over the ground surface and into water bodies (medium permeable soils are less likely to transmit pollutants to adjacent water bodies). Permeability influences "sensitivity" less than either forest cover or soil productivity, because of the ability to have on-site performance requirements to recharge groundwater on-site and allow only that runoff which would occur under natural conditions.

2. WATER'S EDGE LOCATIONS

Five factors are combined to identify water's edge locations and determine "sensitivity": elevation above water level, assimilative capacity of adjacent water body, mobility of shoreline, water quality, and disturbance. The most important factor on water's edge locations which varies "sensitivity" is the elevation. Two water's edge types; upper water's edge and low water's edge, are used. Other factors -- assimilative capacity, water quality standard, ambient water quality of adjacent water bodies, and mobility of shorelines -- have about equal influence in determining the "sensitivity" of water's edge areas. One additional factor, disturbance, has a much lower influence on "sensitivity" than the other factors in water's edge areas (see Figure 10).

All water's edge areas have either a high "sensitivity" or are preservation areas. The influence of individual water's edge factors is less pronounced than in land areas. The consideration of the location as a water's edge area is more significant than a comparison between individual water's edge factors.

Figure 10: Basic Land and Water's Edge Types



*NOTE

1. All land types here may be further subdivided by permeability.

2. Wet and dry terraces are shown in relation to surface water bodies. Where only clay lenses in the substrate cause perched water tables, terrace types may occur that have no relation to surface water.

3. Land and water types are further divided by value factors such as soil fertility and scenic value to obtain sensitivity types.

The water's edge factors, from highest to least, which influence the determination of the "sensitivity" of each location are:

(a) Elevation: Low lying marsh lands and wetlands at or close to mean low water level are valued for their biological productivity. Development in these areas has a higher capability to impact coastal waters than more upland flood prone areas which may be inundated only at infrequent intervals.

(b) Assimilative Capacity: The larger the water body and the higher the flushing rate, the greater is the assimilative capacity. Shorelands of large, well flushed water bodies thus have a lower "sensitivity" than shorelands of small, poorly flushed water bodies.

(c) Mobility of Shoreline: Development placed near eroding shorelines is more liable to water damage.

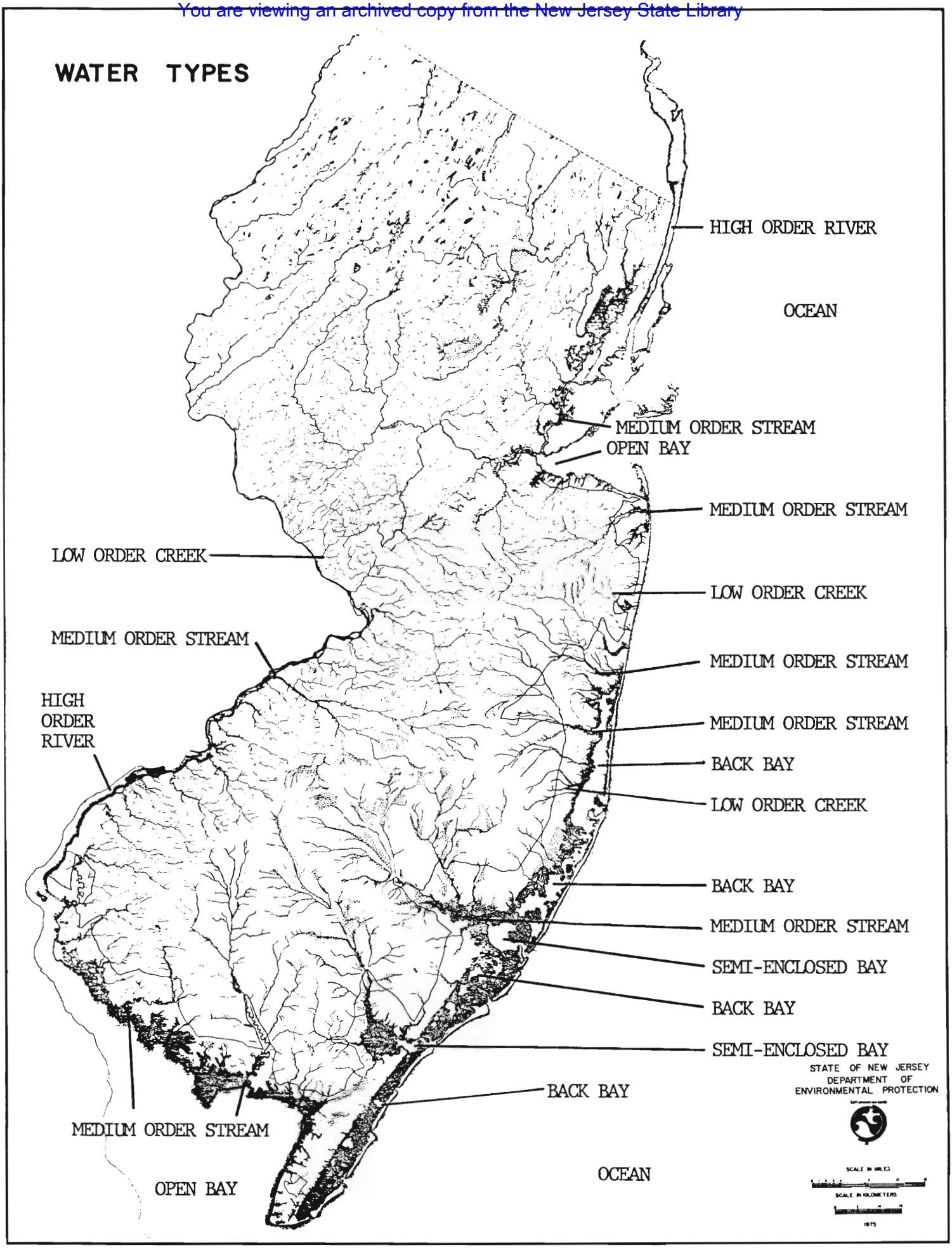
(d) Water Quality: At present, the Division of Water Resources in DEP has established eight water quality classifications throughout the state (see Surface Water Quality Standards, N.J.A.C. 7:9-4 et seq.). The classifications are referred to as TW-1, TW-2, and TW-3 for tidal waters, FW-1, FW-2, and FW-3 for freshwaters, and CW-1 and CW-2 for Atlantic Ocean waters. Each classification specifies designated uses and water quality criteria appropriate for each water body. For example, TW-1 is a higher classification than TW-3.

CLAM recognizes that "sensitivity" is influenced by the combination of three levels of water quality classifications and existing water quality. In general, the lower the water quality standard, the lower the "sensitivity" under CLAM of the water bodies and adjacent lands, provided that the ambient water quality is above standard.

In some waters, the existing water quality is better than the present standard. These water areas and adjacent lands are classified, according to CLAM, as relatively less "sensitive" than waters and adjacent land where existing water quality is below the present standard. It should be recognized that water bodies whose water quality is above a low standard are less sensitive than water bodies whose water quality is above a high standard. Coastal waters with present water quality below the established standard are already degraded below the acceptable limit, and are classified as high "sensitivity" according to CLAM. For these areas to be classified under CLAM as high "sensitivity", however, it must be technologically feasible in the near future to achieve the water quality criteria of the standard. Also, the uses designated as appropriate to the water body by the standard must be an existing reality or feasible in the near future.

The present DEP water quality classifications may require revision in the future in order to become more adequately calibrated to the varying environmental conditions of varying parts of the coast. DEP's proposed Pine Barrens water quality standards represent one example of this concept of defining special water quality standards for special parts of New Jersey's environment.

FIGURE 11



(e) Disturbance:

As with land areas, the time investment in vegetative growth is valued and the less the human disturbance the higher the sensitivity. Water's edge vegetation has special importance for coastal ecosystems.

3. WATER LOCATIONS

The main factor affecting "sensitivity" in water areas is that of assimilative capacity, which is used to categorize water areas into eight basic water types. Water locations are, in order of "sensitivity" from low to high: ocean, open bay estuaries, high order rivers, medium order streams, semi-enclosed bays, back bays, low order creeks and standing waters (see Figure 11).

Assimilative capacity is further determined by water volume and flushing rate. The greater the water volume or the higher the flushing rate, the higher the assimilative capacity and the lower the "sensitivity".

The second factor affecting "sensitivity" of water locations, but to a lesser degree than assimilative capacity, is disturbance. Disturbance is identified by the existing water quality and water quality standards and the existing bottom disturbance. (The degree of "sensitivity" in relation to water quality is discussed above under 2. WATER'S EDGE LOCATIONS.)

(i) Assimilative Capacity: The larger the water body and the higher the flushing rate, the greater the assimilative capacity. Large, well flushed water bodies thus have a lower "sensitivity" than shorelands of small, poorly flushed water bodies. Assimilative capacity is the degree to which a water body can dilute, absorb and naturally purify pollutants and render them non-toxic to downstream organisms.

(ii) Disturbance: This factor includes the level of water column and bottom disturbance. Because of the large time investment in water body bottom formation, the conditions of bottoms influence "sensitivity" more than does the condition of the water column.

B. Categories of Sensitivity to Development

Five broad categories indicate levels of "sensitivity" along a continuum from least to most sensitive coastal locations. The following text presents illustrative locations along this continuum. The "sensitivity" axis of Figures 12 and 13 depicts many of these locations. The Glossary provides definitions for the various terms, such as specimen trees and dry terrace. In each of the five categories, illustrative location types are indicated, first for Land and Water's Edge examples, and, second, for Water area examples.

Sensitivity Category No. 1 - LOW SENSITIVITY

Land and Water's Edge

(a) Upland, Dry and Wet Terraces: high disturbance, deteriorating structures on the site. e.g. some areas of Bridgeton.

(b) Upland and Dry Terrace: medium disturbance with no special valued types, e.g. dry infertile old fields.

(c) Upper Water's Edge: high disturbance, urban areas of barrier islands with deteriorating structures on site, e.g. some areas of Atlantic City, Asbury Park.

Water

(a) Ocean: deeper than six feet

Sensitivity Category No. 2 - MODERATE SENSITIVITY

Land and Water's Edge

(a) Upland and Dry Terraces: prime recharge with no forest, e.g. highly permeable old fields.

(b) Upland and Dry Terrace: forest

(c) Wet Terrace: medium disturbance, e.g. moist fields.

Water

(a) Ocean: less than six feet in depth

(b) Open Bay: deeper than six feet with water quality above, or well above, standard

(c) Open Bay: between six and eighteen feet in depth with water quality well above standard

(d) High Order Rivers: water quality well above standard

(e) Medium Order River: water quality well above standard

Sensitivity Category No. 3 - MODERATELY HIGH SENSITIVITY

Land and Water's Edge

(a) Upland, Dry and Wet Terraces: prime agriculture capability

(b) Upland, Dry and Wet Terraces: prime woodland suitability

(c) Upland and Dry Terrace: forest and prime recharge

(d) Wet Terrace: forest

(e) Wet Terrace: high disturbance, deteriorating structures on site

Water

(a) Open Bay: between six and eighteen feet in depth with water quality above standard

(b) Open Bay: less than six feet in depth with water quality above, or well above, standard

(c) Medium Order River: water quality above standard

(d) Semi-Enclosed Bay: greater than six feet in depth with water quality above, or well above, standard

(e) Semi-Enclosed Bay: between one-half and six feet in depth with water quality well above standard

(f) Back Bay: deeper than six feet with water quality above, or well above, standard

Sensitivity Category No. 4 - HIGH SENSITIVITY

Land and Water's Edge

(a) Upland, Dry and Wet Terraces, Upper and Lower Waters Edge: high disturbance with well maintained structures

(b) Upland, Dry and Wet Terraces: prime wildlife habitats

(c) Upland, Dry and Wet Terraces: prime forest

(d) Upland, Dry and Wet Terraces: combinations of prime agriculture or woodland suitability, prime recharge and prime forest

(e) Upper and Lower Water's Edge: high disturbance with deteriorating structures on site excluding only upper water's edge, urban areas of barrier islands

(f) Upper and Lower Water's Edge: forest

(g) Upper and Lower Water's Edge: medium disturbance

(h) Scenic Areas

(i) Historic and Prehistoric Areas

(j) Prime High Intensity Recreation Areas

(k) Buffer Areas surrounding Preservation Areas

Water

(a) Semi-Enclosed Bay: between one-half and six feet in depth with water quality above standard

(b) Semi-Enclosed Bay: less than one-half feet deep with water quality above, or well above, standard

(c) Back Bay: less than six feet in depth with water quality above, or well above, standard

(d) Low Order Creek: water quality above, or well above, standard

(e) Standing Water: deeper than six feet with water quality above, or well above, standard

(f) Standing Water: between one-half and six feet in depth and water quality well above standard

(g) Most Water Bodies: water quality below standard

(h) Navigation Channels (for uses other than boat traffic)

Sensitivity Category No. 5 - PRESERVATION AREAS

Land and Water's Edge

(a) Upper and Lower Water's Edge: prime forest

(b) Upper and Lower Water's Edge: prime wildlife habitats

(c) Upper Water's Edge: dunes

(d) Lower Water's Edge: tidal wetlands

(e) Lower Water's Edge: fresh water marsh

(f) Endangered Species Habitat

(g) Areas of Scientific and Education Importance

(h) Specimen Trees

(i) Prime Low Intensity Recreation Areas

Water

(a) Standing Water: between one-half and six feet in depth and water quality above or below standard

(b) Standing Water: less than one-half foot deep and water quality well above, and above or below standards

(c) Surf Clam Beds

(d) Estuarine Shellfish Beds

(e) Finfish Nursery Areas

(f) Finfish Migratory Pathways

(g) Shipwrecks

III. DEFINING THE "POTENTIAL" OF LOCATIONS

The second element of the Coastal Location Acceptabiity Method is "potential". This is an examination of the positive factors particular locations, or types of locations, offer for different types of development. For example, two undeveloped areas - site A and site B - may have similar vegetation and wildlife, and therefore offer equal "sensitivity" to development. Site A, however, may be far removed from any development, while site B is near a major road, a sewer system with excess capacity and a good water supply. Site B then offers higher "potential" for development.

Typically, environmental planning has considered only "sensitivity". The Coastal Location Acceptability Method takes the next major step by incorporating "potential" in its analysis. This means that the Department of Environmental Protection will be considering the positive, as well as the negative, reasons to develop a particular site.

The "potential" analysis will not be completed for specific types of coastal locations until the winter of 1978. Analysis of a site's "potential" for a particular use can be considered in decision-making in the short term, however, by using information specific to a site proposed for development. This information can be obtained from state and local governmental agencies and from the applicant for a particular permit or funding decision.

In the long run, relatively specific information on the "potential" offered by coastal locations will be publicly available in printed form. An interim step in this direction will be DEP-OCZM's publication of A Pilot Study of Lower Cape May County: A Method for Coastal Resource Management (September 1977), which is the first effort to apply CLAM to a specific area.

The factors which determine the "potential" of a location for single family detached housing are given below as an example. These factors were selected from lists of location factors generated by a literature search and a questionnaire to developers.

Illustrative Potential Factors For Single Family Detached Housing

Access to: roads
railroads
airports
surface water
sewers
public water supply
schools
shops
Availability of Open Space
Flooding
Drainage
Load bearing capacity
Depth to seasonal high water table
Soils suitable for septic tanks
Vegetation

IV. RANGES OF ACCEPTABILITY - THE PROCESS OF COMBINING SENSITIVITY AND POTENTIAL

As outlined earlier, CLAM requires that, in order for a decision to be made on whether a location may be developed, both sensitivity and potential must be considered.

This part presents principles to guide these trade-off decisions, charts showing how "sensitivity" and "potential" may be combined, and definitions of six categories of "acceptability".

A. Trade-Off Principles

DEP-OCZM has chosen two general principles to guide these trade-offs between "sensitivity" and "potential":

First Principle

"Sensitivity" shall, within limits, decrease in influence in areas of high "potential" to allow more concentrated development. Development of a site on the fringe of an urban area, for example, might well be encouraged despite the "sensitivity" represented by vegetation and soils on the site.

Second Principle

In locations with low "potential", development shall be discouraged irrespective of sensitivity. For example, few valued resources would be lost if a dry, infertile upland old field were developed. But if the "potential" for development of that site is low (for example, assume the site is far from roads and sewers), the "acceptability" for development will also be low.

The outcome of "Acceptability Analysis" - which specific locations will be acceptable - will vary depending on the location and use involved. By the summer of 1978, DEP-OCZM expects to publish tables to help developers, interested citizens, planners and regulators to determine sites most suited for development. In the meantime, "acceptability" determinations will be made using information specific to a particular coastal decision and within the planning structure as it now exists.

B. Combining "Sensitivity" and "Potential"

Two charts on the following pages, Figures 12 and 13, indicate approximately how "sensitivity" and "potential" combine to yield "acceptability". The bars on the charts represent five levels of "sensitivity". The length and position of the bar determines the "acceptability" category read on the left hand (vertical) side. Three ranges of "potential" are shown within each bar. Thus the "acceptability" when "potential" is high is across from the portion of each bar with the smallest dots.

For example, intense development is encouraged in old fields in dry conditions, but only when "potential" is high. When "potential" is low, development is discouraged.

Definitions are given for the six "acceptability" categories presented on the vertical axis of the charts. Illustrative "encouraged", "discouraged" and "restricted" uses are given for each of the six "acceptability" categories.

C. Definitions of Acceptability within Development, Conservation and Preservation Areas

This section defines six broad categories of acceptability, along the continuum of Development, Conservation, and Preservation Areas.

DEVELOPMENT AREAS

In Development areas, high or medium intensity development is encouraged to the exclusion of low intensity uses. While there is a concern for environmental quality, developmental uses may have an irreversible effect upon the natural resources of a location.

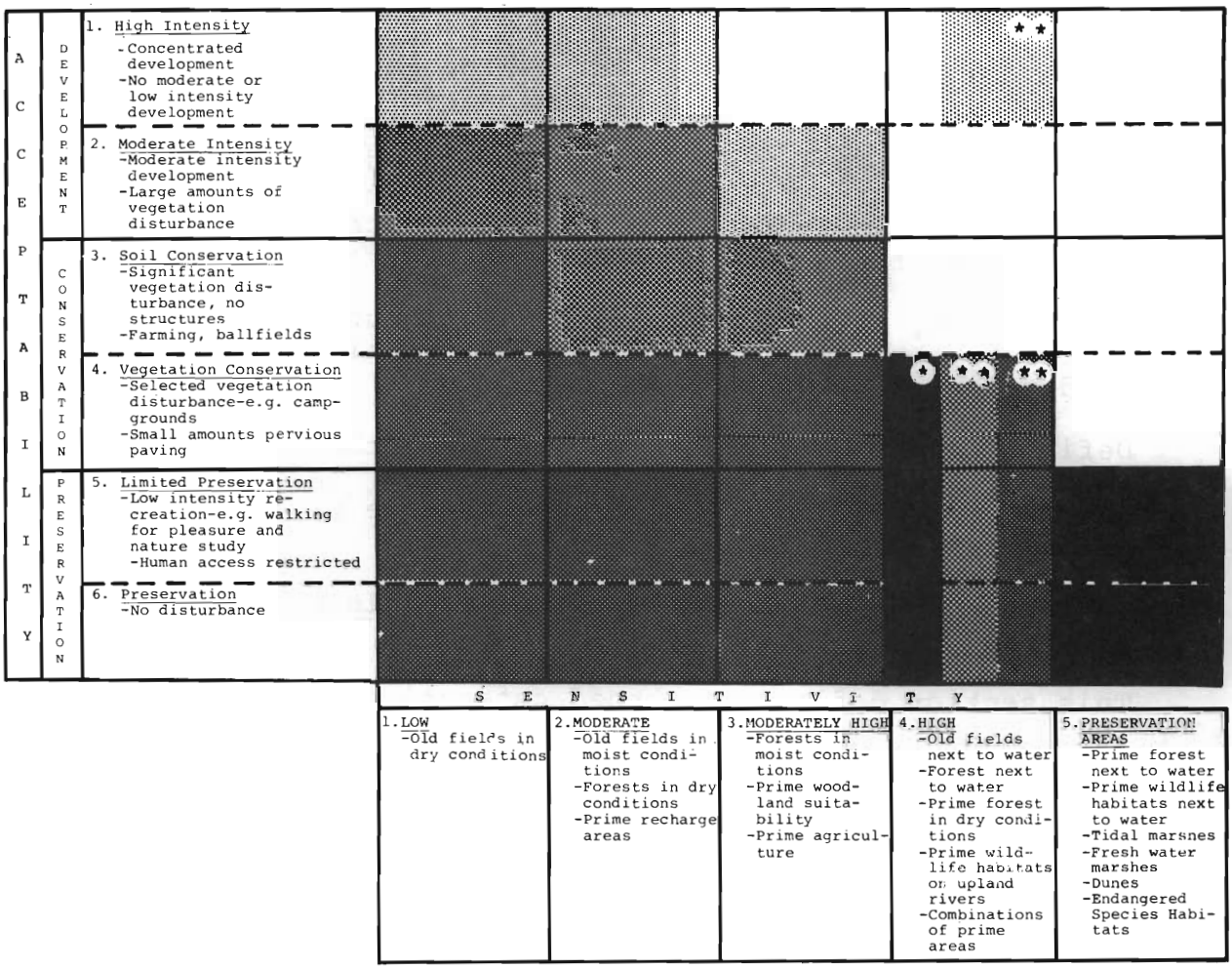
The Development category includes areas where potential is moderate or high and sensitivity is relatively low. All locations with high constraint and preservation areas are excluded from the development category. By definition, development areas tend to be suitable for most forms of development and uses. Two types of Development locations are noted: Moderate Intensity Development and High Intensity Development.

Acceptability Category No. 1 - High Intensity Development

High Intensity Development areas have high potential for development and low to moderate sensitivity. The urban centers of the coastal zone represent a high intensity development land area.

FIGURE 12

RANGE OR ACCEPTIBILITY OF LAND AND WATER'S EDGE FOR LAND USES



LEGEND AND NOTES

High Potential: Locations in which all factors affecting potential for development are present in the most preferred quantities. For housing this includes access to roads and ocean water amongst other factors.

Low Potential: Location in which all factors affecting potential for development are present in the lowest feasible quantities at which the use can be economically built and operated. For housing this includes very poor access to existing roads and ocean water amongst other factors.

Moderate Potential: Locations in which the factors affecting the potential for development produce a cost of development midway between the high and low potential locations.

High, Moderate and Low Potential: Locations in which the acceptability is determined by the sensitivity alone. All levels of potential, high, moderate and low are represented.

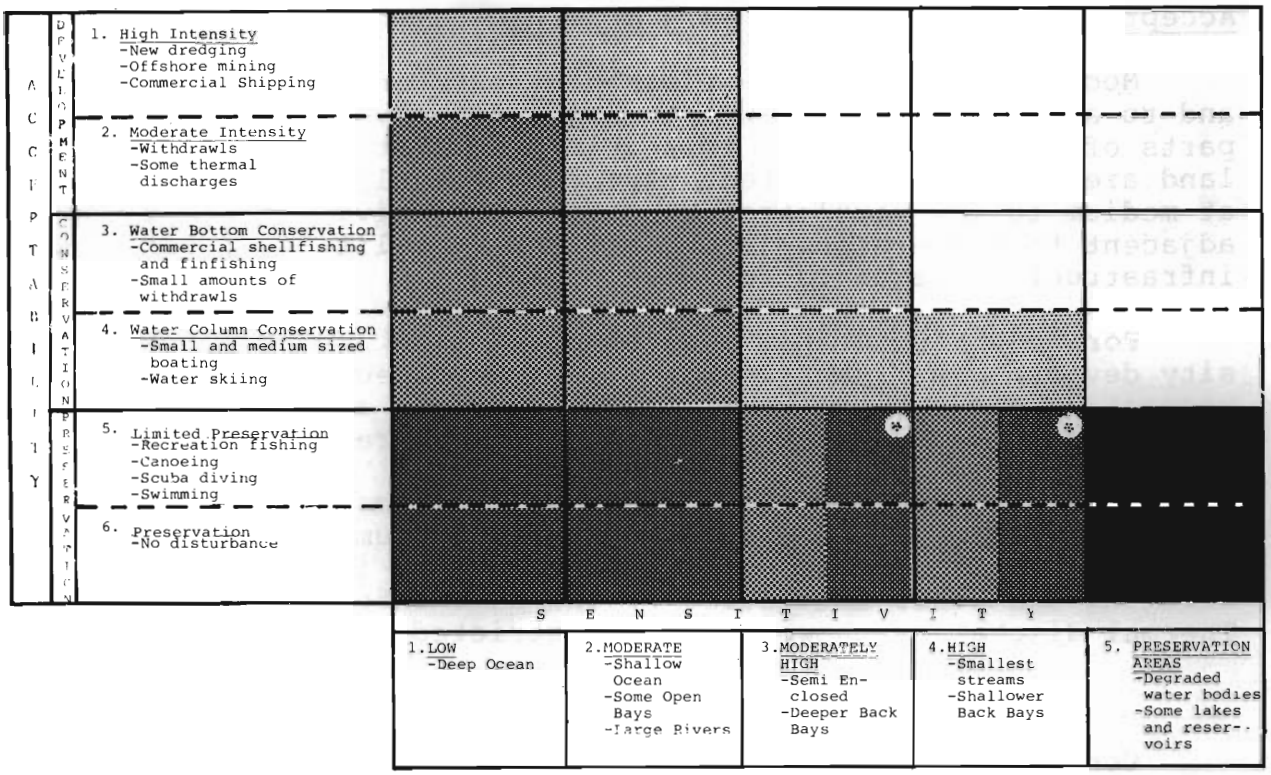
Discouraged Zone: A blank square indicates that development at the intensity indicated by the acceptability column is discouraged at the indicated level of sensitivity.

* Non water dependent uses only.

** Water dependent uses only.

FIGURE 13

RANGE OF ACCEPTABLILTY OF WATER FOR WATER USES



LEGEND AND NOTES

High Potential: Locations in which all factors affecting potential for water uses are present in the most preferred quantities. For shellfishing this includes, in water areas, a navigation channel fo sufficient depth leading to areas rich in shellfish.

Low Potential: Locations in which all factors affecting potential for development are present in the lowest feasib le quantities at which the activity can economically take place or operated. For shellfishing this includes, in water areas, shallow water or insufficient depth leading to areas poor in shellfish.

Moderate Potential: Locations in which the factors affecting the potential for water uses produce cost to produce or maintain a water use between the high and low potential locations.

High, Moderate and Low Potential: Locations in which the acceptability is determined by the sensitivity alone. All levels of potential, high, moderate and low, are represented.

Discouraged Zone: A blank square indicates that development at the intensity indicated by the acceptability column is discouraged at the indicated level of sensitivity.

* The "acceptability" is the same for moderate and low levels of potential

In these land areas, intensive development is encouraged. Low to moderate intensity development is discouraged, in favor of concentrating development activities. In land areas, very little of the site will remain vegetated, except as required to maintain aesthetic and environmental quality.

In water areas of this category, there may be significant water column and bottom disturbance, while still maintaining water quality standards. Most high intensity activities such as offshore mining, pipeline construction and commercial shipping are acceptable.

Acceptability Category No. 2 - Moderate Intensity Development

Moderate Intensity Development areas contain mostly moderate and to a lesser extent high potential for development. The suburban parts of the coastal zone represent a moderate intensity development land area. These land areas have been largely developed, although at medium to low population density. Extensive amounts of open land adjacent to these areas are near sewers, utilities, roads, and other infrastructure required for development.

For moderate intensity development land areas, moderate intensity development with structures is encouraged. Large amounts of vegetation disturbance is allowable in these areas. Proposals for low intensity uses in these areas are discouraged.

In water areas of this category, there may be limited water bottom disturbance and significant water column disturbance. In general, withdrawals shall not be limited in general. New dredging and other activities of the same intensity are acceptable. Thermal discharges, however, are restricted.

CONSERVATION AREAS

Conservation is the planned management and use of resources in such a way as to prevent over-exploitation, destruction or neglect. A major concern is that development activities not preclude the most beneficial use of the resources of coastal locations for future generations.

Conservation areas include a wide range of land and water types with significant environmental and socio-economic value. These areas may be altered by carefully controlled development.

These areas are capable of acting as buffer or transition areas to adjoining preservation features, thus providing these features with additional measures of protection. Yet, they can be significantly and adversely affected by human development, and they can be too hazardous for some forms of intensive development.

Two types of conservation locations have been defined, depending upon the degree of development permitted: vegetation and water column conservation, and soil and water bottom conservation.

Acceptability Category No. 3 - Soil and Water Bottom Conservation

Soil and water bottom conservation areas are the less environmentally "sensitive" of the conservation locations. These areas, however, can sustain only limited development and uses.

The land in this category can be considered essentially rural parts of the coastal zone. The irreversible disturbance of soil is discouraged. In these areas, activities basically without structures, such as farming and ball fields, are encouraged. Small amounts of pervious paving and a significant degree of vegetation disturbance will be acceptable. Very limited structures may be acceptable if they are essential to agriculture or recreational uses, do not irreversibly destroy soil and may easily be removed.

In water bodies of this category, significant disturbance of water bottoms is discouraged. In these areas, commercial shellfishing and finfishing and small amounts of water withdrawal shall be encouraged. High disturbance discharges shall be discouraged and withdrawals restricted.

Acceptability Category No. 4 - Vegetation and Water Column Conservation

Vegetation and Water Column Conservation areas are the more valued and vulnerable of the Conservation Locations. Leaving the areas in near natural condition is encouraged.

In land areas of this category, a small degree of maintenance may be necessary to allow the full benefit of some uses. For example, disturbance of selected vegetation at a campground could, in some cases, improve the facility. Structures will be discouraged and only a small amount of pervious paving will be permitted.

In water bodies of this category some uses will be allowed which cause small amounts of water column disturbance but no water bottom disturbance. Encouraged activities include a controlled amount of small and medium sized boating (number based on carrying capacity of the water body), water skiing, sea planes, and other activities of similar minor impact. Marinas and maintenance dredging shall be discouraged.

PRESERVATION AREAS

Preservation is the extremely limited use of a resource. The main concern is for restriction and protection from harm or destruction rather than use of the location's resources.

Preservation areas are land and water types of the coastal zone which have exceptional, unique, irreplaceable or overriding environmental or socio-economic importance to the coast. These areas shall be managed to protect their present condition where undisturbed. If preservation areas are presently disturbed, they shall be restored where possible to their natural condition. Two types of Preservation locations have been identified based upon the sensitivity of the area, and named for the degree of human access permitted: Limited Preservation locations and Preservation locations.

Acceptability Category No. 5 - Limited Preservation

While all preservation land and water areas have unquestionable value, some areas are better able to tolerate limited human use or disturbance by humans.

On land, low intensity recreation such as nature study and walking for pleasure, shall be encouraged in Limited Human Access Preservation areas. Structures, paving and landfilling shall be discouraged. Human access is restricted, limited to small areas where native vegetation is allowed to be disturbed.

In water bodies, low impact activities which maintain existing water quality and quantity and flow patterns, such as recreational fishing, small non-motor boating, canoeing, scuba diving, surfing and swimming shall be encouraged.

Acceptability Category No. 6 - Preservation

Land and water types which have the highest social and ecological value are called Preservation areas. They are extremely "sensitive" to the smallest disturbance. On land, structures, paving or disturbance of vegetation shall be discouraged. One hundred percent of the site shall remain undisturbed.

V. GLOSSARY

This part defines the terms used in the previous two sections to determine the "sensitivity" of coastal locations. Locations are divided into three broad categories -- Land, Water's Edge and Water -- for purposes of definition. Within these three categories, major location types are also defined.

Figures 2 and 3 give graphic representations of each of the thirteen major location types -- three Land types, two Water's Edge types, and eight Water types -- and important factors which cause sensitivity to vary. Reference can be made to these figures as each of the definitions are read.

At the outset it should be noted that different and more specific definitions of the required minimum or maximum width of the two buffers between land and water areas, known as the Upper Water's Edge and Lower Water's Edge, will be defined in the course of further DEP-OCZM studies.

A. Land Categories

1. Land Definition

- All areas, regardless of natural or artificial cover, above the 100 year flood hazard line as defined by NJDEP, Division of Water Resources, the flood prone line as defined by the U.S. Geological Survey (USGS), or the upland limit of alluvial (water deposited) soils as defined by the Soil Conservation Service (SCS), whichever is greater. Land areas include the following sub-division: uplands, dry terraces, and wet terraces.

Uplands - Those lands with a minimum year round depth to seasonal high groundwater table of 5 feet or greater.

Dry Terrace - Those lands with a depth to seasonal high groundwater table between 3 and 5 feet.

Wet Terrace - Those lands with a depth to seasonal high groundwater table between 1 to 3 feet.

2. Disturbance for Land

- The extent or amount by which the native adapted vegetation has been altered by human activities. Natural disturbance factors such as fire frequency or wildlife browsing are not incorporated into the following three levels of disturbance.

(a) High Disturbance - Land that is already developed. Included are structure sites and open areas immediately adjacent to structures, which are paved, in a high level of maintenance, or part of a developed site.

(b) Medium Disturbance - Open lands without structure and not immediately adjacent to structures where the native adapted vegetation has been highly disturbed. Included are all types of agricultural lands, successional meadows, old field (abandoned fields) and vacant urban lots.

(c) Low Disturbance - Areas growing climax or sub-climax native adapted vegetation with little obvious human interferences. Low disturbance areas are most commonly forested. A medium disturbance old field succeeding to forest shall be considered low disturbance area when the canopy height of the early successional forest exceeds a size to be determined by the Estuarine Contract.

3. Special Valued Land Areas

(a) Prime Agricultural Land - Those lands with soils of agricultural capabiity Classes I, II and III as classified by the Soil Conservation Service (SCS). These soils have few to moderate limitations restricting their agricultural use. These include deep, well-drained loams and sandy loams which are nearly flat or gently sloping.

(b) Prime Forest Lands - Areas growing native forest vegetation of exceptional quality or special value.

(c) Prime Aquifer Recharge - Those lands with soils of high permeability and seasonal groundwater table of 5 feet or greater. These areas allow infiltration of percipitation into groundwater reservoirs which are utilized as potable water sources and maintain stream base flows.

(d) Prime Woodland Suitability - Lands with soils of very high woodland suitability as determined by SCS. These ratings are based on field determination of average site index which is the height reached by the taller trees of a given species in natural unmanaged stands in a stated number of years.

(e) Historic and Archeological Sites - This category includes buildings, districts, or other landmarks presently appearing, or under consideration for inclusion, on the State Register of Historic Sites or the Federal Register of Historic Sites. Archaeological sites are known archaeological (Indian) habitations of state or national significance. These appear on state listing or are under consideration for future listing.

(f) Specimen Trees - The largest known individual (New Jersey state record) tree specimens of a species growing within the state as listed by N.J. Bureau of Forestry. A specimen tree site includes sufficient area immediately surrounding the specimen necessary for its survival. This area is normally defined as the outer limit of crown.

(g) Endangered Species Habitats - These are specific areas known to support flora and/or fauna species appearing on the federal endangered and threatened list or State of New Jersey list of endangered or threatened species.

(h) Areas of Scientific or Educational Importance - These are land areas, sites, or regions of a unique character, where natural physical or biotic processes normally obscure, or not occurring elsewhere, are clearly apparent for study.

(i) Scenic Areas - These are areas whose vegetation, land form and individual features characterize them as having high aesthetic value in their present condition. Included may be unobstructed views across open water and barrier island and major panoramic views as from a rise overlooking a vista with open fields, forests and streams.

(j) Prime Wildlife Habitats - Contiguous areas which are known to serve a critical function to native wildlife during some part of the year. Examples would include critical breeding or wintering areas such as colonial nesting bird rookeries and white-tail deer wintering yards.

(k) Prime Recreation Areas - These are areas where the existing recreational use is sensitive to disturbance. Such areas include beaches, fishing and hunting areas, swimming, canoeing and hiking areas, and other recreational areas. To date these have not been systematically identified.

B. Water's Edge Category

1. Water's Edge

- Areas periodically inundated, whether during twice daily tidal pulse, coastal storms, fluvial (stream) flooding, or seasonal rising of groundwater table. These areas lie between the mean low tidal water level and the lower boundary of the land. Included within the water's edge are all flood prone areas, tidal and non-tidal wetlands or marshes, beaches, and dunes. There are two types of water's edge areas: Upper Water's Edge and Low Water's Edge.

(a) Upper Water's Edge - Areas between the greater of the 100 year flood line or the upland limit of alluvial soils, and the upper limit of wetlands vegetation as delineated by NJDEP. This boundary is frequently marked by Phragmites communis. Included here are bog and other groundwater fed wetlands. These areas are frequently developed, agricultural, or forested. All dunes, defined as sand ridges paralleling ocean or estuarine shorelines, are included within the upper water's edge category, whether or not their elevation is below the 100 year flood line.

(b) Lower Water's Edge - Areas between the upper tidal wetlands boundary as previously delineated by NJDEP and the mean low water line whichever is the greater. In addition, nontidal wetlands are included in this group. An exception are inter-tidal flats, which, although exposed at low (ebb) tide, are included as Water types and not Water's Edge.

2. Disturbance for Water's Edge

(a) High Disturbance - Similar to the type of disturbance in other land areas. Notably this includes such activities as filling of wetlands. These areas are included in the waters edge category even if the fill has raised the elevation above the lower water's edge boundary.

(b) Medium Disturbance - Represented by agricultural uses. Also wetlands areas may be blocked from tidal inundation with resulting change in vegetative species composition including colonization by Phragmites communis or swamp hardwoods. Wetlands with impoundments or ditching are included in this category.

(c) Low Disturbance - Areas not significantly altered by human activities. These areas support natural lowland swamp forest types, bog vegetation, non-tidal wetland species and brackish tidal marsh species.

3. Specially Valued Water's Edge Areas

(a) Prime Forest Areas - Areas supporting typical south Jersey lowland swamp forest: Atlantic white-cedar, hardwoods, and pitch pine.

(b) Prime Wetlands - Tidal and non-tidal low lying marshland supporting native aquatic adapted species. Prime wetlands exhibit high vegetative productivity which is exemplified by Spartina alterniflora in brackish marshes.

(c) Eroding - These areas are not truly a specially valued type, but are of high concern owing to the hazard to adjacent human habitation. Areas include highly mobile shorefronts, due to variation of long-shore littoral drift, local currents, storms and other coastal processes.

(d) Other Areas - Note: Scenic, historic and archaeological, specimen trees, endangered and threatened species, critical wildlife habitats have been defined previously. The same criteria are used in water's edge areas as in water and land areas.

C. Water Category

1. Water Definition

- Areas of permanent surface water features below the mean low water level. Eight types of water's edge

areas are represented below: Ocean, Open Bay, Semi-Enclosed Bay, Back Bay, High Order River, Medium Order River, Low Order Creek and Standing Waters.

(a) Ocean - All areas of the Atlantic Ocean without confinement by land out to the limit of New Jersey's territorial sea, three nautical miles from the shoreline. The ocean extends from Sandy Hook south to Cape May Point.

(b) Open Bay - A large somewhat confined coastal water body that has a shoreline length in excess of three times the width of its outlet to the sea, with a major river mouth discharging directly into its upper portion. The outlet is typically wide and unrestricted. The Delaware and Raritan Bays are the only representatives of the type in New Jersey.

(c) Semi-Enclosed Bay (embayment) - A potentially confined coastal body with narrow restricted inlet and with significant fresh water inflow. In New Jersey this category includes only Great Bay and Great Egg Harbor.

(d) Back Bay - A coastal water body with restricted inlets to the sea and without significant fresh water water inflows. Included in New Jersey are Barnegat Bay, Reeds Bay, Absecon Bay, Lake's Bay and Great Sound, among others. These areas are also known as lagoons.

(e) High Order River - The order of river is defined by the volume of water flowing past a point in a given time measured in cubic feet per second (CFS). This high order category includes only New Jersey's major rivers, the Delaware and Hudson.

(f) Medium Order River - Included in New Jersey are the lower reaches of such streams as the Raritan, Navesink, Manasquan, Toms, Wading, Mullica, Great Egg, Maurice, Cohansey, and Salem and Rancocas. As with high order rivers, a range of flow volume in CFS will be used to define this type.

(g) Low Order River - These creeks are the smallest of the stream types. These are the small tributaries of medium and high order streams and small creeks flowing into bays. Included in New Jersey are such creeks as Cedar Creek, Oyster Creek, Dividing Creek, Salem Creek, and Crosswicks Creek.

(h) Standing Waters - Enclosed freshwater bodies with little or insignificant flow. The slow flushing makes these the most "sensitive" of all water bodies since pollutants tend to concentrate. Included are such water bodies as lakes, pond, reservoirs, and other freshwater impoundments. Examples are: Atlantic City Reservoir, Natco Lake, Deal Lake, Lilly Lake, Magnolia Lake and Glendola Reservoir.

2. Disturbance for Water Area

- Water disturbance is divided into two types: disturbance of the quality and quantity of the water column and disturbance of the water body bottom. Water column disturbances include industrial outfalls and urban runoff. Water body bottom disturbance includes, subaqueous disposal, dredging and laying of pipeline.

3. Specially Valued Water Areas

(a) Shellfish Beds - Estuarine bay or river bottoms (tidelands) presently supporting commercial and/or recreational fisheries for hard clams, oysters, bay scallops, and/or soft clams. These areas will include open, seasonally condemned, and/or specially restricted water quality classifications. Source areas for transplant (relays) and depuration processing are included, as well as natural and/or artificial oyster seed (spat) beds.

(b) Surf Clam - Those ocean (marine) waters within New Jersey's three mile territorial sea supporting commercially exploitable quantities of surf (sea) clams, regardless of their size. This will also include sea clam research sanctuaries established by the Bureau of Shellfisheries pursuant to the authority of N.J.S.A. 50:1-5 and adopted as N.J.A.C. 7:26-7.9, June 1974.

(c) Finfish Nursery Areas - This includes tidal bay and river (estuarine) waters known to support larval and juvenile finfishes which have commercial, recreational, or ecological importance in New Jersey. This will include most coastal estuaries with sufficient summer period dissolved oxygen levels.

(d) Prime Fishing - This category will include marine waters (within New Jersey's three mile territorial sea) and any land areas directly adjacent to water areas, which have a history of

supporting a significant quantity of recreational fishing activity. This will include identifiable marine bathymetric features such as: rock outcroppings, sand ridges, depressions, swales, basins, channels, and jetties (groins). Specific land sites included are those which lie immediately adjacent to surface water areas which provide public access. Examples are: inlet throat shorelines, canal shorelines, and Deal Lake flume edge.

(e) Finfish Migratory Pathways - Waterways (rivers, streams, creeks, bays, inlets) which are known to serve as passage ways for anadromous, catadromous, or estuarine dependent fishes to or from seasonal spawning areas. Species of concern include alewife (river herring) blueback herring, American shad, American eels, and striped bass.

(f) Shipwrecks - This category includes all permanently submerged shipwrecks lying within New Jersey's three mile territorial seas, whether sunk intentionally or unintentionally through acts of war or storms, which are known to support or concentrate territorial and/or migratory finfish and lobsters for some part of the year. Also included in this category are artificial fishing reefs.

(g) Navigation Channels - Deeper water areas presently maintained (dredged) and marked with bouys or stake markers, shown on N.O.S. charts as navigation channels.

VI. NEXT STEPS IN DEVELOPING CLAM

The present status of CLAM is in part conceptual. As presented in the Strategy, CLAM can now be used to guide coastal decisions. Several major studies to be conducted during the next two years, however, will enable DEP to use CLAM to formulate increasingly specific coastal policies which can be used in advance of specific permit applications or funding requests.

The Estuarine Study, to be begun in September 1977 and completed in early 1978 by Jack McCormick and Associates, Inc. will determine the environmental impacts potentially caused by coastal land and water uses. The study will recommend thresholds of acceptable impact, and will address coastal regional and site design features most appropriate for wise resource management. The study will be more specific regarding the "sensitivity" element of CLAM as well as other types of policies.

While the Estuarine Study will focus on the "sensitivity" to development of coastal land and water locations, a separate study will provide an analysis of the "potential" or opportunity for development of specific coastal locations. This study will examine the locational needs of different types of development and determine the economic feasibility of various sites for development. The study of "Development Potential" will begin in late 1977 with elements of this study shared between a contractor and DEP-OCZM staff.

A third study, on the socio-economic impacts of coastal development, may provide a useful complement to the Estuarine and Development Potential Studies. This study has only reached a conceptual stage and a commitment to it has not been made. The idea for the study would be to identify socio-economic areas within the coastal zone, and to identify the positive and negative socio-economic impacts caused by the introduction of various types of development. The study would identify thresholds of acceptable impact and recommend permissible land and water uses for each region. The study would be based on quantitative information such as current patterns and trends in population, migration, housing, income, occupation, education, crime, health, industry and transportation, and more qualitative data regarding the social and potential network of a location.

Other important steps which will help CLAM is development include mapping, and a Developer's Handbook. Section Five of the Strategy, on NEXT STEPS IN COASTAL MANAGEMENT, describes these projects.

APPENDICES

Appendix Two: Coastal Management under the CAFRA Permit Program: 1973-1977

On September 19, 1973, the Coastal Area Facility Review Act (C.185, P.L. 1973, N.J.S.A. 13:19-1 et seq.), known as "CAFRA", took effect. The Legislature declared that the coast was an "exceptional, unique, irreplaceable and delicately balanced" area, and stated that "the coastal area should be dedicated to those kinds of land uses which promote the public health, safety and welfare, protect public and private property, and are reasonably consistent and compatible with the natural laws governing the physical, chemical and biological environment". The Act required State review, within a delineated coastal area, of proposed facilities, including energy facilities, wastewater facilities, most industrial land uses, and housing developments of 25 or more units.

In the four years since the Act took effect, 211 applications have been received, of which 144 have been approved, 15 have been denied, 22 have been cancelled and 30 are pending. Of the total received, 131 are for housing, 52 are sewage construction projects, two are major energy facilities and ten are for industrial facilities.

Under CAFRA, over 13,200 dwelling units have been approved comprising over 7,000 detached single family units, 1,600 townhouses, 1,400 apartments, 2,000 hotel and motel rooms and 1,100 campsites. Approximately 3,300 dwelling units have been denied a CAFRA permit. Figure 1 presents a statistical summary of action under the CAFRA permit program.

Denials

The fifteen denials were issued without prejudice and applicants were encouraged to resubmit alternative plans, working with the staff of the Office of Coastal Zone Management, CAFRA Permit Section. In the cases of Tranquillity Park and Brigantine, the applicants resubmitted designs after their projects were denied, and in both cases the resubmitted applications were approved. Three applicants for projects denied a CAFRA permit are presently discussing alternative plans with DEP-OCZM.

A brief description of each denial follows.

FIGURE I

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL ZONE MANAGEMENT, CAFRA PERMIT SECTION

CAFRA PERMIT APPLICATIONS, WEEKLY STATISTICAL REPORT AS OF September 19, 1977

	NORTH AND CENTRAL SHORE			SOUTH SHORE			DELAWARE BAY		
Permit Applications	Middlesex	Monmouth	Ocean	Burlington	Atlantic	Cape May	Cumberland	Salem	TOTAL
Approved	0	20	73	0	19	26	2	1	144
Denied	0	1	5	0	2	6	1	0	15
Pending	1	4	11	0	6	5	2	0	30
Cancelled	1	2	8	0	4	7	0	0	22
Total	2	27	97	0	31	44	5	1	211
Facility Type of Applications									
Residential	1	17	59	0	19	33	2	0	132
Sewage	1	8	28	0	8	5	2	0	54
Energy	0	0	0	0	1	0	0	1	2
Industrial	0	1	5	0	2	1	1	0	10
Other	0	1	5	0	1	5	0	0	13
Total	2	27	97	0	31	44	5	1	211

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL ZONE MANAGEMENT, CAFRA PERMIT SECTION
CAFRA PERMIT APPLICATIONS, WEEKLY STATISTICAL REPORT AS OF September 19, 1977

	NORTH AND CENTRAL SHORE			SOUTH SHORE			DELAWARE BAY		
Application Status: Residential Facilities	Middlesex	Monmouth	Ocean	Burlington	Atlantic	Cape May	Cumberland	Salem	TOTAL
Approved	0	10	43	0	9	18	0	0	80
Denied	0	1	5	0	2	6	1	0	15
Pending	0	4	6	0	6	3	1	0	20
Cancelled	1	2	5	0	3	6	0	0	17
Total	1	17	59	0	25	33	2	0	132

Application Status: Sewage Facilities									
Approved	0	8	22	0	5	4	1	0	40
Denied	0	0	0	0	0	0	0	0	0
Pending	1	1	3	0	3	1	1	0	10
Cancelled	0	0	3	0	1	0	0	0	4
Total	1	9	28	0	11	5	2	0	54

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL ZONE MANAGEMENT, CAFRA PERMIT SECTION
CAFRA PERMIT APPLICATIONS, WEEKLY STATISTICAL REPORT AS OF September 19, 1977

	NORTH AND CENTRAL SHORE			SOUTH SHORE			DELAWARE BAY		
Approved Dwelling Units	Middlesex	Monmouth	Ocean	Burlington	Atlantic	Cape May	Cumberland	Salem	TOTAL
Single Family Units	0	151	6018	0	131	737	0	0	7037
Townhouses	0	204	1217	0	114	70	0	0	1605
Apartments	0	509	118	0	610	192	0	0	1429
Hotel & Motel Rooms & Other Units	0	0	991	0	541	469	0	0	2001
Campsites	0	0	0	0	162	980	0	0	1142
Total	0	864	8344	0	1448	2548	0	0	13,214
Denied Dwelling Units									
Single Family Units	0	0	840	0	44	406	0	0	1,290
Townhouses	0	0	40	0	404	0	0	0	444
Apartments	0	0	502	0	0	40	0	0	542
Hotel & Motel Room & Other Units	0	0	0	0	0	46	0	0	546
Campsites	0	0	0	0	0	375	112	0	487
Total	0	0	1382	0	448	867	112	0	3,309

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
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CAFRA PERMIT APPLICATIONS, WEEKLY STATISTICAL REPORT AS OF September 19, 1977

	NORTH AND CENTRAL SHORE			SOUTH SHORE			DELAWARE BAY		
Pending Dwelling Units	Middlesex	Monmouth	Ocean	Burlington	Atlantic	Cape May	Cumberland	Salem	TOTAL
Single Family Units	0	52	717	0	0	0	0	0	769
Townhouses	0	166	0	0	280	0	0	0	446
Apartments	0	272	150	0	0	0	100	0	522
Hotel & Motel Room & Other Units	0	57	880	0	96	142	0	0	1,175
Campsites	0	0	0	0	0	0	0	0	0
Total	0	547	1,747	0	376	142	100	0	2,746
Cancelled Dwelling Units									
Single Family Units	155	49	325	0	123	0	0	0	652
Townhouses	0	0	411	0	0	368	0	0	779
Apartments	0	35	160	0	196	40	0	0	431
Hotel & Motel Rooms & Other Units	0	0	0	0	0	266	0	0	266
Campsites	0	0	0	0	0	329	0	0	329
Total	155	84	896	0	319	1003	0	0	2457

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF COASTAL ZONE MANAGEMENT, CAFRA PERMIT SECTION
CAFRA PERMIT APPLICATIONS, WEEKLY STATISTICAL REPORT AS OF September 19, 1977

	NORTH AND CENTRAL SHORE			SOUTH SHORE			DELAWARE BAY		
Total Dwelling Units By Type	Middlesex	Monmouth	Ocean	Burlington	Atlantic	Cape May	Cumberland	Salem	TOTAL
Single Family Units	155	252	7900	0	298	1143	0	0	9748
Townhouses	0	370	1668	0	798	438	0	0	3274
Apartments	0	816	930	0	806	272	100	0	2924
Hotel & Motel Rooms & Other Units	0	557	1871	0	637	1023	0	0	4088
Campsites	0	0	0	0	162	1684	112	0	1958
Total	155	1995	12,369	0	2701	4560	212	0	22,092
Total Dwelling Units Application Status									
Approved	0	864	8,344	0	1558	2548	0	0	13,314
Denied	0	500	1,382	0	448	867	112	0	3,309
Pending	0	381	1,747	0	376	142	100	0	3,012
Cancelled	155	84	896	0	319	1003	0	0	2,457
Total	155	1995	12,369	0	2701	4560	212	0	21,826

Applications for two residential facilities, Toms River Condominium, (Opinion No. 1, CA 73-003), and Brigantine Towers, (Opinion No. 22, CA 74-12-079), were denied because they proposed construction of high rise buildings in low rise areas. DEP's policy under CAFRA has been to maintain the character and waterfront view of existing low rise shore communities.

The first denial, Toms River Condominium, was instructive, as it led to the first test case before the Coastal Area Review Board and the first court case. The Review Board, authorized by CAFRA, is composed of the Commissioners of Community Affairs, Environmental Protection and Labor and Industry. In February 1976, the Appellate Division of the Superior Court strongly upheld the CAFRA statute and the decision of the Review Board and the Commissioner 140 N.J. Super 135 (1976).

After the Brigantine Towers permit denial, the applicant, in conjunction with DEP staff, designed a two and three-story, townhouse development to replace the twin 16 story towers, and submitted a new CAFRA permit application. This transition to a medium density, low rise multi-family residential land use fit in with the surrounding land uses and was in character with the area of the shore community. The new CAFRA application was therefore approved.

"Tranquillity Park", an application for a single-family dwelling project in Cape May County (Opinion No. 27, CA 75-4-104), was denied because part of the site was flood prone, and because the development would have resulted in a loss of valuable aquifer recharge areas and contribute to an increase in salt water intrusion of important aquifers. The design of the project would also greatly decrease the existing wildlife habitat and lead to the loss of actively farmed prime agricultural land. The applicant appealed the decision but also worked with the Department to explore alternate and revised site plans, including a conservation easement for a considerable portion of the site as an open space and agricultural preserve. The Department approved the revised project, with the conservation easement, in April 1977.

A residential project, Courtway Associates (Opinion No. 25, CA 74-041), in Cape May County, was denied due to soil conditions unsuited to accept a drainage system, and septic systems and to poor site planning. A proposed campground in Cumberland County, Fortesque Realty (Opinion No. 28, CA 75-4-103), was also denied due to inadequate soils for proposed septic treatment systems as well as its potential negative impacts on the surrounding wetlands. The latter applicant decided to build only 24 campsite units on the site and avoided CAFRA jurisdiction.

Inappropriate and incompatible use of land has also been a reason for denial of a CAFRA permit in the case of a proposed apartment building, Bay Cove Condomium in Beach Haven on Barnegat Bay (Opinion No. 23, CA 75-2-089). In this instance, the proposed site was adjacent to an amusement park and an area devoted to commercial uses. If built, the project would also have blocked visual access to the bay, and introduced a high-density intrusion into a surrounding low-density area. In addition, the application gave little consideration to the public trust lands at the site.

A proposed three-story apartment building on an ocean-front site in the Ortley Beach section of Dover Township, Colony Company (Opinion No. 31, CA 76-0155-5), was denied because it involved the destruction of some of the few remaining sand-dunes along this highly-developed stretch of Ocean County. The applicant then obtained municipal approval to build only 24 units, and avoided CAFRA jurisdiction.

An apartment complex in Cape May, Balmoral Condominium (Opinion No. 21, CA 74-11-072), was denied largely on the grounds of the inadequate availability of wastewater treatment facilities in the city. In effect, a sewer moratorium was imposed under CAFRA, prior to the action of the Division of Water Resources to establish a sewer moratorium under its statutes. The anticipated wastewater treatment facilities available to the community and extreme ocean water pollution had forced closing of the beaches of Cape May City in the summers of 1975 and 1976.

Proposed construction of a campground at the Higbee Beach-Pond Creek Area (CA 75-05-107) has been the subject of two CAFRA permit denials, in December 1976 (Opinion No. 24) and April 1977 (Opinion No. 34). The Higbee Beach area, is a recreation area valued by the public and has unique environmental importance as a nesting area for migratory birds.

One denial under CAFRA (Opinion No. 35, CA 75-12-151) concerned a residential project known as Riverview Heights, on a riverfront site on the Great Egg Harbor River, in Hamilton Township, Atlantic County. This scenic area would have been permanently marred by the construction of housing on the river shoreline, but the denial did indicate that a revised site plan with housing away from the shoreline would be likely to receive approval from DEP under CAFRA.

The proposed construction of a marina, boat showrooms and a 500 room motel on Shark River Island (Opinion No. 37, CA 75-12-152), was the subject of a recent CAFRA permit denial. The original application was for a 465 slip marina, buildings for boat sales, and boat storage, a motel, swimming pool, indoor recreational facilities, and parking for over 1,000 vehicles. An alternative and slightly reduced plan was submitted to the DEP in June 1976, but analysis by staff of the CAFRA Permit Section showed that the addition of 465 boats would cause further degredation to the embayment which is presently closed to shellfish harvesting. In addition, the construction would destroy the last remaining wetlands in the estuary. It was also felt that the traffic congestion on to Route 35, with its limited bridge openings, would be severe after the construction of the project.

One applicant proposed to develop a residential condominium retirement community in Brick Township, "Barnegat Village", (Opinion No. 40, CA 75-07-123) consisting of 840 units, a nine hole championship golf-course, tennis courts, swimming pool, and observation platforms extending into the wetlands. The Department denied the application, because the proposed development would result in negative impacts on the salt marsh environment and extensive destruction of prime forest areas. However, the Department encouraged the applicant to resubmit an application incorporating the site design recommendations made by the Office of Coastal Zone Management.

The latest denial under CAFRA concerned the construction of a 168 unit garden-apartment recreational complex in Tuckerton, Ocean County (Opinion No. 39, CA 75-10-137). Analysis by staff of the Office of Coastal Zone Management, CAFRA Permit Section showed that the construction of the proposed water detention basin would be inadequate because of the high water table. In addition, without municipal approval and appropriate plans, specifications and permits for the water supply system, the Tuckerton Water Works would not be able to supply potable water to the new development. The soils for the proposed development had severe limitations, and construction of housing units, a recreation area and roadways on these soils would render the facilities unsafe and subject to damage.

Approvals

CAFRA approvals have been given both with and without conditions attached. Conditions range from standard procedural and substantive conditions which, for example, prohibit a permittee from depositing excavated material or fill on or near trees or in areas where trees are to be preserved, to detailed substantive conditions such as the twenty-two conditions for the Hope Creek Nuclear Facility (Opinion No. 20, CA 74-014) in Salem County.

Among the conditions for the Hope Creek facility was a ban on the use of mixed uranium-plutonium oxide fuel rods at Hope Creek. DEP also required monitoring programs for impacts of radiation, salt and copper. In addition, the applicant, Public Service Electric and Gas Company, had to determine the station's effects on both terrestial and aquatic plant life, and on birds. Finally, the utility was required to file a plan acceptable to DEP describing how the facility will be decommissioned at the end of its useful life and how the site will be restored to its original appearance.

Extensive litigation resulted after the approval of the CAFRA permit for Hope Creek in, September 1975. The approval was appealed to the Coastal Area Review Board by a citizen's association, the New Jersey's Public Interest Research Group, and an interested individual. The Board, on January 20, 1976, unanimously affirmed the issuance of the permit. The New Jersey Public Interest Research Group then appealed to the Appellate Division of the Superior Court on procedural grounds (Docket A-2185-75) and on July 11, 1977 the New Jersey Supreme Court affirmed the decision.

CAFRA approvals have sometime been accompanied by pre-conditions. In an application involving oceanfront land development in the Borough of Stone Harbor, (Opinion No. 30, CA 75-7-125) in Cape May County, a conditional approval under CAFRA was appealed to the Coastal Area Review Board by an environmental group who felt that the project should have been denied, and by the applicant, the Borough, who felt that the approval was too restrictive. The Borough of Stone Harbor had wished to auction 29 building lots and make street improvements in order to raise money to finance major municipal capital improvements. The CAFRA application was approved with certain pre-conditions, including the required submission to the Division of Marine Services of a conceptual management plan for the entire area south of the proposed development, and the required submission of an initial detailed plan for a specific portion of the area, with an assurance that the area would be managed for a prupose consistent with the conservation of the natural resource area. The Coastal Area Review Board upheld the initial DEP approval and decided that the pre-conditions should be changed to conditions of the permit. This change was subject to the Borough's agreement not to sell the lots until the conditions of the permit had been met and approved by the Division of Marine Services.

Another CAFRA approval with pre-conditions was given for Crestwood Village (Opinion No. 19, CA 74-11-075), a retirement village in Ocean County. The proposed development was for 2,600 dwelling units for persons age 52 and over. The pre-conditions included the submission to DEP of an open space and pedestrian path plan and a preliminary site plan for the development of the entire site. The applicant was also required to alert prospective tenants that existing health care facilities in the area could be inadequate.

A Final Note

Four years of interim coastal management have proven that the CAFRA permit program is a fertile source of policy formulation. Many of the coastal policies first codified in the Interim Land Use and Density Guidelines for the Coastal Area and now incorporated in the Coastal Management Strategy were first articulated in the course of the CAFRA permit application review process. Selected, environmentally sensitive development has taken place in the Coastal Area under the aegis of the CAFRA permit program. The coastal policies established in the deliberately case-by-case manner of the permit review process, have contributed to the preparation of the Coastal Management Strategy.

Appendix Three: Coastal Management under the Wetlands Act of 1970: 1970-1977

The Wetlands Act of 1970 (c. 272, P.L. 1970, N.J.S.A. 13:9A-1 et seq.) took effect on November 5, 1970. This law highlighted growing public awareness of the importance of coastal marsh lands. The Act required the Department of Environmental Protection (DEP) to inventory and map the wetlands and promulgate regulations governing activities on these lands. The initial inventory and mapping took two years and cost $2.2 million to complete. The first areas came under regulation in April 1972. Since that time, the coastal wetlands of eleven counties, encompassing approximately 243,540 acres, have been placed under state regulations requiring a permit for certain activities and prohibiting others.

In the seventeen years prior to the passage of the Wetlands Act, an average of 1,900 acres of New Jersey coastal wetlands each year were lost to development. Since the Act took effect in 1972, DEP has permitted the development of only 375 acres of wetlands, through the issuance of 116 permits. During the same period, six permit applications have been denied, 43 applications were submitted and withdrawn, and 20 applications are pending (as of August 31, 1977).

Figure 2 depicts, by county, the record of the wetlands management program.

Half of the Wetlands permit applications came from Atlantic and Cape May Counties. Various uses of wetlands in this area were permitted. Maintenance of existing utilities dominate the applications from Atlantic County. In the future the number of permit applications may be increased for such complex and large-scale projects as hotel-casinos and onshore support bases for offshore oil and gas exploration.

Although Ocean County is the fastest growing county in the state, Wetlands permit applications for the county amount to only 18 percent of the total, with residential applications accounting for 29 percent of the county total. Many of the utility applications dealt with the three service areas of the Ocean County Sewerage Authority, which are presently in the planning or construction phases. Lack of sewerage facilities in the low lying shore areas have prevented the development of residential structures and has shifted the housing demand inland, away from wetlands. As these sewerage service areas become operational, increased demand for housing can be expected along the waterways. The number of wetlands permit applications for residential housing for the Central Shore is likely to increase significantly.

FIGURE 2 STATUS OF WETLANDS PERMIT APPLICATIONS DATE: 8/31/77

COUNTY	DECISION	USES							
		Residential	Utility	Recreation	Piers & Docks	Bulkheads	Bridges & Roads	Other	Total
Middlesex	Approved								
	Denied								
	Pending								
	Withdrawn							1	1
	Total							1	1
Monmouth	Approved		3	1	2	1	1	3	11
	Denied								
	Pending	1		1					2
	Withdrawn	3	3	1					7
	Total	4	6	3	2	1		3	20
Ocean	Approved	6	11	2		1	1	5	26
	Denied						1		1
	Pending	1	1	1				1	4
	Withdrawn	3	3						6
	Total	10	15	3		1	2	6	37
Burlington	Approved		2		1		1	1	5
	Denied								
	Pending								
	Withdrawn		1	1			1	1	4
	Total		3	1	1		2	2	9
Atlantic	Approved	1	12	1	10	3	1	5	33
	Denied							1	1
	Pending	1	1			2		1	5
	Withdrawn	1				3	1	1	6
	Total	3	13	1	10	8	2	8	45
Cape May	Approved	5	7	1	9	1	1	5	29
	Denied			1			1		2
	Pending	1				1		2	4
	Withdrawn	3	2		1	5	1	1	13
	Total	9	9	2	10	7	3	8	48
Cumberland	Approved		1		4		1		6
	Denied			1					1
	Pending							1	1
	Withdrawn			1			1		2
	Total		1	2	4		2	1	10

COUNTY	DECISION	USES							
		Residential	Utility	Recreation	Piers & Docks	Bulkheads	Bridges & Roads	Other	Tot
Salem	Approved		2						2
	Denied								
	Pending								
	Withdrawn								
	Total		2						2
Gloucester	Approved		1		1		1	1	4
	Denied							1	1
	Pending								
	Withdrawn		2					2	4
	Total		3		1		1	4	9
Camden	Approved								
	Denied								
	Pending						1	2	3
	Withdrawn								
	Total						1	2	3
Mercer	Approved								
	Denied								
	Pending								
	Withdrawn						1		1
	Total						1		1
TOTALS	Approved	12	39	5	27	6	7	20	11
	Denied			2			2	2	6
	Pending	4	2	2		3	1	8	2
	Withdrawn	10	11	3	1	8	5	5	4
	Total	26	52	12	28	17	15	35	18

Cumberland and Salem Counties represent the undeveloped areas of southern New Jersey. Farming is the basic industry for this area, and helps explain the limited number of Wetlands permit applications. No significant increase is anticipated in the near future. Few areas of wetlands remain along the highly developed Delaware River Area; consequently, fewer applications are made for this three-county section of the state.

Decisions

To date, 12 of the 26 residential permit applications have been approved for approximately 134 dwelling units. No residential construction permit applications have been denied, five are pending, and nine were withdrawn. Nevertheless, the Wetlands Act has had a significant impact on the housing industry since 1970.

Lagoon developments along the Atlantic Coast, built prior to 1970, used over 9,000 acres of land, mostly wetlands, to support 14,600 dwelling units. Implementation of the Wetlands Act has discouraged developers from proposing lagoon development. Since the Act took effect, less than one acre of wetlands has been lost for lagoon development (a bulkhead for an existing development). Developers have perceived too many obstacles, economic as well as environmental, to pursue new lagoon development involving wetlands.

As of August 31, 1977, the Department had denied six Wetlands permit applications involving three roads, a recreation area, a parking lot, and a spoil disposal site. DEP based most denials on the availability of feasible upland alternatives to the proposed projects which would reduce or avoid environmental damage to the wetlands. The projects did not meet the findings of fact contained in Section 7.1 of the Wetlands Regulations one of which requires that a permit shall be issued only if there is no prudent or feasible alternative on a non-wetlands site. All of these denials were without prejudice and did not prevent the applicant from submitting a new application for a revised project.

The denial of the spoil disposal site in Logan Township, Gloucester County was appealed by the applicant and an administrative hearing was held by an independent hearing officer. As a result of testimony submitted, the previous denial was upheld except for a small portion of wetlands with only marginal value. The denials of a road and parking lot are presently under appeal and testimony will be heard by the DEP hearing officer.

Litigation

Little litigation has taken place challenging the Wetlands Act and regulations. To date, only one case, Sands Point Harbor vs. Sullivan 140 N.J. Super 436 (App. Div. 1975), has been decided by the Appellate Division of Superior Court. The court found that the Wetlands Act on its face does not constitute a taking of private property without just compensation. One further case, American Dredging vs. State of New Jersey, Superior Court, (Docket No. C-1097-23) will be heard in the Chancery Division of Superior Court in November, 1977. The appeal involves a partial denial of a Wetlands permit for a spoil disposal area; the applicant alleges that this constitutes a "taking". Finally, there are several cases challenging the constitutionality of the Act. However, these challenges appear moot in light of the Sands Point Harbor decision.

Appendix Four: A Pilot Study of Lower Cape May County: A Method for Coastal Resource Management

Introduction

The report, A Pilot Study of Lower Cape May County: A Method for Coastal Resource Management, prepared November 1976-September 1977 by staff of DEP-OCZM, proposes a planning method to be used for New Jersey's coastal area. The method and conclusions are applied to a 60 square mile pilot area in Lower Cape May County. This pilot study provides the basis and background for the CLAM policy and will provide the rationale for much of the next steps in CLAM's development.

The study area of Lower Cape May County -- specifically Lower Township, the Borough of West Cape May, and the City of Cape May -- was chosen to apply and refine the DEP-OCZM planning methodology, because it is representative of the Coastal Plain, has a good existing data base, a wide variety of land and water types and high development pressure for a variety of uses.

Methodology

The structure of the method is basically simple.

Two impact analyses, environmental and socio-economic, describe the changes caused by the introduction of new uses into locations. A value analysis identifies coastal goals and objectives. A constraint synthesis ("sensitivity") combines the impact and value analyses and identifies which changes are of concern, and where and how uses should be placed if valued resources are to be preserved. This part of the method represents the conservation viewpoint with no consideration of the needs of development

An opportunity analysis ("potential") identifies which resources developers look for when siting uses and indicates where these resources are to be found. This part of the method represents the development viewpoint with no consideration of the impact on resources.

These two parts, constraint and opportunity, are then brought together in a suitability synthesis ("acceptability"). Conflicts are identified and solutions and tradeoffs proposed within a systematic structure.

The pilot study contains a large mapping element. A common scale of 1:24,000 was chosen for the pilot study maps. The reasons to do extensive mapping of the pilot area include the desire to: have one set of maps of consistent detail and accuracy; find the best available information; balance the desire to have regional as well as site specific planning; and spatially represent DEP-OCZM policies in order to show their implications in a real situation.

Thirty-five maps were produced for the pilot study. Generally these included basic maps of soils, land cover and water features and various interpretive maps of these basic ones, such as depth to seasonal high water table, permeability, and living resources. Also included are maps which combine basic and interpretive maps in various ways so that planning recommendations can be illustrated. These include maps of constraint, opportunity synthesis, and suitability. The list of these maps and selected reproductions are included at the end of this appendix.

The constituent analyses, synthesis, and conflict resolutions are explained in more detail below. These steps form the structure of the planning method used and refined in this pilot study.

Step 1 LAND AND WATER USES

This section of the pilot study discusses how the many kinds of coastal land and water uses may be classified for analysis. Different classifications are proposed for land and water use mapping, impact analysis, and opportunity analysis.

A standard land and water use classification is of importance for a state-wide program in order to make comparable analyses of different areas. The many different use classifications currently used by state, county and municipal authorities complicate this task.

Step 2 LAND AND WATER TYPES

This section proposes a method by which the variety of land and water types to be found in New Jersey's Coastal Plain may be classified. The first distinction was into land areas, basically areas that are never covered with water, water's edge areas which are periodically inundated, and water areas which are always inundated.

In land areas varying depths to seasonal high water table, varying surface permeability and varying intensities of human disturbance were used to classify types.

In water's edge areas varying elevation above mean low water level and varying intensities of human disturbance were used to classify types.

In water areas, varying water volume and flushing rate, salinity, water quality and bottom disturbance were the factors used to distinguish types.

The factors used to determine land and water types and the distribution of types within the pilot area were shown on maps.

Step 3 IMPACT ANALYSIS

(a). Environmental Impact Analysis

This section proposes a method by which the environmental impacts of the land and water uses identified in step 1 above on the land and water types identified in step 2 above may be identified.

Matrices were designed that could link uses to impacting activities in each land or water type and then identify the immediate and subsequent impacts associated with each impacting activity. A sample matrix showing the environmental impacts of housing on a marsh was included in an appendix to illustrate this matrix technique.

This step is important because both the immediate and causally related environmental impacts of uses must be understood before policy recommendations can be made on permissible use placement.

(b). Socio-Economic Impact Analysis

This section discusses a presently incomplete method to identify socio-economic zones. The socio-economic impacts associated with the introduction of uses into these zones is discussed.

Sources of demographic and economic data are discussed and the way in which data may be combined to form socio-economic zone boundaries. The need for descriptive models to predict the socio-economic impacts of uses is mentioned.

Step 4 VALUE ANALYSIS

This section discusses how many different constituencies value the coast and proposes a set of coastal objectives which, if realised, would protect these values. The geographic distribution of valued factors such as prime agricultural soils and wildlife habitats were mapped in the pilot area.

Step 5 CONSTRAINT SYNTHESIS

This section combines impact and value analysis to determine the distribution of environmental sensitivity to development, or the degree by which development should be constrained if valued resources are to be protected.

The land and water types of step 2 were combined with the value factors of step 4 to produce a geographic base of land and water constraint types and these were ranked by their environmental sensitivity or constraint to development, from 1 (least) to 10 (most).

The distribution of constraint within the pilot area was mapped and tables showing the constraint ranking of all factor combinations was included in an appendix.

Step 6 OPPORTUNITY ANALYSIS

This section discusses a method by which the comparative opportunity, or development potential, of locations for uses may be determined without consideration of impact.

The elements of the built or natural environment sought by use developers when identifying preferred sites for housing and marinas were determined. These were called "opportunity factors".

The cost implications of varying amounts of each opportunity factor was assessed and tables in an appendix record these estimates.

The distribution of cost, and therefore opportunity or development potential, implied by the distribution of opportunity factors was determined for housing and marinas in the pilot area, ranked from 1 (high) to 10 (low) and mapped.

Step 7 OPPORTUNITY-CONSTRAINT SYNTHESIS

This section compares the distribution of opportunity or development potential, identified in section 6 with the distribution of constraint, or environmental sensitivity, identified in step 5.

The areas where both opportunity and constraint are high in the pilot area were identified and mapped.

A conflict resolution table was proposed by which the suitability, or acceptability, of any location for each use, may be determined. This table is the precursor of the Coastal Location Acceptability Method (CLAM) tables.

Also discussed is the way in which the conflicts caused by the juxtaposition of incompatible uses may be resolved and how an order of preference may be established when several uses are in competition for a single location type.

Maps showing the distribution of suitability, or "acceptability," for housing and marinas in the pilot area were made.

Step 8 SUITABILITY RESOLUTION

This section discusses the wide range of uses to which the analytical Steps 1-7 may be applied. For example, they may add in the development of master plans or planning aids for permit applications.

These eight steps and the relationships between them are illustrated in the following flow chart, Figure 3. This flow chart is esentially the same as one presented in Appendix D of the DEP-OCZM, Third Year Coastal Zone Management Program Development Grant Application to the National Oceanic and Atmospheric Administration (NOAA).

Maps

Using this planning method, the spatial implications of the suitability decisions for three types of uses -- housing with sewers, housing with septic systems and marinas -- are shown by three suitability maps. These maps, reproduced here in a reduced format, show which areas are suitable for the uses and which areas are less suitable.

Figure 4 lists the maps that were prepared for the pilot study and indicates the parts of the study in which the maps were used.

Following this table are reproductions of selected maps showing a reduction of the entire map and a sample area at the original scale of 1:24,000.

Conclusion

The complete report, totally approximately 200 pages, contains detailed costs and definitions of land and water types, land and water uses, factor maps (in reduced format), matrices, and various analyses. The full report constitutes much of the analytical basis and background for the coastal policies of this Coastal Management Strategy.

FIGURE 3: PLANNING METHODOLOGY FLOW CHART

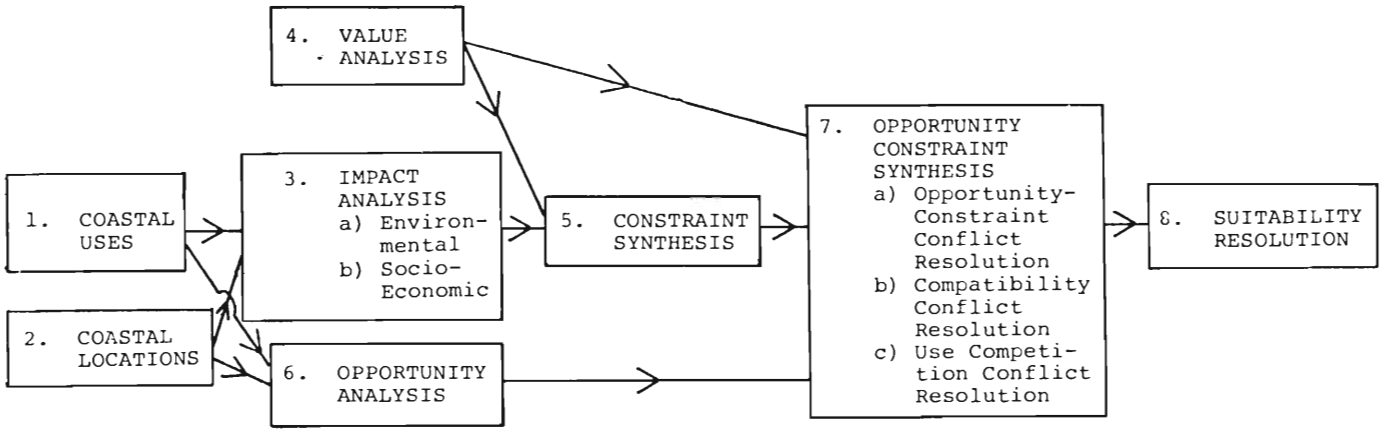

Figure 4: List of Pilot Maps
(* = included in Appendix)

Map No.	Map Title	Section 2 Coastal Locations (Land and Water Types	Section 3a Environmental Impact Analysis	Section 4 Value Analysis	Section 5 Constraint Synthesis	Section 6 Opportunity Analysis	Section 7 Opportunity-Constraint Synthesis	Section 8 Suitability Resolution
* 1.	Flood Prone Areas	x				x		
* 2.	Depth to Seasonal High Water Table	x						
3.	Permeability of Soils	x						
* 4.	Vegetation and Living Resources	x		x		x		
5.	Geomorphology and Bathymetry	x						
* 6.	Surface Water and Salinity	x						
7.	Land and Water Types	x	x		x			
* 8.	Land and Water Use	x						
* 9.	Disturbance Levels	x						
10.	Surface Water Quality	x						
11.	Land and Water Types with Disturbance Levels	x	x		x			
*12.	Agricultural Capability			x				
13.	Nominated Areas of Concern			x				
14.	Value Synthesis			x	x			
15.	Constraint Levels				x		x	
16.	Unpaved Open Space					x		
*17.	Access to Roads					x		
18.	Access to Railroads and Airports					x		
19.	Access to and View of Water					x		
*20.	Access to Sewer and Water Supply					x		
21.	Access to Shops and Schools					x		
22.	Soil Suitability for Septic Tanks					x		

Map No.	Map Title	Section 2 Coastal Locations (Land and Water Types	Section 3a Environmental Impact Analysis	Section 4 Value Analysis	Section 5 Constraint Synthesis	Section 6 Opportunity Analysis	Section 7 Opportunity-Constraint Synthesis	Section 8 Suitability Resolution
23.	Land Drainage					x		
24.	Access to Navigation Channels					x		
* 25.	Opportunity for Housing with Sewers					x	x	
26.	Opportunity for Housing with Septic Systems					x	x	
27.	Opportunity for Marinas					x	x	
28.	Opportunity Constraint Conflict Housing with Sewers						x	
* 29.	Suitability for Housing with Sewers (Higher Constraint)						x	x
30.	Suitability for Housing with Sewers (Lower Constraint)						x	x
31.	Suitability for Housing with Septic Systems (Higher Constraint)						x	x
32.	Suitability for Housing with Septic Systems (Lower Constraint)						x	x
33.	Suitability for Marinas (Higher Constraint)						x	x
34.	Suitability for Marinas (Lower Constraint)						x	x
35.	Use Competition Conflict						x	x

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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MAP 1

FLOOD PRONE AREAS

F – FLOOD PRONE AREAS

SOURCE: U.S. Dept. of Interior, Geological Survey
in Cooperation with U.S. Dept of HUD 1973
SCS Interim Soil Survey Report
Cape May County, New Jersey 1973

MAP 1a

SCALE : 1:24,000

0 1000 2000 3000

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MAP 2

DEPTH TO SEASONAL HIGH WATER

1 – 0-1 Ft.
2 – 1-3 Ft.
2-3- 1-4.5 Ft
3 – 3-5 Ft.
2-4- 1-5+ Ft.
4 – 5+ Ft.

SOURCE: SCS Interim Soil Survey Report
Cape May County, New Jersey 1973

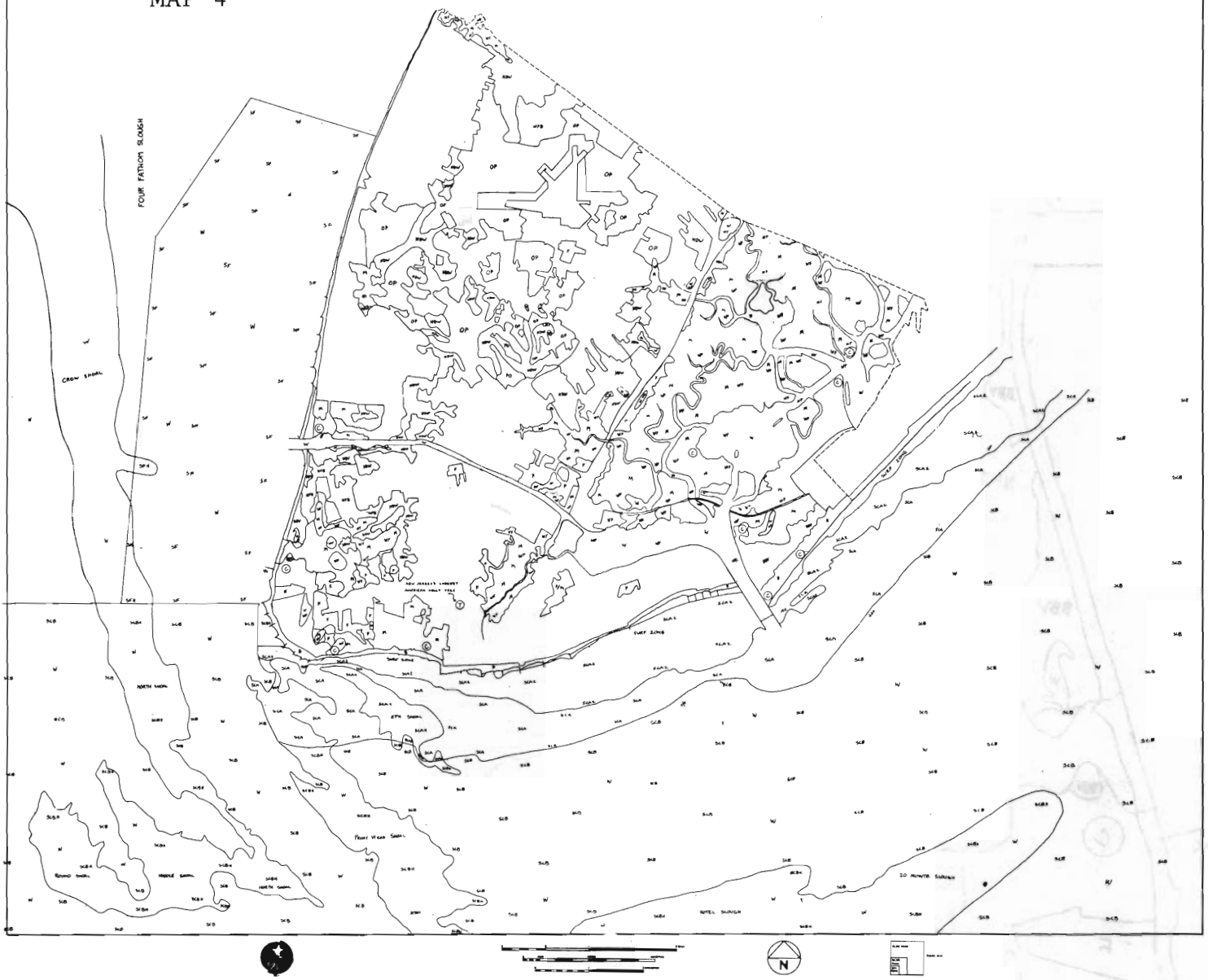
MAP 2a

SCALE : 1:24,000

0 1000 2000 3000

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF MARINE SERVICES
OFFICE OF COASTAL ZONE MANAGEMENT

MAP 4



VEGETATION & LIVING RESOURCES

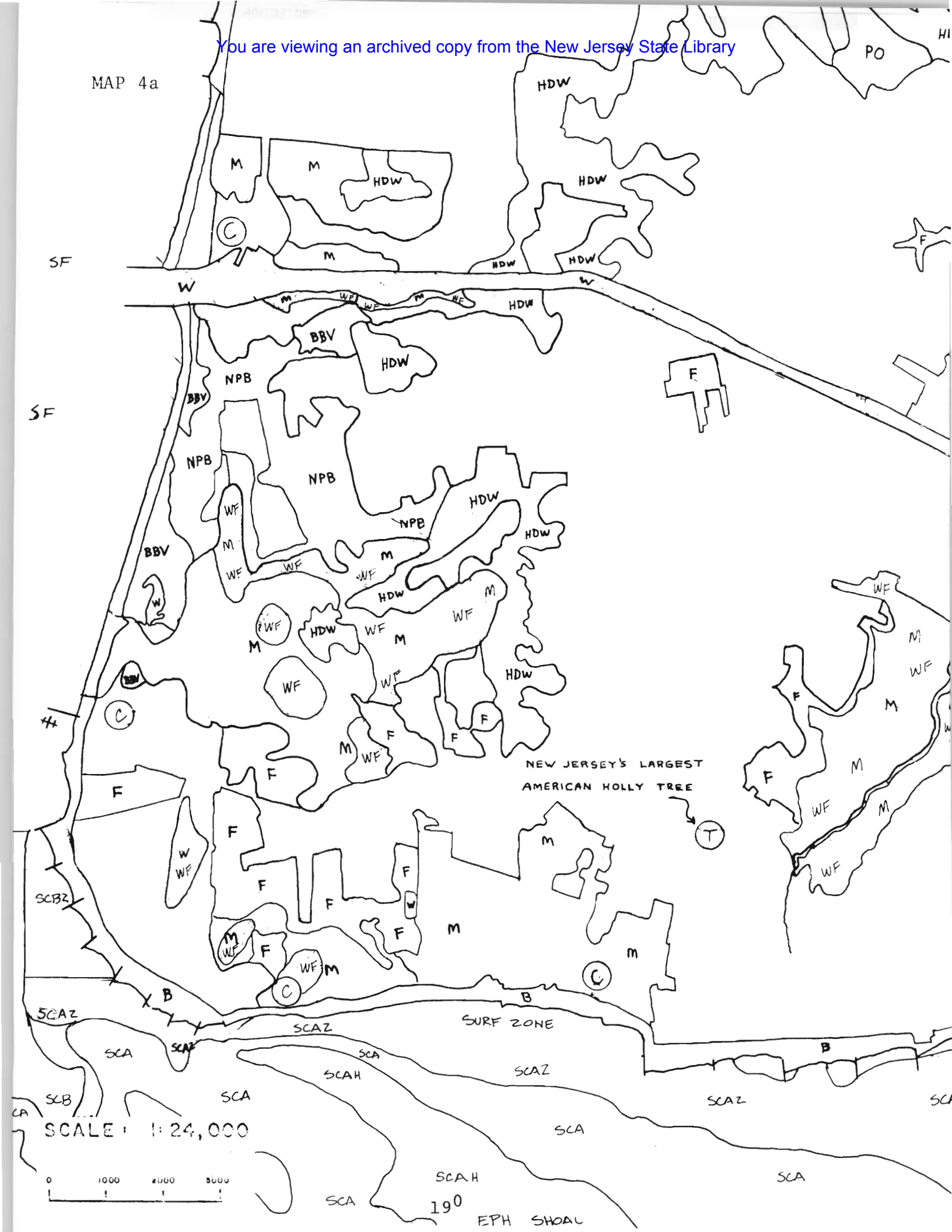
VEGETATION TYPES

BBV – BARRIER BEACH VEGETATION (Dunes)
M – MARSH (Tidal Wetlands)
HDW – HARDWOOD LOWLAND FOREST
HPB – NON-PINE BARREN FOREST
OP – OAK/PINE FOREST
PO – PINE/OAK FOREST
F – UNTYPED FORESTED AREA

HABITAT TYPES

B – BEACHES
W – SURFACE WATER
SHIPWRECKS
T – STATE RECORD TREE
C – COLONIAL NESTING BIRD ROOKERIES *
SF – SHELLFISH (Hard Clams) AND FIN FISH NURSERY AREAS
WF – WATERFOWL WINTERING AREAS
SCA – SURF CLAM (Dense Concentration) *
SCB – SURF CLAM (Less Dense Concentration) *
SHOALS & SLOUGHS – PRIME SPORT FISHING GROUNDS
HDW – DEER WINTERING AREA
* SUFFIX H – SHOAL Z – SURF ZONE

SOURCE: N.J. DEP – PHOTO QUADS (1973); WETLANDS MAPS (1972); ENVIRONMENTAL MAP OF NEW JERSEY FISHERIES RESOURCE MAP B (1973), N.J. DIVISION OF FISH, GAME, SHELLFISHERIES; ENDANGERED AND NON-GAME SPECIES PROJECT (ROOKERIES); BUREAU OF SHELLFISHERIES (SURF CLAMS), N.O.S. NAUTICAL CHARTS NO. 12316, (1975) NO. 12304, (1974), RUTGERS UNIVERS. LIST OF N.J. BIGGEST TREES (1974), FREEMAN; B.L. AND L.A. WALFORD – ANGLERS GUIDE TO THE ATLANTIC COAST; SECTIONS III & IV (1974)



STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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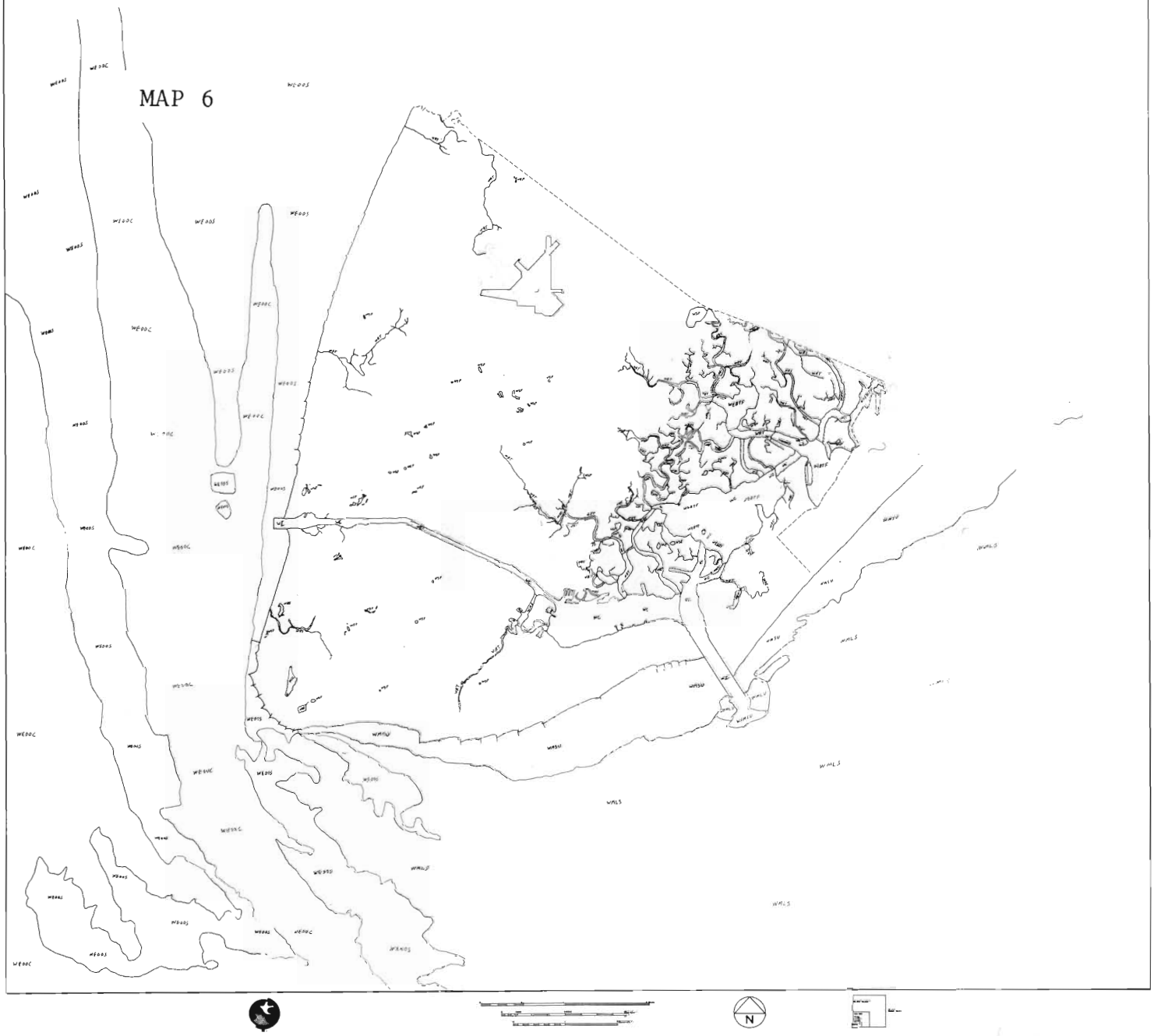
MAP 6



SURFACE WATER & SALINITY

Ocean (Marine) (24-35‰ Salinity)

WMSS	Surf Zone (0'-18' MLW), Stable Substrate
WMSU	Surf Zone (0'-18' MLW), Unstable Substrate
WMLS	Lower Shoreface (+18' MLW), Stable Substrate
WMLU	Lower Shoreface (+18' MLW), Unstable Substrate
WMLH	Lower Shoreface (+18' MLW), Special Habitats
WMLM	Lower Shoreface (+18' MLW), Mineral Resource

Estuaries Open Bays

WEOOS	Ocean Influence (Salinity 3.5-35‰), Shoals
WEOOC	Ocean Influence (Salinity 3.5-35‰), Channel
WEOTC	Transition Zone (Salinity 0-20‰), Channel
WEOTF	Transition Zone (Salinity 0-20‰), Flats
WEOTH	Transition Zone (Salinity 0-20‰), Special Habitat

Estuaries Semi-Enclosed Bays (Embayments)

WESO	Ocean Influence (Salinity 3.5-35‰)
WEST	Transition Zone (Salinity 0-20‰)
WESTH	Transition Zone (Salinity 0-20‰), Special Habitats
WESF	Freshwater Influence (Salinity 0-3.5‰)
WESFH	Freshwater Influence (Salinity 0-3.5‰) Special Habitat

Estuaries Back Bays, Lagoons

WEBOC	Ocean Influence (Salinity 3.5-35‰) Channel
WEBOI	Ocean Influence (Salinity 3.5-35‰) Flat
WEBTC	Transition Zone (Salinity 0-20‰), Channel
WEBTF	Transition Zone (Salinity 0-20‰), Flat
WEBFC	Freshwater Influence (Salinity 0-3.5‰) Channel
WEBFF	Freshwater Influence (Salinity 0-3.5‰) Flat

Special Types

WI	Inlet
WC	Canal

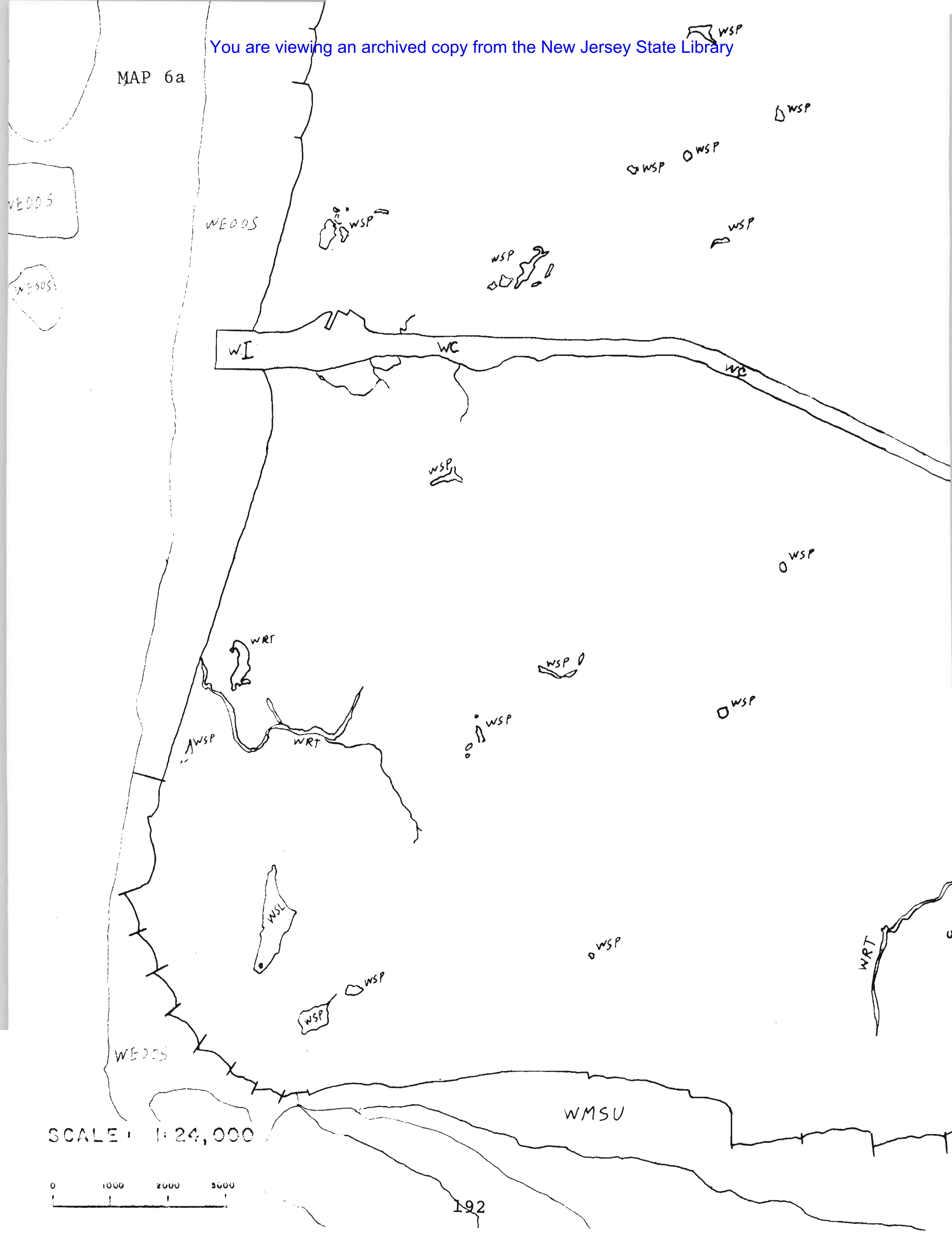
Running Waters

WRO	Ocean Influence (Salinity 3.5-35‰)
WRT	Transition Zone (Salinity 0-20‰)
WRF	Freshwater Influence (Salinity 0-3.5‰)
WRPT	Potable Freshwater (Salinity 0-0.5‰), Tidal
WRPN	Potable Freshwater (Salinity 0-0.5‰), Non-Tidal

Standing Waters

WSR	Potable Water Reservoirs
WSL	Lakes (Non-Potable)
WSP	Ponds

SOURCE: N.J. DEP Quadrangle Sheets (1972), N.J. DEP Wetlands Maps (1971), U.S.G.S. 7.5' Topographic Quadrangle Maps (1955, 1972).



STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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OFFICE OF COASTAL ZONE MANAGEMENT

MAP 8

DETAILED LAND/WATER USE & COVER FACTOR MAP CATEGORIES

RESIDENTIAL
(R1) LESS THAN 1 DWELLING UNIT/GROSS ACRE (RURAL)
(R2) 1/3 DWELLING UNITS/GROSS ACRE (LOW DENSITY RESIDENTIAL)
(R3) 3-8 DWELLING UNITS/GROSS ACRE (MEDIUM DENSITY RESIDENTIAL)
(R4) 9-20 DWELLING UNITS/GROSS ACRE (HIGH DENSITY RESIDENTIAL)
(R5) 20+ DWELLING UNITS/GROSS ACRE (URBAN DENSITY RESIDENTIAL)
(RV) RESIDENTIAL VACANT
(RM) MOBILE HOMES

COMMERCIAL & SERVICE
(CR) RETAIL - SHOPPING CENTERS
(CW) WHOLESALE - WAREHOUSES
(CHM) HOTELS & MOTELS
(CFP) COMMERCIAL FISHING PORTS

INDUSTRIAL
(IL) LIGHT - ASSEMBLY
(IH) HEAVY - PROCESSING
(IF) FISHING INDUSTRY

EXTRACTIVE
(XGS) SAND & GRAVEL
(XSG) GLASS SAND
(XI) ILMENITE
(XG) GLAUCONITE
(XC) CLAY
(XM) STRUNZ

AGRICULTURE
(AC) CROP LFIELD CROPS; TOMATOES, BEANS, ETC.)
(AP) PASTURE
(AB) BERRIES & BUSH (BLUEBERRIES)
(AN) NURSERIES (TREES, ORNAMENTALS ETC.)
(AS) SOD
(AR) RECREATIONAL/RESS
(AL) FORESTRY/LUMBER HARVEST
(AI) AGRICULTURE PROCESSING (GREENHOUSE)
(AO) ORCHARD

VEGETATION
(F) FORESTED
(FB) FORESTED (DECIDUOUS)
(BF) BRUSH
(BW) JUNIPER BEACH VEGETATION
(BG) BARE GROUND

SEWERAGE SYSTEMS
(SP) TREATMENT PLANTS
(SL) RIGHTS-OF-WAY

SOLID WASTE DISPOSAL
(SWF) SANITARY LANDFILL
(SW) INCINERATOR
(SWR) RESOURCE RECOVERY CENTER
(SWA) AUTO JUNKYARD

UTILITIES
(UFS) FOSSIL FUEL ELECTRICAL GENERATING PLANT
(UN) NUCLEAR ELECTRICAL GENERATING PLANT
(US) SUBSTATION
(UL) RIGHTS-OF-WAY

PETROLEUM & GAS
(PR) REFINERIES
(PG) GAS PROCESSING
(PS) STORAGE (OIL OR GAS)
(PP) PUMPING STATIONS
(PL) RIGHTS-OF-WAY

COMMUNICATIONS
(CR) BROADCASTING/RECEIVING
(CT) TRANSMISSION

TRANSPORTATION
(TLA) LIMITED ACCESS HIGHWAYS (4 LANES)
(TUA) UNLIMITED ACCESS (4 LANES)
(TC) COLLECTOR (2 LANES)
(TRF) RAILROAD - FREIGHT
(TRP) RAILROAD - PASSENGER
(TRC) RAILROAD-COMBINED
(TAP) AIRPORT - PAVED
(TAU) AIRPORT - UNPAVED
(TPS) PORTS - SHIPPING
(TM) MAINTENANCE FACILITY

WETLANDS
(WT) TIDAL MARSH - SPARTINA ALTERNIFLORA
(WF) FRESHWATER WETLANDS (NON-TIDAL MARSHES & SWAMPS)
(WB) BOGS (FRESHWATER FED WETLANDS)
(WD) MARSH DREDGE SPOIL SITES

RECREATION & OPEN SPACE
(RB) BEACHES
(RP) PARKS (MODERATE USE)
(RH) PARKS/PLAYGROUNDS (HEAVY USE)
(RR) STADIUMS/AMUSEMENTS/ DRIVE-INS
(RC) CAMPGROUNDS
(RG) GOLF COURSES
(RW) RECREATION WATERWAYS
(RF) FISHING PIERS, JETTIES, ETC.
(RT) TRAILS, BIKE, HIKE, & HORSE PATHS

WATER
(W) WATER
(WST) STORAGE TANKS

WATER USES (SUPPLY)
(WSI) INDUSTRIAL WATER SUPPLY
(WSP) POTABLE WATER SUPPLY
(WSA) AGRICULTURE WATER SUPPLY

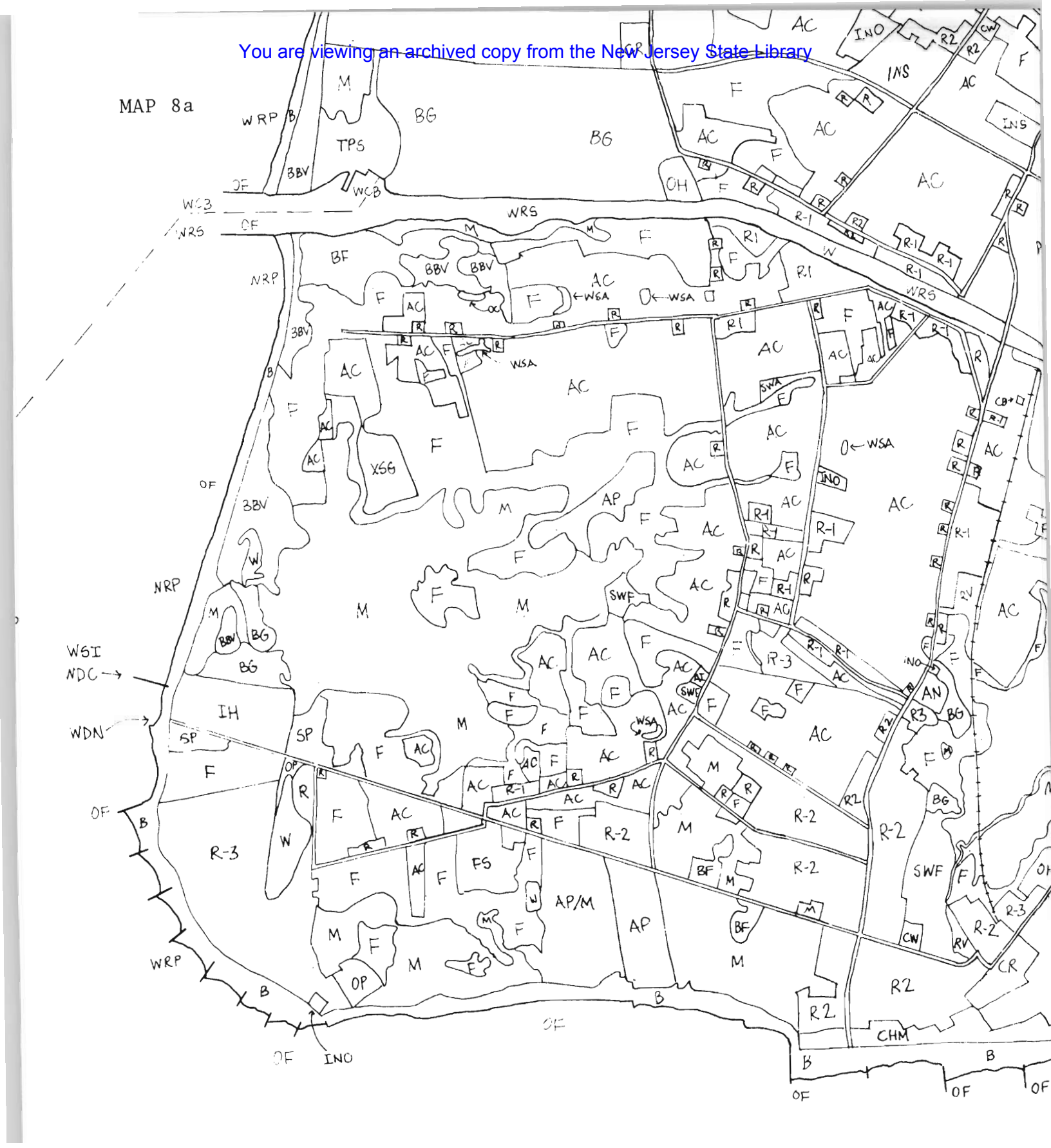
WATER USES (WASTE DISPOSAL)
(WDN) NUTRIENTS
(WDP) PATHOGENS
(WDH) TOXIC OR HAZARDOUS WASTES
(WDT) THERMAL
(WDS) SOLIDS (SEDIMENTS, DREDGE SPOILS)
(WDC) CHEMICAL

WATER USES (RECREATION)
(WRP) PRIMARY CONTACT (BATHING, WATER SKIING, SCUBA DIVING, SURFING)
(WRS) SECONDARY CONTACT (FISHING, SHELLFISHING, BOATING)

WATER USES (COMMERCIAL)
(WCS) SHELLFISHING
(WCF) FINFISHING
(WCT) MAJOR SHIPPING
(WCB) MINOR SHIPPING

INSTITUTIONS
(INS) SCHOOLS
(INH) HOSPITALS
(ING) GOVERNMENT
(INC) SYNAGOGUES/CHURCHES/CEMETERIES/ETC.
(INGG) COAST GUARD

MAP 8a



SCALE : 1:24,000

0 1000 2000 3000

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF MARINE SERVICES
OFFICE OF COASTAL ZONE MANAGEMENT

MAP 9

DISTURBANCE LEVELS

LAND

L Undisturbed
M Moderate (Effluent Limited)
H High

SOURCE: U.S.G.S. 7 1/2' Quads, Cape May;
N.J. DEP. Photo Quads 1972,
N.J. Wetland Maps 1972.

WATER

L Undisturbed
M Moderate (Effluent Limited)
H High (Water Quality Limited)

SOURCE: N.J. DEP. Division of
Water Resource.

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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MAP 12

LAND CAPABILITY CLASSES

1 - I II
2 - III
3 - IV & UP
4 - SPECIAL CROPS
NC - NOT CLASSIFIED
W - WATER

Source: SCS Interim Soil Survey Report
Cape May County, New Jersey 1973

MAP 12a

SCALE : 1:24,000

0 1000 2000 3000

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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OFFICE OF COASTAL ZONE MANAGEMENT

MAP 17

ACCESS TO ROADS

1st Digit
Distance to Nearest Road

1 — 0'-300' (100yds)
2 — 100yds-300yds (3/16 Mi)
3 — 3/16 Mi-1/2 Mi
4 — 1/2-1
5 — 1-2
6 — 2-4
7 — 4+

2rd Digit
Class of Nearst Road

1 — Major Collector
2 — Minor Collector
3 — Local

3rd Digit
Distance Along Nearest Road to Limited Access Express Intersection

1 — 0-1/2 Mi.
2 — 1/2-1 1/2
3 — 1 1/2-3 1/2
4 — 3 1/2-7 1/2
5 — 7 1/2-15 1/2

SOURCE: USGS 7 1/2' Quads Cape May, Rio Grande, Wildwood, Stone Harbor Dates Various
N.J. Dot. Road Atlas Sheets No. 63 & 64 1975

MAP 17a

SCALE: 1:24,000

1000 2000 3000

200

STATE OF NEW JERSEY, DEPARTMENT OF ENVIRONMENTAL PROTECTION
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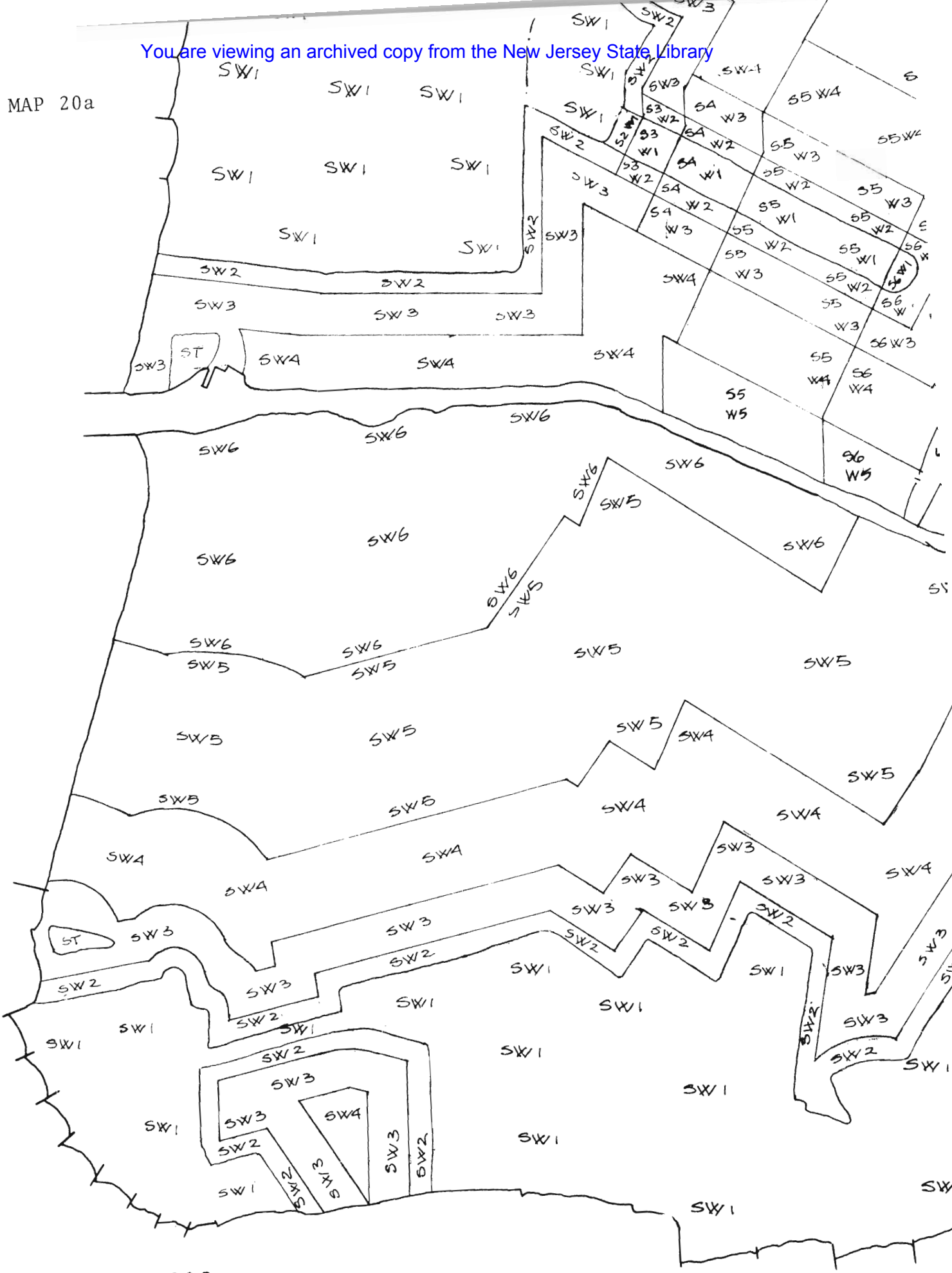
MAP 20

ACCESS TO SEWERS & PUBLIC WATER SUPPLY

S 1, W 1 —— 0 – 300ft (100Yds)
S2, W2 —— 100Yds –300Yds (3/16Mile)
S3, W3 —— 3/16Mile–1/2Mile
S4, W4 —— 1/2Mile–1Mile
S5, W5 —— 1Mile – 2Miles
S6, W6 —— 2Miles – 4 Miles
S7, W7 —— 4Miles +

SOURCE: N.J. DEP Bureau of Geology & Topography
Sewer Overlay & Water Supply Overlay
Sheets 36 & 37, 1975

MAP 20a



SCALE: 1:24,000

0 1000 2000 3000

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF MARINE SERVICES
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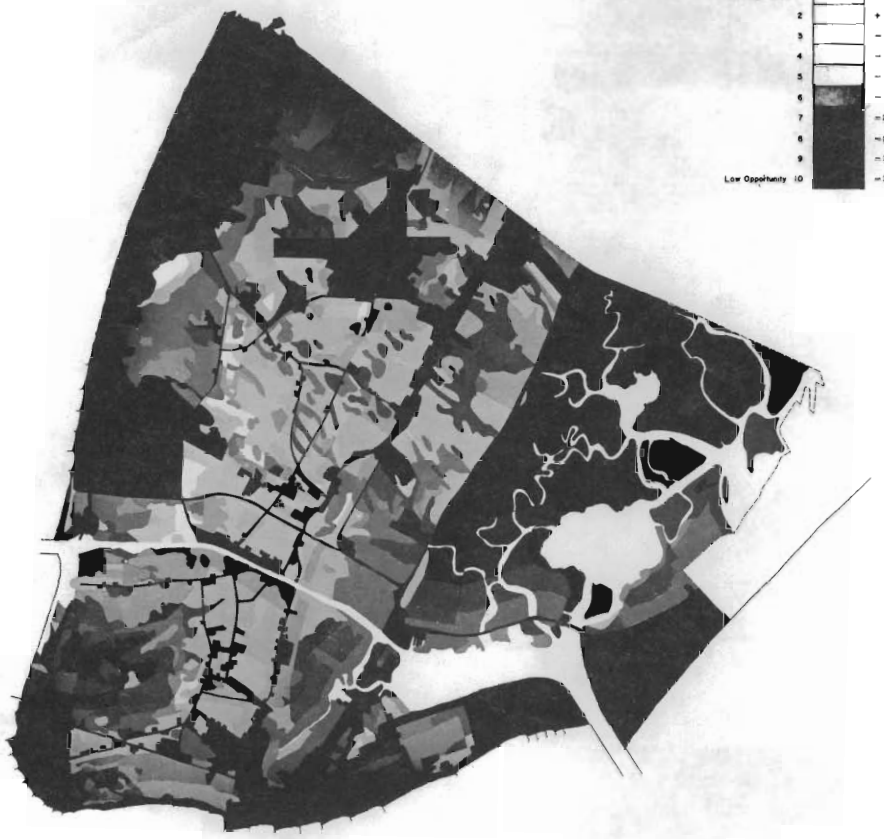
MAP 25



MAP 25a

DIVISION OF MARINE SERVICES
OFFICE OF COASTAL ZONE MANAGEMENT

MAP 29

MAP 29a

Appendix Five: Public and Governmental Involvement in The Coastal Planning Process

The Coastal Management Strategy has been shaped by the comments, questions, suggestions and reactions of many interested individuals, representatives of government agencies at the federal, state, county, and municipal level, and representatives of a wide range of interest groups. This participation has reflected both the public interest in many coastal issues and a deliberate effort by the Department of Environmental Protection, Office of Coastal Zone Management (DEP-OCZM) to involve as many as possible of the people interested in, and potentially affected by the program.

This appendix summarizes past efforts by DEP-OCZM to involve the public, local governments, federal agencies, interstate and regional agencies, and other state agencies. The commitment to public participation does not end with publication of this Coastal Management Strategy, however, and will continue immediately with public meetings and workshops focused on the Strategy and revisions and additions that may be desirable before the Governor's submission of the CAFRA Segment for federal approval.

Public Participation

The Office of Coastal Zone Management is committed to wide public participation by law, by practicality, and by principle.

DEP-OCZM's involvement efforts have two objectives: to raise the level of public awareness regarding both threats to, and attributes of the coast; and to identify and meet with individuals and groups who can contribute knowledge and opinions to coastal planning efforts.

The Office works to involve people early in the planning process and continues to encourage such involvement. Draft documents are made available. Possible policies are discussed in public long before they are even formally proposed, much less adopted. The objective is for the DEP-OCZM staff to be exposed to as much information as possible, and for initial staff ideas and work products to receive a wide and critical reading.

Public participation is required by the federal Coastal Zone Management Act of 1972. The Act requires the state to afford the opportunity of full participation in coastal planning and implementation to relevant governmental agencies and interested individuals. Specifically, the Act calls for two public hearings on the draft coastal zone management program before it is submitted for federal approval.

In New Jersey, those hearings will be just one part of the public involvement. The reason is simple: a coastal zone management program cannot be prepared just from Trenton. The state's coastal zone is too large and too diverse. Public input and feedback is critical. Ideas which look great on a planner's desk may be impossible to apply. Furthermore, DEP-OCZM believes people should make the decisions which affect their lives. That applies to planning decisions as well as to management.

DEP-OCZM uses varied forums and publications to hear and explore varied information and viewpoints. Many of the publications prepared by DEP-OCZM are described in Section Three of the BASIS AND BACKGROUND. To attract coastal residents, the Office convenes a series of public meetings in coastal counties. The first meetings held in Toms River and Trenton in February and May 1975, were focused on introducing the program and DEP's Data Validation Project. These public meetings often begin with a slide presentation and talk by a DEP-OCZM staff member and then turn to the specific concerns of the assembled. Five such meetings were held in the summer of 1976 following publication of the Interim Land Use and Density for the Coastal Area and seven were held in the early winter of 1976 after release of Alternatives for the Coast.

Discussion at these meetings flows from the questions, and many topics are each discussed relatively briefly. In addition, DEP-OCZM holds periodic workshops focused on specific pre-announced subjects. Workshops on Agriculture, for example, were held in October 1976 in two locations (Bridgeton and New Brunswick). Additional workshops were held in February 1977 in Trenton and Toms River on Biological Resources, Physical Resources, Housing, Air Resources and Transportation, and Recreation and Boating.

The workshops are designed to be small, informal, detailed working sessions on the announced topic. For most of the workshops, a staff issue paper provides a common basis from which the discussion begins. The workshops, open to all, are intended to attract people with specific interest or knowledge on the issue.

DEP also meets regularly with representatives of builders and environmental groups. Officials of the New Jersey Builders Association and leaders of New Jersey's environmental groups hold regular meetings with the Commissioner, which are often focused on coastal management. DEP-OCZM has shared and discussed with these groups early drafts of several coastal reports including the Interim Land Use and Density Guidelines, CAFRA Procedural Rules and Regulations and this Coastal Management Strategy.

Since November 1976, DEP-OCZM has held monthly meetings with an Environmental Advisory Group composed of leaders of statewide civic and environmental groups. These meetings have been regularly attended by representatives of the American Littoral Society, League for Conservation Legislation, and the Sierra Club, New Jersey Chapter, and periodically attended by representatives of the Association of New Jersey Environmental Commission, Citizens Association to Protect the Environment, League of Women Voters, New Jersey Audobon Society, New Jersey Conservation Foundation, and the New Jersey Public Interest Research Group.

In addition, DEP-OCZM has met periodically with national representatives of the Natural Resources Defense Council Inc. (NRDC). NRDC has reviewed and commented upon drafts of DEP-OCZM publications, and has offered lessons learned from their work with coastal programs in other states.

The environmental group representatives have also been part of a series of workshops on energy convened by DEP-OCZM. Also attending the sessions have been oil and gas industry representatives from Louisiana and Texas, as well as from the New Jersey Petroleum Council and the American Petroleum Institute in Washington, D.C., county energy planning representatives, researchers from Rutgers and Princeton, fishing groups and representatives from several state agencies. As the Newark Star Ledger noted on April 24, 1977 "It comes as somewhat of a surprise to find many of the combatants meeting across tables to discuss the issue informally, almost casually, in New Jersey." The meetings are designed to increase public understanding of the choices ahead, and of the opportunities and risks involved.

The hearings held by DEP-OCZM on each CAFRA permit application provide another forum for public input. The hearings are held near the site proposed for development, and range, depending on the interest aroused by the application, from five minute meetings attended only by the applicant to four hour sessions with up to 300 people.

The coastal meetings and workshops are announced primarily through The Jersey Coast, the DEP-OCZM newsletter. This periodical is mailed to all interested persons and organizations known to DEP-OCZM. The mailing list currently includes more than 5,000 names. Meetings are also announced through press releases and the DEP Weekly Bulletin.

The danger of relying on a mailing list is that many potentially interested persons may be neglected. To expand interest and knowledge of coastal zone management, the Office actively solicits speaking engagements from municipal and county agencies, and civic, interest, and professional groups. This provides an opportunity to talk with many people who may be well aware of some of the problems, but unaware of the coastal zone management program. Through these meetings, proposed policies are debated, interested individuals identified, and new people added to the mailing list who may later contribute to an element of the program.

DEP-OCZM also participates in other public events to raise awareness of coastal issues and again to identify more people who are interested in participating in the planning. The Office, for example, has had exhibits at a boat show and at five county fairs. In addition, in June, 1976, the DEP Commissioner led federal, state and local officials, interested citizens, and reporters on a six day walk along New Jersey's 125 mile ocean shoreline. This innovative event sparked considerable publicity and interest in the coast both in New Jersey and nationally.

One final opportunity for public participation sponsored by DEP-OCZM was a widely announced request that people nominate geographic areas of particular concern in the coastal zone. This process, which is open-ended, has, to date, brought to DEP-OCZM's attention information on 176 New Jersey locations. A report on the nominated areas will be issued in Fall 1977.

Local Government and Regional Agency Involvement

DEP-OCZM has worked to involve county and municipal officials in coastal planning for New Jersey. The involvement has taken many forms, including sharing draft documents, convening and attending meetings in many localities and conducting many one-on-one conversations.

County governments have participated largely through the offices of the county planning directors. In particular, the New Jersey County Planners Association has organized a Coastal Committee to work closely with DEP-OCZM on coastal zone management. The major effort of this cooperation to date has been a unique state-county partnership to study, and plan for possible onshore impacts of offshore oil and gas exploration and development and coastal energy facility siting in general. DEP has contracted with twelve coastal counties to provide assistance in developing the energy element of New Jersey's Coastal Zone Management Program.

Each county has been awarded $15,000 under the provisions of the OCS Supplemental Grant to the Second Year Program Development grant awarded to DEP-OCZM by the National Oceanic and Atmospheric Administration.

DEP-OCZM relied heavily upon county planning directors in the preparation of the Interim Land Use and Density Guidelines for the Coastal Area, particularly in the period from October 1975 through March 1976, for critical review and comment on drafts of working papers. County officials have also commented on Alternatives for the Coast, Alternative Boundaries for New Jersey's Coastal Zone, selected issue papers and an earlier edition of this Strategy.

At the municipal level, DEP-OCZM has worked closely with the mayor and planning board of a number of municipalities in which CAFRA permit applications or other coastal issues have been particularly prominent. Dover Township in Ocean County is the location of considerable CAFRA permit activity and also the site used for DEP-OCZM's demonstration project on coastal decision-making called the "Intuitive-Interactive Model." Lower Township in Cape May is the site used for the Pilot Study of Lower Cape May County (see Appendix Four). Atlantic City has been subjected to many potentially conflicting development initiatives. Greenwich Township in Cumberland County is one of New Jersey's most valuable historic resources. In addition, DEP-OCZM staff have met with officials from many other municipalities both within, and outside the proposed coastal zone, to discuss the Strategy in general and in terms of its local implications.

County and municipal groups and officials in the coast are included on the DEP-OCZM mailing list. They have each received copies of the CAFRA Rules and Regulations, Interim Land Use and Density Guidelines, Alternatives for the Coast, and issues of The Jersey Coast.

DEP-OCZM's implementation of CAFRA has created a working relationship with many county and municipal governments. With the county energy facility planning project, this direct involvement has spread beyond the CAFRA boundary to include jurisdictions covering all of the potential coastal zone.

DEP-OCZM also shares documents and meets with representatives of the regional agencies and interstate agencies with jurisdictions including all or part of the New Jersey coastal zone. New Jersey shares information and meets with coastal program managers from all other states, and works particularly closely with neighboring Delaware, Pennsylvania and New York. In addition, New Jersey has participated in the Mid-Atlantic Governers Coastal Resource Council (MAGCRC) which has discussed coastal issues of mutual interest and commissioned the preparation of several relevant studies.

State-Federal Coordination to Date

DEP-OCZM has encouraged federal agency participation in the coastal planning process from the inception of its program. Representatives of sixteen federal agencies attended DEP-OCZM's first public meetings held in February and May 1975. Informal briefings and meetings have taken place with selected federal agencies. A wide range of federal agencies have had opportunities to comment on various DEP-OCZM documents, including drafts of the now adopted CAFRA Procedural Rules and Regulations (May 1975, March 1976, and April, 1977), the "Call for Information on Energy Facility Siting" (December 1975), Data Validation materials throughout 1976, the Interim Land Use and Density Guidelines for the Coastal Area (July 1976), Alternatives for the Coast (November 1976), and the Partial First Draft Coastal Management Strategy (March 1977). Responses varied by agencies, but some of the replies, particularly to the "Call for Information" and Alternatives for the Coast, have been thoughtful and detailed.

All federal agency representatives interested in coastal zone management in New Jersey were invited to meet in Trenton on August 31, 1976 to review the status of New Jersey's program. Representatives of twenty federal agencies as well as representatives of several congressional offices attended. As a result of this meeting, DEP-OCZM established a list of contacts in each of the relevant federal agencies (see Appendix Seven).

In order to identify federal activities in the New Jersey coastal zone, between November 1976 and January 1977, DEP-OCZM sent questionnaires to twenty-nine federal agencies asking them to indicate their federal land, regulatory authority, and assistance programs affecting the coastal zone. Responses to the questionnaires have provided DEP-OCZM with valuable information regarding federal interests in the coastal zone and opened additional channels for communication between the State and federal agencies.

In January and February 1977, representatives of federal agencies were invited to attend the public workshops conducted by DEP-OCZM to discuss alternative boundaries for the coastal zone and five sets of other specific issues. The Alternative Boundaries Workshop was particularly well attended by the federal representatives.

Several agencies within the Department of Defense now coordinate regularly with DEP-OCZM on anticipated or pending coastal issues. The Army Corps of Engineers now regularly processes applications for the permits it administers under Section 404 of the Federal Water Pollution Control Act and under Section 10 of the River and Harbor Act, in coordination with DEP's processing of riparian grants and permits. Other federal agencies, including the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Environmental

Protection Agency, are also consulted in the permit review process. The resulting good working relationships have led to cooperation on specific issues, including the protection of wetlands in Atlantic City and an emergency permit procedure after the ice damage to docks in the winter of 1977.

In conclusion, consideration of the diverse federal interests in coastal zone management in New Jersey has been increasing continuously over the past two years. Initially, interaction between federal agencies and DEP-OCZM was devoted to an information exchange. This has provided a foundation for discussions with individual agencies of conflicts and opportunities provided by coastal zone management in New Jersey.

Interstate and Regional Agencies

The Office of Coastal Zone Management has, throughout the planning process, been in contact with regional planning agencies. The Office mailing list includes the Delaware Valley Regional Planning Commission, Tri-State Regional Planning Commission, Interstate Sanitation Commission, Port Authority of New York and New Jersey, Delaware River and Bay Authority, Palisades Interstate Park Commission, South Jersey Port Corporation, Delaware River Basin Commission, and the Delaware and Raritan Canal Commission. Each of these agencies has received DEP-OCZM publications. In addition, DEP-OCZM staff have met with representatives of most of the agencies.

State Agency Involvement

The Office of Coastal Zone Management in DEP has been the lead agency for coastal planning in New Jersey. To be effective, however, this planning requires the understanding and cooperation of a number of other state agencies.

DEP-OCZM has shared documents and meeting invitations with the representatives of agencies in 13 state departments. In addition, Rutgers University Center for Coastal and Environmental Studies, under contract to DEP-OCZM, prepared a detailed handbook on State Agency Involvement in the Coastal Zone listing the potentially coastal-related activities of ten state departments, and a more concise public booklet called State Government and Coastal Zone Management.

The departments with responsibilities most directly related to coastal zone management include the Departments of Agriculture, Community Affairs, Energy (previously the Public Utilities Commission and the State Energy Office), Labor and Industry, and Transportation. Agencies within each of these departments have been actively involved in ad hoc coastal planning through their review of CAFRA permit applications. In addition, the Department of Community Affairs and the Department of Labor and Industry produced considerable coastal social and economic data while under contract to DEP-OCZM from 1975 to 1977.

DEP-OCZM staff have worked with representatives of the Department of Agriculture to discuss the coastal implications of the Soil Sedimentation and Erosion Standards, and other agricultural issues in the coastal zone, particularly in Cumberland and Salem counties. With the Department of Transportation, DEP-OCZM has discussed transportation policies for the coast in general, evaluated prospective CAFRA permit applications and has also had the opportunity to plan and implement jointly an exciting demonstration project for public transportation to Island Beach State Park, the Beach Shuttle Experiment of Summer 1977.

Last, DEP-OCZM worked closely with the State Energy Office and will now continue this relationship with the new Department of Energy. State Energy Office representatives have been particularly involved in the "Call for Information" of 1975-76 and DEP-OCZM's on-going energy studies and planning. In addition, the two offices have worked together on specific CAFRA permit applications for the Atlantic Generating Station floating nuclear power plant, Hope Creek nuclear facilities, and the exemption determination for the Forked River nuclear facilities.

Appendix Six: National Interest and Uses of Regional Benefit in New Jersey's Coastal Zone

The federal Coastal Zone Management Act requires that each state consider the "national interests" and "uses of regional benefit" in developing a Coastal Zone Management program. The Coastal Policies in the Coastal Management Strategy recognize that the national and regional interests may be served by the diverse facilities and resources found in the New Jersey coastal zone related to national defense, recreation, energy, and transportation. Consideration of the national interests is also demonstrated by the Coastal Policies related to the conservation and use of New Jersey's natural resources.

Since the facilities and resources in New Jersey which have been identified as in the national interest are vital to other states in the Mid-Atlantic region, DEP defines facilities and resources which reflect the national interest as uses of regional benefit. Recognition of the national and regional interests in specific types of facilities and resources insures that the national or regional interests will be considered and conflicts among competing interest will be minimized. This appendix describes specific facilities considered during the coastal planning process, the process by which competing national and regional interests have been evaluated, and the process for continued consideration of these diverse and conflicting interests.

National Defense Facilities

New Jersey's coastal zone accommodates numerous defense facilities, including the Earle Naval Ammunition Depot in Monmouth County, Caven Point Marine Base in Jersey City, and a major Coast Guard training and research facilities in Cape May County. As part of its process to adequately consider the national and regional interests in defense facilities, DEP-OCZM has actively coordinated with the Department of the Navy regarding expansion of docking facilities for the Earle Naval Ammunition Depot at Leonardo on Raritan Bay. In addition, the United States Coast Guard has informally sought the advice of DEP-OCZM regarding site design for new enlisted personnel housing at the Sandy Hook component of the Gateway National Recreation Area.

DEP-OCZM will build upon its relationship with the Navy and expand it to encompass all Department of Defense agencies, as well as the Coast Guard, by reviewing agency policy statements, studies and reports in order to minimize areas of conflict over expansion of activities or facility siting within the New Jersey coastal zone. In addition, DEP-OCZM will circulate and discuss the Coastal Management Strategy with all affected federal agencies, including those in the Department of Defense.

Energy Production

The New Jersey coastal zone accommodates numerous types of energy producing and generating facilities and significantly contributes to the refining needs of the East Coast by accommodating one-third of the region's oil refining capacity. Outer Continental Shelf oil and gas exploration (OCS) will begin off New Jersey's coast in 1978 and is likely to ultimately contribute oil and gas resources to the regional and national energy demands.

The State of New Jersey has consistently advocated rapid exploration for offshore crude oil and natural gas, with provisions for strong environmental safeguards. DEP-OCZM has commissioned several reports on the onshore needs of the offshore industry to assist in locating needed support facilities in those areas of the coastal zone where they would minimally conflict with the ecology and recreational use of the coastal zone.

Six nuclear generating stations have been approved for location in the New Jersey coastal zone. Two plants are in operation. These units depend upon coastal waters for cooling processes. A study on land uses surrounding nuclear generating facilities has been undertaken by the Department of Environmental Protection with the goal of defining how coastal zone sites can best accommodate existing nuclear facilities and protect residents from the dangers of potential accidents.

There are presently no active proposals for construction of deepwater ports, geothermal facilities, liquified natural gas (LNG) facilities, or coal mining facilities for the coastal zone of New Jersey.

The New Jersey Department of Energy will provide an existing and continuing process for ensuring that the national interests in energy facilities are adequately considered. This department will develop an energy master plan for the state. In addition, it has coextensive jurisdiction with any other state agency, including DEP, regarding decisions on energy facilities.

Transportation

The New Jersey coastal zone presently accommodates one of the largest and most modern containerized port facilities in the world at the Port of New York and New Jersey facilities at Port Elizabeth and Port Newark. New and expanding port facilities are found at the South Jersey Port Corporation's facilities on the Delaware River, and at Port Raritan, a private facility on the Raritan River. DEP-OCZM coordinates activities with these port authorities, prepares policy statements, and assists in the preparation of studies such as the Port Authority of New York and New Jersey's project report entitled Support Bases for Offshore Drilling: The Port of New York Potential (May, 1977). New Jersey's port facilities contribute significantly to facilitating regional, national, and international trade.

The Coastal Management Strategy encourages the modernization of railroads along existing rights-of-way as a means of facilitating commerce as well as increasing access to the coastal zone. Also, upgrading of rail facilities to service Atlantic City is encouraged.

Interstate highways do not significantly affect the coastal zone at this time and no active proposals for such facilities are under consideration, although the completion of I-195 in Monmouth County could indirectly affect the coastal zone, given its present proposed alignment.

Recreation

The basic character of much of the New Jersey coastal zone is that of a recreational resource which already accommodates one component of a national recreation area, at Sandy Hook, one national historic site (the Statue of Liberty and Ellis Island), and four national wildlife refuges. The State of New Jersey actively participated in the creation of the Gateway National Recreation Area by ceding the former Sandy Hook State Park to the U.S. Department of the Interior for the sole purpose of creating the Sandy Hook component of the Gateway National Recreation Area. This unit now provides recreational opportunities for millions of people in the New York Metropolitan region.

The beaches of the New Jersey coastal zone attract visitors from many other states. In addition, many areas of the coast, particularly in Cape May County, are popular vacation spots for Canadians. The Coastal Policies of the Coastal Management Strategy generally encourage recreational use of waterfront areas, through permit decisions and other actions. To provide increased access to New Jersey beaches without adding to air pollution in those areas, for example, DEP conducted an experimental Beach Shuttle at Island Beach State Park during the summer of 1977, with NOAA-OCZM financial assistance. An expanded shuttle service may ultimately increase access to several barrier islands beaches while reducing overall traffic congestion and air pollution on the islands.

The New Jersey coastal zone includes the Brigantine National Wildlife Refuge in Atlantic County, the Barnegat National Wildlife Refuge in Ocean County, and the Kilcohook and Supawana Meadows National Wildlife Refuges in Salem County. The Coastal Policies of the Strategy encourage preservation of these areas. The DEP-OCZM expects to nominate the Great Bay estuary for designation as either an Estuarine Sanctuary under Section 312 of the Coastal Zone Management Act of 1972 or a Marine Sanctuary under the federal Marine Research, Protection and Sanctuaries Act of 1972. The nomination of Great Bay as either a Marine or Estuarine Sanctuary may help maintain the natural character of the area surrounding the Brigantine Refuge.

Regional Wastewater Treatment Plants

The New Jersey Department of Environmental Protection maintains a policy to encourage regional wastewater treatment plants as the best means of addressing existing water quality problems, accommodating growth in the coastal zone, and providing protection of water resources.

Conclusions

New Jersey has ambitiously sought to accommodate facilities of competing national interests or regional importance in its coastal zone management program. As part of its process to adequately consider the national interest, New Jersey requested information from all relevant federal agencies regarding their interest and responsibilities in the coastal zone. New Jersey has reviewed policy statements and comments from 31 federal agencies including information from U.S.Geological Survey and Bureau of Land Management concerning oil and gas development and a report from National Marine Fisheries Service and U.S. Fish and Wildlife Service on living coastal resources. In the development and administration of its program, New Jersey will maintain contact with all relevant federal agencies and continue to evaluate competing demands on its coastal resources to preserve and protect endangered species and other living marine resources while providing for necessary defense and energy related facilities.

In addition to including a process for consideration of the national interests and uses of regional benefit, the Strategy must, under federal law, insure that local land and water use regulations do not unreasonably restrict or exclude uses of regional benefit. DEP-OCZM will define "unreasonably restrict or exclude" as local zoning ordinances or plans which ban any facilities or resources which have been identified as within the national interests. When accommodating national interests and uses of regional benefit, local governments will weigh competing national interests in a manner similar to the process identified in the Coastal Management Strategy.

Although what constitutes a facility of national interest or a use of regional benefit must be decided on the impacts of each proposed facility, the case of Transcontinental Gas Pipeline Corporation v. Hackensack Meadowlands Development Commission 464 F2d 1358(1972) is adequate judicial precedent to insure that local zoning ordinances will not unreasonably exclude essential facilities which serve the regional and nations interest.

In that decision, the court ruled that a regional development commission (The Hackensack Meadowlands Development Commission), with municipal zoning powers, could not refuse to issue a permit for construction of a natural gas plant ostensibly on the grounds that construction and operation of the facility was not a permitted use under the master plan, and its denial of a variance to allow the proposed construction, was an arbitrary, and unwarranted imposition upon interstate commerce.

Appendix Seven: The Federal Role in the New Jersey Coastal Zone

Successful management of New Jersey's coastal zone depends upon continuing coordination between the DEP-OCZM and the many federal agencies with interests and roles in New Jersey's coastal zone. This appendix identifies the involved federal agencies, indicates their roles, and itemizes major federal lands that must, by federal law, be excluded from New Jersey's coastal zone.

Federal Agencies

State-federal relations during the three year planning period have been characterized by an increasing two-way sharing of information and opinions. Included below are the federal agencies with whom New Jersey has maintained continuing contact during the development of this Coastal Management Strategy. DEP-OCZM seeks comments from federal agencies on the present Coastal Management Strategy, the CAFRA Segment to be submitted for federal approval in late 1977, and the management program for the remainder of the state, to be submitted in late 1978.

Department of Agriculture
- Soil Conservation Service

Department of Commerce
- Economic Development Administration
- Maritime Administration

National Marine Fisheries Service

Department of Defense
- Air Force
- Army Corps of Engineers
- Navy

Department of Energy (formerly Energy Research and Development Administration, Federal Energy Administration and Federal Power Commission)

Department of Health, Education and Welfare

Department of Housing and Urban Development

Department of Interior
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Fish and Wildlife Service
- National Park Service
- U. S. Geological Survey

Department of Transportation
- U.S. Coast Guard
- Federal Aviation Administration
- Federal Highway Administration
- Federal Railroad Administration
- National Highway Traffic Safety Administration
- Office of Pipeline Safety Operations
- Urban Mass Transportation Administration

Advisory Council on Historic Preservation

Council on Environmental Quality

Environmental Protection Agency

General Services Administration
Marine Mammal Commission
Nuclear Regulatory Commission

Federal Actions

Through consultation and coordination with the federal agencies, DEP-OCZM has gained an understanding of federal involvement in the coastal zone. Included below is a list of major federal actions DEP-OCZM believes could occur in, or affect, the Coastal Zone:

A. Federal activities and/or development projects:

1. Defense operations which have impacts beyond the border of Army, Navy or Air Force property

2. National park and seashore management (National Park Service)

3. National wildlife refuge management (United States Fish and Wildlife Service)

4. Highway construction (Federal Highway Administration)

5. Preservation of historic and cultural sites (National Park Service)

6. Public works project i.e. construction of dams and reservoirs (Corps of Engineers)

7. Oil Spill prevention and clean up activities (Coast Guard)

8. OCS lease sale (Bureau of Land Management)

B. Federal permits and license issued:

1. To capture animals protected by Endangered Species Act of 1973 (U.S. Fish and Wildlife Service) and Marine Mammal Protection Act of 1972 (National Marine Fisheries Service)

2. To regulate dredging and other construction work in the water under Section 10, of River and Harbor Act of 1899 (Corps of Engineers)

3. To transport dredged material under Section 103 of Marine Protection, Research and Sanctuaries Act (Corps of Engineers)

4. To dispose of dredged material under Section 404 of the Federal Water Pollution Control Act of 1972 (Corps of Engineers)

5. For rights-of-way for common carrier pipelines offshore (Bureau of Land Management)

6. For rights of use and easement to construct flow and gathering lines offshore (United States Geological Survey)

7. For all OCS post-leasing activities, i.e. activities associated with exploration, development, and production of mineral resources (United States Geological Survey)

8. For geological and geophysical exploration (United States Geological Survey)

9. For location, construction, and operation of deepwater ports (Coast Guard)

10. For construction of bridges (Coast Guard)

11. For approval of construction or alteration of airport (Federal Aviation Administration)

12. For siting and operation of nuclear power plants (Nuclear Regulatory Commission)

13. For power plant siting and transmission lines (Department of Energy)

14. For interstate gas pipelines onshore and offshore (Department of Energy)

15. For construction and operation of facilities needed to import or export natural gas (Department of Energy)

16. For certain land uses and construction on National Park Service land (National Park Service)

17. For discharge of pollutants into water NPDES permit (Environmental Protection Agency)

C. Federal Assistance:

1. Watershed protection and flood prevention (Department of Agriculture/Soil Conservation Service)

2. Housing Assistance Grants (Department of Housing and Urban Development)

3. Community Development Block Grant (Department of Housing and Urban Development)

4. 701 Planning Assistance Grants (Department of Housing and Urban Development)

5. Land and Water Conservation Fund (Bureau of Outdoor Recreation)

6. State Energy Conservation Program (Department of Energy)

7. Economic Development Planning Grant (Economic Development Administration)

8. Economic Development Grant for Public Works and Development Facilities (Economic Development Administration)

9. Air Pollution Control Program Grants (Environmental Protection Agency)

10. Construction Grant for Wastewater Treatment Works (Environmental Protection Agency)

11. Water Pollution Control - State and Interstate Program Grants (Environmental Protection Agency)

12. Federal Aid Highway Program (Federal Highway Administration)

13. Urban Mass Transportation Grants (Urban Mass Transportation Administration)

14. Airport Development Aid Program (Federal Aviation Administration)

Federal Air and Water Quality Standards

The Coastal Management Strategy upholds the federal standards set by the Federal Water Pollution Control Act and the Clean Air Act. DEP-OCZM will coordinate with the appropriate state administering agencies, the Division of Water Resources and the Division of Environmental Quality within the Department of Environmental Protection, to administer the program's air and water quality standards.

Other federally funded comprehensive land and water use plans have been coordinated with the Coastal Management Strategy. This includes programs such as the Department of Housing and Urban Development's 701 planning program, the Environmental Protection Agency's 208's water quality plans and air quality maintenance plans, and the Economic Development Administration - assisted Overall Economic Development Plans.

Federal Lands

The federal Coastal Zone Management Act excludes all lands owned, leased or otherwise used by the United States from a state's coastal zone. However, the Act gives the State authority to require federal agencies conducting activities with spill-over impacts beyond the excluded land, to conduct such activities consistent with an approved state program. Major federal land holdings in the coastal zone have been identified below.

Department of Defense
- Air Force
  - McGuire Air Force Base
- Army Corps of Engineers
  - Artificial Island and Disposal Area
  - Bayonne Military Ocean Terminal
  - Cape May Canal
  - Caven Point Army Terminal and Marine Base
  - Kilcohook Spoil Disposal Area
  - National Park Disposal Area
  - Pedricktown Disposal Area
  - Penns Grove Disposal Area
  - Penns Neck Disposal Area
  - Petty Island
  - Fort Dix
  - Fort Monmouth
  - Highlands Army Air Defense Site
- Navy
  - Earle Naval Ammunition Depot
  - Lakehurst Naval Air Station

Department of Interior
- Fish and Wildlife Service
  - Barnegat National Wildlife Refuge
  - Brigantine National Wildlife Refuge
  - Kilcohook National Wildlife Refuge
  - Supawana Meadows National Wildlife Refuge
- National Park Service
  - Gateway National Recreation Area

Department of Transportation
- U.S. Coast Guard
  - U.S. Coast Guard Receiving Center - Wildwood
  - Electronic Engineering Center
  - The U.S. Coast Guard has numerous Coast Guard Stations along the coast.
- Federal Aviation Administration
  - National Aviation Facilities Experimental Center, Pomona

General Services Administration
- Belle Mead Depot