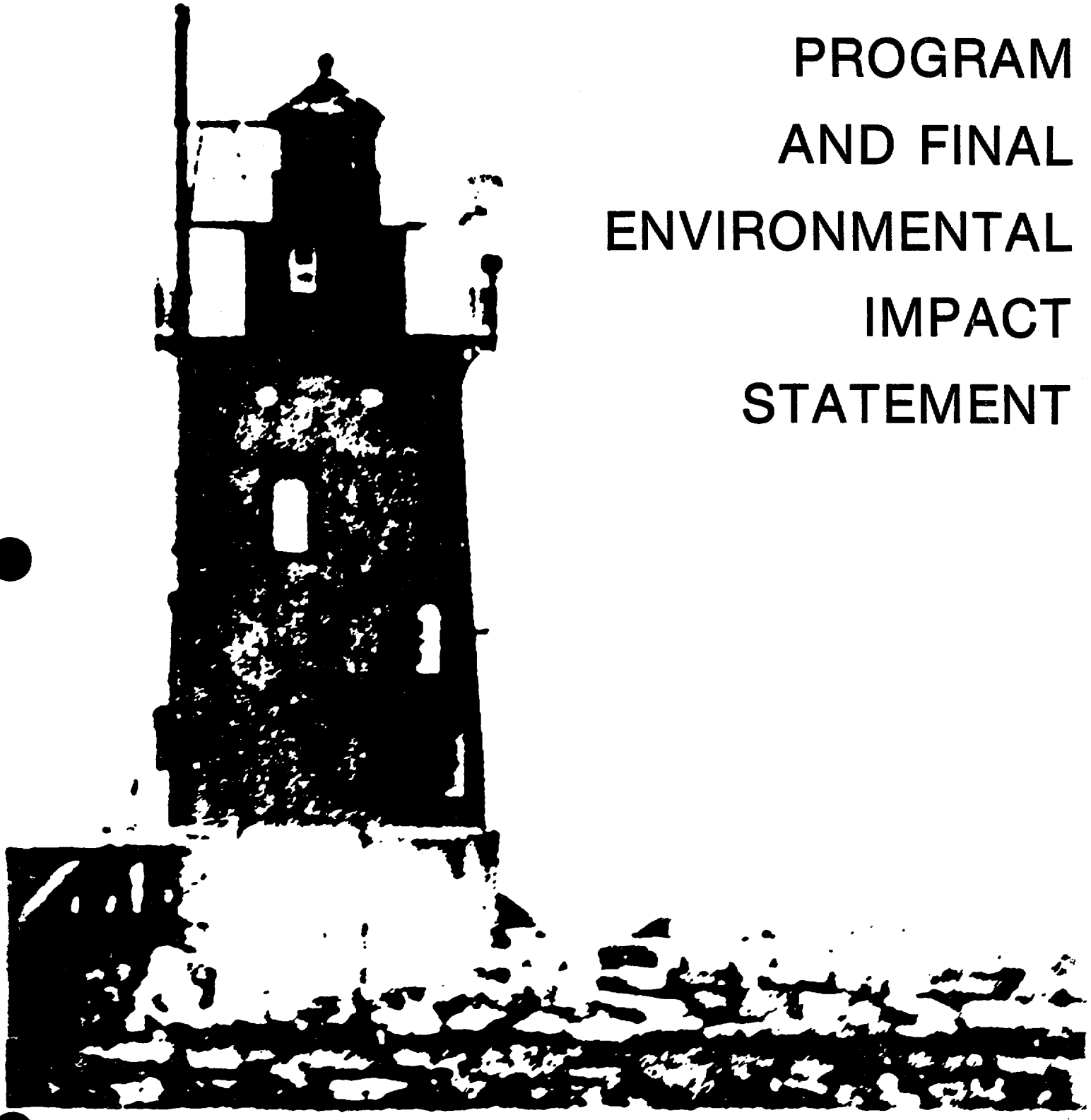
DELAWARE COASTAL MANAGEMENT PROGRAM AND FINAL ENVIRONMENTAL IMPACT STATEMENT



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Coastal Zone Management

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

JUL 12 1979

In accordance with the provisions of Section 102(2)(C) of the National Environmental Policy Act of 1969, we are enclosing for your review and consideration the Final Environmental Impact Statement prepared by the Office of Coastal Zone Management on the proposed Delaware Coastal Management Program.

If you have any questions about the enclosed statement, please feel free to contact

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South Atlantic Regional Manager
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Thank you for your cooperation in this matter.

Sincerely,

Sidney R. Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosures

UNITED STATES

DEPARTMENT OF COMMERCE

FINAL

ENVIRONMENTAL IMPACT

STATEMENT

PROPOSED

COASTAL MANAGEMENT PROGRAM

FOR

THE STATE OF DELAWARE

Prepared by:

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National Oceanic and
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and

Delaware Coastal Management
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Dover, DE 19901

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DESIGNATION: Final Environmental Impact Statement

TITLE: Proposed Federal Approval of the Delaware Coastal Management Program

ABSTRACT: The State of Delaware has submitted its Coastal Zone Management Program to the Office of Coastal Zone Management for approval. Approval would permit implementation of the proposed program, allow program administration grants to be awarded to the state, and require that federal actions be consistent with the Program. This impact statement includes a copy of the Program (Part II) which is a comprehensive management program for land and water use activities. It consists of numerous policies on diverse management issues which are enforced by various state laws, discusses areas of special interest to the state, and is the culmination of several years of program development.

Approval and implementation of the program will enhance governance of the state's coastal land and water areas and uses according to the coastal policies and standards. The effect of these policies is to condition, restrict or prohibit some uses in parts of the coastal zone, while encouraging development and other uses in other parts. This Program will improve decision-making processes for determining appropriate coastal land and water uses in light of resource considerations and increase public awareness in coastal resources. The Program will result in some short-term economic impacts on coastal users, but will lead to increased long-term protection of the state's coastal resources.

Alternatives include delaying or denying approval if certain requirements of the Coastal Zone Management Act have not been met, or the state could modify parts of the Program or withdraw their application for Federal approval.

APPLICANT: Delaware State Office of Management, Budget & Planning

LEAD AGENCY: U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of Coastal Zone Management

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Department of Defense
Department of Energy
Department of Health, Education & Welfare
Department of Housing & Urban Development
Department of the Interior
Department of Justice
Department of Labor
Department of Transportation
  U.S. Coast Guard
Environmental Protection Agency
Federal Energy Regulatory Commission
General Services Administration
Marine Mammal Commission
Nuclear Regulatory Commission

National Interest Groups

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American Bar Association
American Bureau of Shipping
American Farm Bureau Federation
American Fisheries Society
American Forest Institute
American Gas Association
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American Industrial Development Council
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American Water Resources Association
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Ashland Oil, Inc.
Associated General Contractors of America
Association of Oil Pipe Lines

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Atomic Industrial Forum
Barrier Islands Coalition
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Gulf Refining Company
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Industrial Union of Marine & Shipbuilding Workers of America
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Interstate Natural Gas Association of America
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Delaware State Clearinghouse Committee
Mini Workshops Participants
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- Environmental - Conservation
- Agriculture
- Resort/Tourist/Recreation

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All Municipalities in Delaware
New Castle County Council, Planning Department, and Water Quality Agency
Kent County Levy Court and Planning Department
Sussex County Council and Planning Department
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Delaware Nature Education Society
League of Women Voters of Delaware
Delaware Oil Men's Association
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Soil Conservation Service-County Conservation District Offices
League of Local Governments of Delaware
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Save Our Shores
Delaware Farm Bureau
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Interested Citizens and Organizations

TABLE OF CONTENTS

	Part/Section
SUMMARY	
Program Summary	A
Changes the Program Will Make	B
Areas of Controversy	C
PURPOSE AND NEED	Part I
Federal Coastal Zone Management Act (FCZMA)	Part I.1
How the Delaware Coastal Management Program Meets the Requirements of the FCZMA	Part I.2
DESCRIPTION OF THE PROPOSED ACTION	Part II
Overview, Delaware Coastal Management Program	Section 1
Framework for Program Development	Section 2
Genesis	2.A
Reasons for a Program	2.B
Benefits of an Approved Program	2.C
Major Questions Addressed by the Program	Section 3
Participation in Program Development	Section 4
Management Issues	Section 5
Resources Subject to Management	5.A
Wetlands	5.A.1
Beaches and Shorelines	5.A.2
Coastal Waters	5.A.3
Underwater Lands and the Coastal Strip	5.A.4
Areas of Special Concern	5.B
The Public Lands	5.B.1
Natural Areas	5.B.2
Flood Hazard Areas	5.B.3
Port of Wilmington	5.B.4
Other Areas of Interest	5.C
Woodlands and Agricultural Lands	5.C.1
Historic and Cultural Areas	5.C.2
Fish and Wildlife	5.C.3
Mineral Resources	5.C.4
State-Owned Recreation and Conservation Lands	5.C.5
Development Issues	5.D
Introduction	5.D.1
General Development	5.D.2
Energy Facilities	5.D.3
Public Investment Considerations	5.D.4
Recreation and Tourism	5.D.5
National Defense and Aerospace Facilities	5.D.6
Transportation Facilities	5.D.7
Air Quality	5.D.8
Water Supply	5.D.9
Implementation of Development Policies	5.D.10

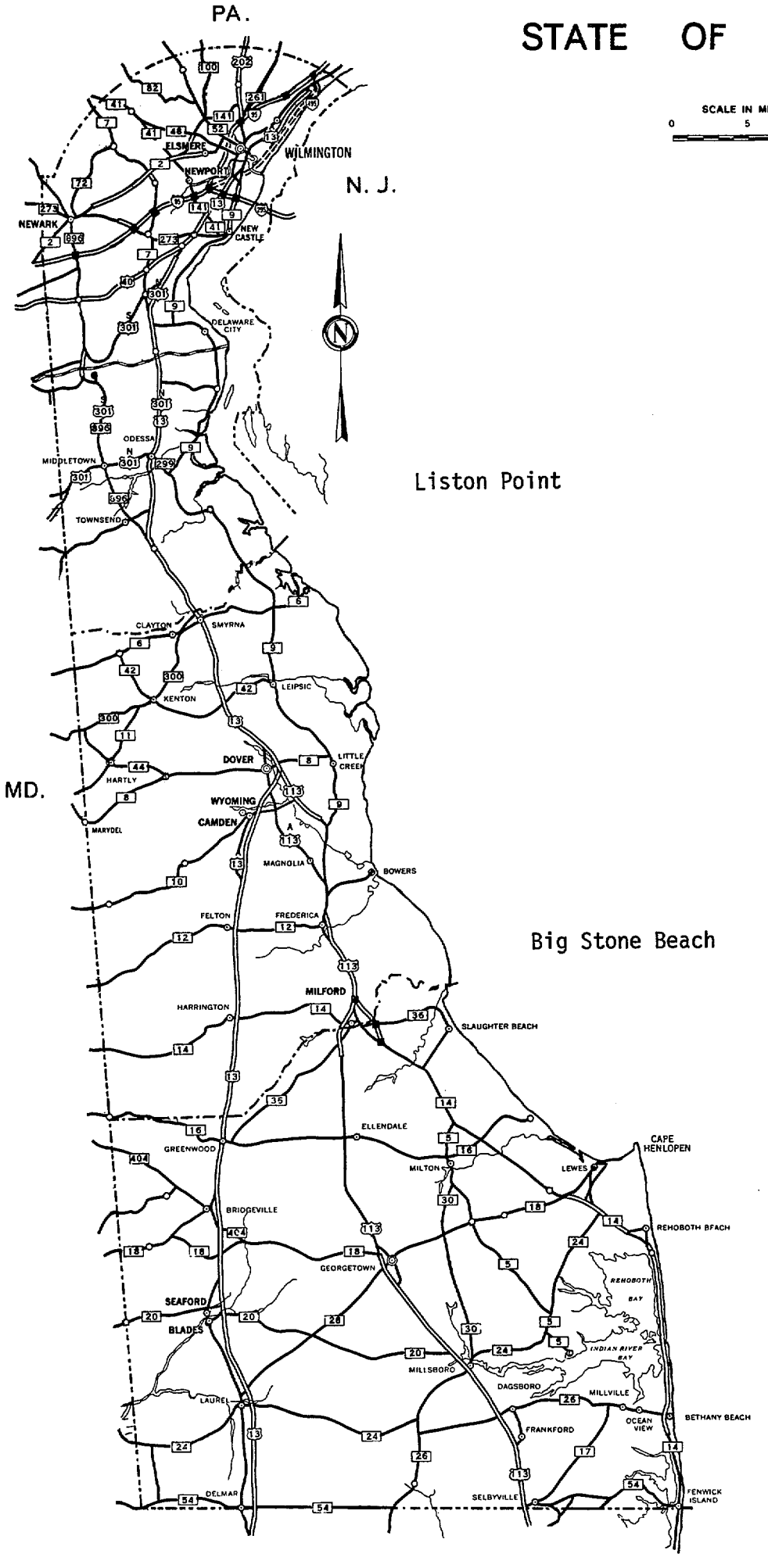
TABLE OF CONTENTS (Cont.)

	Part/Section
Coastal Management Coordination	5.E
Appendices	
General Requirements	A
Uses Subject To Management	B
Special Management Areas	C
Boundaries	D
Legal Authorities and Organization	E
Coordination, Public Involvement and National Interest (incl. Federal Consistency)	F
Miscellaneous Requirements	G
List of Participants in Program Development	H
ALTERNATIVES TO THE PROPOSED ACTION	Part III
AFFECTED ENVIRONMENT	Part IV
ENVIRONMENTAL CONSEQUENCES	Part V
COMMENTS AND RESPONSES TO THE DEIS	Part VI

Summary

SUMMARY

STATE OF DELAWARE



SUMMARY

A. PROGRAM SUMMARY

1. The Coastal Area

The Delaware coast can be divided into two separate areas, the 24.5 mile Atlantic coast in the south which runs from Fenwick Island to Cape Henlopen and the Delaware Bay and River area which includes the coast north of Cape Henlopen to the Pennsylvania line.

The Atlantic coast is characterized by a series of barrier beaches and dunes much of which are already in public ownership and are heavily used for public recreation. Development in this area is of generally a medium density summer resort type with much of the housing owned by out-of-state people. Highrise structures are not commonplace and occur only at Fenwick Island, South Bethany, and in Rehoboth.

The Delaware Bay coast is an area of transition, predominantly ocean influenced near Lewes and riverine north of Wilmington. To the south Lewes has some resort development, but is a year-round community with potential for port development. From Lewes to Smyrna/Woodland Beach large marsh areas predominate with associated narrow beaches and scattered summer colonies. This area is particularly low lying with limited development and much of the land is in Federal or State ownership. Large waterfowl populations can be found here especially in the fall.

North of Smyrna/Woodland Beach the coast changes dramatically with industry as a significant use. Beginning with the presently undeveloped tract near Liston Point, owned by Shell Oil to the Delaware Memorial Bridge industrial development is commonplace. New industrial development can be found in the area from the Chesapeake and Delaware Canal to the Delaware Memorial Bridge including the Getty Refinery and associated power plant, while to the north of the bridge the Wilmington water-front area can be characterized by old industrial development not currently in heavy use. North of Wilmington to the Pennsylvania State line, the area continues to be heavily urbanized with several large highways. A narrow riverfront strip purchased for park use runs along this section, but it has not yet been developed to permit public access.

2. Coastal Issues and Problems

The major problems being experienced in Delaware's Atlantic Coast relate to the sustained pressure being placed on coastal resources by resort and second home development. The area is far less intensely developed than Ocean City to the south, but high demand for second homes and resort development is expected to continue based on proximity to the Washington/Baltimore metropolitan areas. In the past this development has been sited close to the water either seaward of or on primary dunes, making storms a threat to life and property.

Although much of the beach is in public ownership, summer demand places heavy pressures on these public areas. The Delaware Coastal Management Program (DCMP) is completing a detailed land survey to establish where private interests have encroached on public land, but recreational demand is likely to continue raising the possibility of over-use of these fragile areas. Marine access, particularly for small boats, is also a continuing problem with too few boat ramps and docking facilities to meet recreational needs. This situation raises an issue of whether boating should be promoted at the expense of certain wetlands which might need to be altered before construction of boating facilities.

Beach erosion is a significant problem in the Indian River Inlet area. This problem has been compounded by two large jetties adjacent to the Inlet. Beach nourishment is necessary to maintain the integrity of nearby beach areas, particularly those to the north of the inlets.

Growth is putting pressure on existing sewer capacity with resultant water quality problems in some areas. The State is currently studying various options to determine how much additional capacity is needed.

A final important issue in the Atlantic coast area concerns the need for protection of fragile coastal resources, especially beaches, dunes and associated wetlands. Growth continues to place pressure on these resources, both those that are in private ownership which are experiencing development pressure and those owned by the public, which are subject to the above mentioned growing recreational demand.

There are a number of problems and issues in the Delaware Bay area which the DCMP proposes to address. These include Port development, maintenance dredging, the impacts of offshore OCS development, oil spills, shoreline erosion, recreation and protection of fragile coastal resources.

The town of Lewes in the southern end of the Bay may be attractive for certain kinds of port development. Emphasis to date has been placed on OCS related activity, but this situation may be changing as a result of uncertainties related to OCS development, as well as the problem associated with maintenance dredging and dredge spoil disposal. Development as a fishing port with associated shallow draft vessels may obviate the need for massive dredging and resultant environmental problems.

From Lewes to north of Dover, shoreline erosion is an important concern. Other issues include construction in flood hazard zones, oil spills and protection of fish and wildlife resources. Since much of this area is highly productive wetland, the DCMP places a high priority on protection. Off-loading of oil via lightering in the Bay off Big Stone Beach continues to be a problem with small spills affecting beach and marshland and with the possibility of a large spill.

Further north from the Shell Oil site to the Pennsylvania State line most of the concerns relate to the location of industry and urban waterfront redevelopment. Various types of industry are precluded from

siting along the coast and the DCMP is intent on carefully managing permitted types of industry. Port development at Wilmington is advocated with the provision that problems associated with wetlands filling and channel dredging and spoil disposal are carefully evaluated. Urban shorefront recreation opportunities are limited in the area in spite of adequate public ownership, and the DCMP will consider how added recreation can be provided to these existing areas.

3. Coastal Management Program Structure

Delaware has included the entire State within its Coastal Zone boundary, basing this decision on the proximity of nearly all lands in the State to coastal waters. Management of uses and resources by the DCMP can most easily be described in terms of two geographic areas: the Coastal Strip, defined in the Coastal Zone Act, and the remainder of the State.

The Coastal Strip is an area which averages four miles in width along the State's shoreline. This is the area which is the focus of the DCMP management attention and where the most important and fragile coastal resources exist. Within the Coastal Strip, management focuses on the protection of coastal resources with nearly all uses subject to management.

Four (4) State laws form most of the basis for management of uses in the Coastal Strip. The Underwater Lands Act regulates uses in State bottoms from mean high tide to the limits of State jurisdiction. Examples of regulated uses are wetland dredging and mining activity. The Beach Preservation Act controls uses on beaches and dunes with no construction generally allowed on beaches or on primary dunes. Most other activities taking place landward of the primary dune, but within the Act's jurisdiction, require a permit based on shore erosion and flooding impacts, damage to other property, and feasible alternatives. The Wetlands Act regulates activities in tidal wetlands both saline and fresh to ensure preservation and protection of these resources. The Coastal Zone Act prohibits heavy industry and bulk production transfer facilities from locating in the Coastal Strip and subjects manufacturing uses to a permit to ensure protection of coastal resources. These four (4) laws, when coupled with other laws which apply Statewide, provide for comprehensive management of the Coastal Strip.

Management capability throughout the State will be accomplished through the use of the following State authorities:

- Erosion and Sediment Control Act.
- Various public investment authorities which guide construction of public facilities, land acquisition and financial aid programs.
- Environmental Protection Act.
- Executive Order Number Sixty-One.

- Natural Areas Preservation System Act.

- Land Use Planning Act.

The CMP includes a detailed and comprehensive set of goals and policies based on these authorities with State agency compliance with these goals and policies required by an Executive Order from the Governor. The CMP's enforceable policies are based with one exception on authorities which are administered at the State level. The Erosion and Sediment Control Act is the one exception. This Act authorizes the State to develop minimum standards for the control of erosion and sedimentation with these standards to be implemented by the local governments subject to State administrative review and enforcement.

In Delaware, management of land and water resources is shared by various levels of government and among many separate agencies within these levels. Planning and zoning actions, particularly those which relate to uses of individual parcels, are primarily the responsibility of local entities. Yet, the State government delivers many services generated by locally approved development, and assumes responsibility for those resources determined to be worthy of regulation for the general public's benefit. Many services and responsibilities are shared, some formally such as schools, some less formally such as economic recruitment and promotion. Where such actions complement each other, the benefits may accrue to everyone. Where they conflict with each other, the different levels of government often frustrate each other.

Where local units of government exercise the primary control over land use decisions while the State government provides much of the required public services and facilities, coordination is especially important. In the past, a lack of such coordination has resulted in a mis-matching of development and the provision of needed facilities, or the location of major developments which conflict with the plans of local governments or State agencies. To correct this, the Land Use Planning Act was enacted in 1978, which calls for a process to ensure consistency and coordination between levels of government as well as between government and private enterprise. The process to be established provides for notification to State, local, Regional and Federal agencies of proposed actions affecting a critical area (designated by the State, See Part II, Section 5. B.) or those which amend capital investment programs, as well as the planning or construction of a major public or private institution or a land use decision which has a significant impact on more than one local jurisdiction. Opportunities are provided for review and comment with provisions for reconsideration of decisions using the Council on State Planning as the resolution mechanism.

The CMP is implemented by State agencies which are ultimately responsible to the Governor. Executive Order #60 designates the Office of Management, Budget and Planning as the lead agency to receive and administer CZM funds and to monitor and evaluate the management of Coastal

resources. Executive Order #61 requires that all State agencies "enforce the goals, policies and objectives of the CMP". In addition to its responsibilities as lead agency, OMBP administers the A-95 review program, the Land Use Planning Act and the Coastal Zone Act. The Department of Natural Resources and Environmental Control (DNREC) administers all the other environmental laws which are relied upon to implement enforceable CMP policies. It also has important responsibilities relating to the Program's development and public investment policies. The roles of other State agencies with less important responsibilities for coastal management are discussed in Part II, Section 5. E.

B. CHANGES THE PROGRAM WILL MAKE

Federal approval of Delaware's CMP will bring about significant changes in the way its coastal resources are managed and will ensure that the effects of development on coastal resources are carefully considered before allowing for such development.

The State's CMP seeks to alleviate undue environmental pressures which have resulted in the past by activities in the following areas:

(1) Industrial use of the Coastal Zone.

(2) Tourism, Resort/Second Home Development and Recreational Development.

(3) Marine Transportation.

(4) Offshore Oil and Gas Development.

(5) Sport and Commercial Fishing.

(6) Conservation of Wildlife and Marine Resources.

(7) Agriculture.

(8) Surface Transportation.

(9) Management of Resources (i.e., Wetlands, Beaches, Public lands, Hazard Zones, etc.)

The CMP will manage these activities through the use of existing state authorities coupled with three laws (the Land Use Planning Act, the Erosion and Sediment Control Act, and the Natural Areas Preservation Act) which became law in 1978 as a direct result of the Coastal Program. Although the CMP is based in large measure on laws which were passed prior to the development of the Program, several new and important changes will occur in the way coastal resources are managed in the State. As evidenced by various State laws passed in the early 70's, Delaware has long recognized the need for improved management of its coast. By participating in the Federal Coastal Zone Management Program, the State has been able to develop a more coordinated and comprehensive system for managing its coastal resources.

The most important changes include:

1. New and specific State coastal management policies

The State Program document (Part II) describes in detail the problems associated with a number of management issues and lists a set of specific policies for solving these problems. These policies provide added predictability in State resource decision-making. People preparing to undertake projects in the Coastal Zone will have a clearer understanding concerning the likely State position concerning their projects.

2. Networking through Executive Orders

The specific policies mentioned above will assume particular importance in Delaware as a result of Executive Order #60 and especially #61 which requires that State agencies "enforce the goals, policies and objectives of the CMP".

More specifically, the Delaware Coastal Management Program will:

(1) Create a process for resolving conflicts (i.e., develop methods to evaluate coastal land and water uses so that rational choices concerning uses can be made.)

(2) Together with laws already existing, improve the protection of coastal lands and water management areas.

(3) Create a policy framework thereby providing a common basis for coastal decisions which must be made with reference to policies and rules governing those actions in the coastal zone.

(4) Improve public awareness.

(5) Implement a system of standards, guidelines and controls which will define the responsibility for managing coastal land and water uses of more than local significance.

(6) Strengthen ties between the various levels of government, thereby, clearly defining management responsibilities.

(7) Identify and give special attention to those geographic areas whose characteristics or impending use are of particular concern to the State. (Natural areas of educational, ecological and aesthetic value.)

(8) Address those questions of national interest resulting from growing energy needs and impending OCS oil and gas development and its relationship to the Delaware economy.

(9) Provide the mechanism for anticipating the impact of growth.

(10) Encourage and accommodate the use of recreational areas.

Federal approval of the Program will significantly improve the way in which Delaware manages its coastal resources. Approval will provide the funding assistance necessary for implementation of the policies set forth in the CMP and will ensure that Federal agency actions abide by these policies.

C. AREAS OF CONTROVERSY

To date, there have been two areas of controversy associated with the DCMP. The first concerns the adequacy of the Program's response to the requirement that the national interest in energy facilities be considered in CMP decision-making, and the the second relates to the adequacy of the Program's policies to ensure that important coastal resources are adequately protected.

Because the Delaware Coastal Zone Act prohibits the siting of certain industrial facilities in a statutorily defined coastal strip,economic interests, particularly energy interests, have on occasion economic interests, particularly energy interests, have on occasion questioned whether the DCMP could argue that the national interest had been adequately considered. With respect to those facilities that are prohibited in the Coastal Strip, the CMP notes that these facilities can in general be located inland and so are not prohibited Statewide, and that Delaware in most cases has in the past sited more than its fair share of these uses. In the case of energy facilities such as power plants, and OCS oil and gas development facilities, and manufacturing use or activities that do not fall within the heavy industrial definition, the Program will permit the construction of these types of facilities anywhere in the coastal zone as long as environmental criteria and Program policies are met. The CMP will also permit a deepwater port facility beyond the State's seaward jurisdiction and an associated pipeline which transects but does not terminate in the Coastal Strip, as long as this facility meets environmental standards and other coastal policies.

Regarding national interest, Delaware energy siting policies are specific enough in that they address the issues of predictability, enforceability and comprehensiveness.

Delaware's CMP prohibition against the siting of L.N.G. facilities, deepwater ports and refineries might at first appear to disregard national interests for the sake of local concerns, yet a close examination reveals these facts:

(1) LNG facilities: The use of Delaware's coastal strip for the siting of such a facility does not appear to be feasible because of a number of siting criteria which must be met. Furthermore, the still undefined dangers associated with LNG facilities in areas of population density and the potential impacts of shipments on environmental resources, appear to outweigh benefits related to the potential energy supply.

(2) Deepwater Ports: Delaware CMP prohibits the siting of such ports in Delaware Bay for environmental reasons, (i.e., spillage, dredging and spoil disposal). This policy prefers instead the siting of Deepwater Ports offshore in the Atlantic provided they meet certain standards. These standards include but are not limited to:

a. Requiring location far enough offshore to minimize oil spill threats

b. Environmental Safeguards

(3) Oil Refineries: Regarding national interest Delaware notes that, according to information received in late 1977, there does not appear to be a need for the construction of any new refineries in the coastal strip. Furthermore, several federal agencies, as well as the State Energy Office, have pointed out that, if new sites are needed, coastal locations are not necessarily required. Expansion of existing sites in the Delaware Valley, or replacement of imported feedstock with OCS feedstock in existing refineries appear to be more likely alternatives which better serve the national interest in reducing reliance on imported fuels.

States are required to develop a planning process capable of anticipating and managing the impacts of energy facilities including, but not limited to, the impacts of offshore oil and gas development. Section 5.D.3., Energy Facilities, addresses planning and policy; Appendix E, Legal Authority and Organization, discusses the State's authority regarding specific energy facility siting considerations.

Working Paper #7 provides analysis and rationale for energy facility siting concerns. Together, the Appendix, Section 5.D.3., and Working Paper #7 address the energy facility planning process requirement and adequately provide for the consideration of the national interest in energy and industrial uses. (See Publications List, Part II, Section 3.)

Environmental groups have criticized the CMP because it may not adequately protect the State's coastal resources. These groups argue that residential, commercial, and industrial facilities are not subject to sufficient enforceable policies to ensure protection of coastal resources, and note that CMP policies do not prohibit certain potentially damaging uses such as platform fabrication yards, tank farms, power plants and nuclear fuel processing facilities. Lack of control over freshwater wetlands of less than 400 acres in size has been cited as a deficiency by several groups, and the lack of enforceable policies related to certain growth inducing types of public investment is considered by some to be a shortcoming of the CMP.

Delaware's position concerning these points has been that the Program adequately protects coastal resources through its control over coastal waters, wetlands, beaches and dunes, and over the siting of industrial facilities. Facilities of the types mentioned in the previous paragraph will not be allowed to locate in areas where it can be demonstrated that adverse effects on coastal resources will occur. In the case of freshwater wetlands, all tidally influenced wetlands (saline or fresh) are subject to stringent environmental controls. Inland, non-tidal freshwater wetlands of less than 400 acres are presently unregulated, but are nevertheless considered for designation under the Natural Areas Preservation Act and the Land Use Planning Act. The Program's public investment policies generally encourage or discourage, rather than force State

agency compliance. The two executive orders do, however, force State agency adherence to the Program policies.

A third area of controversy relates to the size of the Coastal boundary and whether the entire State should be included within the coastal zone. Some have argued that the Program should limit the boundary because uses removed from the water's edge do not have the potential for direct and significant impacts on coastal waters. Part II of the FEIS and Working Paper #2, argue that because of the State's small size and proximity to coastal waters, the entire State should be included in the boundary. Only those uses which have potential adverse impacts on coastal resources will be controlled by the Program.

Part I
Purpose and Need

PART I

PART I: PURPOSE AND NEED

In response to intense pressure, and because of the importance of coastal areas of the United States, Congress passed the Coastal Zone Management Act (P.L. 92-583) which was signed into law on October 27, 1972. The Act authorized a Federal Grant-in-aid program to be administered by the Secretary of Commerce, who in turn delegated this responsibility to the National Oceanic and Atmospheric Administration's (NOAA) Office of Coastal Zone Management (OCZM). The Coastal Zone Management Act of 1972 was substantially amended on July 26, 1976 (P.L. 94-370). The Act and the 1976 amendments affirm a national interest in the effective protection and development of the coastal zone by providing assistance and encouragement to coastal states to voluntarily develop and implement rational programs for managing their coastal areas.

Broad guidelines and the basic requirements of the CZMA provide the necessary direction to States for developing coastal management programs. These guidelines and requirements for program development and approval are contained in 15 CFR Part 923 as revised and published, March 1, 1978, in the Federal Register. In summary, the requirements for program approval are that a State develop a management program that:

(1) Identifies and evaluates those coastal resources recognized in the Act that require management or protection by the State;

(2) Re-examines existing policies or develops new policies to manage these resources. These policies must be specific, comprehensive and enforceable, and must provide an adequate degree of predictability as to how Coastal resources will be managed;

(3) Determines specific uses and special geographic areas that are to be subject to the management program which should be based on resources capability and suitability analyses, socio-economic considerations and public preferences;

(4) Identifies the inland and seaward areas subject to the management;

(5) Provides for the consideration of the national interest in the planning for and siting of facilities that meet more than local requirements; and

(6) Includes sufficient legal authorities and organizational arrangements to implement the program and to insure conformance to it.

In arriving at these substantive aspects of the management program, States are obliged to follow an open process which involves providing information to and considering the interests of the general public, special interest groups, local government, and regional, State, inter-state and Federal agencies.

Section 305 of the CZMA authorizes a maximum of four annual grants to develop a coastal management program. After developing a management program, the state may submit it to the Secretary of Commerce for approval pursuant to Section 306 of the CZMA. If approved, the State is then eligible for annual grants under Section 306 to implement its management program. If a program has deficiencies which need to be remedied or has not received approval by the time Section 305 program development grants have expired, a state may be eligible for preliminary approval funding under Section 305(d).

Section 307 of the Act stipulates that Federal agency actions shall be consistent, to the maximum extent practicable, with approved State management programs. Section 307 further provides for mediations by the Secretary of Commerce when a serious disagreement arises between a Federal agency and a coastal State with respect to a Federal Consistency Issue.

Section 308 of the CZMA contains several provisions for grants and loans to coastal states to enable them to plan for and respond to onshore impacts resulting from Coastal energy activities. To be eligible for assistance under Section 308, coastal states must be receiving Section 305 or 306 grants, or in the Secretary's view, be developing a management program consistent with the policies and objectives contained in Section 303 of the CZMA.

Section 309 allows the Secretary to make grants (90 percent Federal share) to States to coordinate, study, plan, and implement interstate Coastal management programs.

Section 310 allows the Secretary to conduct a program of research, study and training to support State management programs. The Secretary may also make grants (80 percent Federal Share) to States to carry out research studies and training required to support their programs.

Section 315 authorizes grants (50 percent Federal Share) to States to acquire lands for access to beaches and other public coastal areas of environmental, recreational, historic, aesthetic, ecological or cultural value, and for the preservation of islands. This is in addition to the Estuarine Sanctuary program to preserve a representative series of undisturbed estuarine areas and for long-term scientific and educational purposes.

Delaware's Office of Management, Budget and Planning discusses the purpose of developing a comprehensive program through participation in the Federal Coastal Zone Management Program and their desires to seek approval of their Program under Section 306 of the CZMA in Part II, Section 2 of this document.

Approval of the Delaware Coastal Management Program is considered a major action which significantly affects the quality of the human environment. An immediate effect of approval is the qualification of the State for Federal matching funds for use in administering the Program. In addition, the CZMA stipulates that Federal activities affecting the coastal zone shall be consistent, to the maximum extent practicable, with an approved management program.

It is the general policy of OCZM to issue a combined final environmental impact statement (FEIS) and program document. Parts I, III, IV, and V of this FEIS were prepared by OCZM. Part II of this FEIS is a description of the State's program and was prepared by the Delaware Office of Management, Budget and Planning.

For purposes of reviewing the proposed action, the key questions are:

- whether the Delaware Program is consistent with the objectives and policies of the national legislation,

- whether the award of Federal funds under Section 306 of the Federal act will help Delaware to meet those objectives,

- whether the State's management authorities are adequate to implement the Program, and

- whether there will be a net environmental gain as a result of Program approval and implementation.

OCZM has made an assessment that the answers to these questions are affirmative. OCZM wants the widest possible circulation of this document to all interested agencies and parties in order to receive the fullest expression of opinion on these questions. OCZM thanks those participating in the review of the Delaware Program and this final environmental impact statement.

How the Delaware Coastal Management Program Meets the Requirements of the Coastal Zone Management Act:

Requirements	Sections of Approval Regulations	Program Section
Sec. 306(a), which includes the requirements of Sec. 305:		
305(b)(1): Boundaries	923.31, 923.32 923.33, 923.34	Appendix D App. D, Sec. 4
305(b)(2): Uses subject to management	923.11	App. B, Sec. 5A
305(b)(3): Areas of particular concern	923.21, 923.23	App. C, Sec. 5
305(b)(4): Means of control	923.41, 923.43	App. E, Sec. 5
305(b)(5): Guidelines on priorities of uses . .	923.21	App. C, Sec. 5A and Sec. 5B
305(b)(6): Organizational structure	923.46	App. E, Sec. 5E
305(b)(7): Shorefront planning process	923.24	Sec. 5A2, App. C
305(b)(8): Energy facility planning process . .	923.13	Sec. 5D3
305(b)(9): Erosion planning process	923.25	Sec. 5A2, App. C
Sec. 306(c), which includes:		
306(c)(1): Notice; full participation; consistent with Sec. 303	923.58, 923.51 923.56, 923.3	Sec. 4, Sec. 5 and App. F
306(c)(2)(A): Plan coordination	923.56	App. F, Sec. 5E
306(c)(2)(B): Continuing consultation mechanisms .	923.57	App. F, Sec. 5E
306(c)(3): Public hearings	923.58	Sec. 4, App. F
306(c)(4): Gubernatorial review and approval . .	923.48	Governor's Letter
306(c)(5): Designation of recipient agency . . .	923.47	Governor's Letter, App. E
306(c)(6): Organization	923.46	App. E, Sec. 5E
306(c)(7): Authorities	923.41, 923.47	App. E, Sec. 5
306(c)(8): Adequate consideration of natural interests	923.52	App. F, Sec. 5
306(c)(9): Areas for preservation/restoration . .	923.22	App. C, Sec. 5
Sec. 306(d), which includes:		
306(d)(1): Administer regulations, control development; resolve conflicts . . .	923.41	App. E, Sec. 5D
306(d)(2): Powers of acquisition, if necessary .	923.41	App. E
Sec. 306(e), which includes:		
306(e)(1): Technique of control	923.41 - 923.44	App. E
306(e)(2): Uses of regional benefit	923.12	App. B, Sec. 5D3 App. E
Sec. 307, which includes:		
307(b): Adequate consideration of Federal agency views	923.51	App. F, Sec. 5E
307(f): Incorporation of air and water quality requirements	923.45	Sec. 5A3, Sec. 5D8 and App. E

Part II
Description of the Proposed Action (Delaware Coastal Management Program)

PART II

The Delaware Coastal Management Program has been prepared by the staff of the Environmental Policy and Coordinative Planning Section of the Office of Management, Budget and Planning, Executive Department, Dover, Delaware.

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STATE OF DELAWARE
EXECUTIVE DEPARTMENT
DOVER, 19901

PIERRE S. DU PONT
GOVERNOR

PHONE: (302) 678-4101

June 1, 1979

Mr. Robert W. Knecht
Assistant Administrator
Office of Coastal Zone Management
Page Building No. 1
3300 Whitehaven Street, N.W.
Washington, DC 20235

Dear Bob:

It is a pleasure to submit herewith the State of Delaware's Coastal Management Program and Final Environmental Impact Statement.

I have carefully reviewed and approved as State policy the Management Program submitted for your approval. Rest assured that the Management Program is an enforceable instrument of State policy which I am fully committed to carrying out. The State is organized to implement the Management Program and has all necessary authority to do so. I have, by virtue of Executive Order No. 60, dated August 24, 1978, designated the Office of Management, Budget, and Planning to receive and administer implementation grants.

I would also like to take this opportunity to express my thanks to you and your staff for your continued assistance in making this Program the fine achievement that it is.

~~With warm~~ personal regards,

Pierre S. du Pont, IV
Governor

PSduP:NH:jad
Enclosures

STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT, BUDGET, AND PLANNING
OFFICE OF THE DIRECTOR
DOVER, DELAWARE 19901
PHONE: (302) 678 - 4271

June 1, 1979

The Honorable Pierre S. du Pont
Governor
Legislative Hall
Dover, Delaware 19901

Dear Governor du Pont:

It is my pleasure to transmit to you the Delaware Coastal Management Program and Final Environmental Impact Statement. This document represents many years of research, analysis, discussion, debate and review by many private citizens, State and local government representatives, and our staff. It has been prepared as a policy framework for the proper management of land and water resources of this State, cognizant of the need to balance environmental concerns with economic needs.

With publication of this document, we are beginning the federal review process which we hope will lead to approval of the Delaware Coastal Management Program by the U.S. Department of Commerce. As you know, approval brings financial assistance for program implementation, assures Delaware of continued Coastal Energy Impact Assistance, and provides an important mechanism to require that federal actions be conducted in a manner consistent with Delaware's needs, objectives and policies.

We appreciate your continued support of our efforts in this area and hope that the Delaware Coastal Management Program meets with your approval.

Sincerely,

Nathan Hayward III

Nathan Hayward III
Director

NH/DSH/jad

PROGRAM OVERVIEW

Delaware Coastal Management Program

SECTION 1

PROGRAM OVERVIEW

I.

The need for a Coastal Management Program became apparent after several land use problems arose which were caused largely by increases in both the year-round and seasonal coastal populations. It became obvious that, if growth were to continue unchecked, the already recognized problems -- traffic congestion, failing waste disposal systems, sand dune destruction, storm damage vulnerability, etc.-- would be intensified. Furthermore, it was almost a certainty that new problems would arise unless some management programs were designed to guide development near and at the coast. The Coastal Management Program, the mechanism which was chosen to resolve coastal problems, has adopted policies (some are enforceable, many others are of the encouragement type) to allow orderly growth while protecting the coastal resources.

Perhaps "conflict resolution" is the key term in the reasons for having a program. For example, a parcel of marshland may be filled, thereby eliminating the plants and animals that occupied that part of the marsh. However, increased knowledge of the geography and biology of the coastal areas has shown that some uses of land irreversibly change its character. Thus, there is a conflict between someone wanting to make a property suitable for a specific use and someone who is concerned about the continuous loss of wetlands and its effects on the life cycles of fish and wildlife. Others coastal-related, controversial and conflicting practices include: indiscriminate dredging of lagoons and channels; pollution of the bays and groundwater; and the effects of inappropriate land uses (e.g., strip development on already overcrowded roads). It should be realized that often there is no deliberate intention on the part of the landowners to create environmental problems; sometimes problems occur because people continue to do things the way they always have done them. Because of increased public awareness of environmental deterioration and in the recognition of the cumulative impacts of many small but unsound projects, it became necessary for the State to take an objective look at what was happening in the coastal areas and develop a program for management of these areas.

As the program developed, certain themes became apparent. The conflicts seemed to center around progress (development) versus environmental protection. It is now believed that the solution is a balance between the extremes. The various units of government must carefully analyze their desires and the options that are available. Again, it becomes a case of "conflict resolution". For example, growth may be desired in a community - but there is no more undeveloped land available except wetlands or beach lands. The best option in such a case may very well be to reuse derelict or underutilized land that already has utilities and roads in place. The management program will provide the policy.

I.

framework necessary for such balancing by all levels of government.

A Coastal Management Program (CMP) will benefit Delaware in several ways, including:

--- Unified policies would be used in dealing with land use decisions

--- Federal activities would have to be consistent with the Management Program (with some exceptions).

--- The Federal government would pay most of the administrative costs of the CMP.

--- The public information and education parts of the CMP would increase public awareness of the coastal resources and their related problems.

Thus, it can be seen that the Coastal Management Program can be used as a vehicle to encourage growth while guiding it in a way that is environmentally sound. It is this philosphy that is carried through the CMP and reflected in the wide range of discussions and policies that are part of this ongoing management program.

FRAMEWORK FOR PROGRAM DEVELOPMENT

Genesis	2.A.
Reasons for a Program	2.B.
Benefits of an Approved Program	2.C.

SECTION 2

FRAMEWORK FOR PROGRAM DEVELOPMENT

2.

2.A.

Genesis: Growing Concern for the Coast

Throughout much of Delaware's history the coastal areas were of limited interest, being sparsely developed and isolated from the urban industrial centers which were located, for the most part, at the tidal reach of major rivers and the intersections of the railroads. With the advent of the automobile and construction of major highway systems, these areas were no longer isolated. The coastal waters looked increasingly interesting as industrial sites and places for recreation. Shorter work weeks, prosperity, and new mobility began to change the pace of the coastal settlements.

The primary genesis of coastal concern, unfortunately, was disaster. While the coast has always experienced storm phenomena, "(t)he surging momentum of hurricanes Connie and Diane in August 1955, which claimed 100 lives and caused damage estimated to be over $100 million, strikingly supplied the impetus needed for initiating a comprehensive water resources survey of the Delaware River Basin." It was this study, which became the "Interstate Water Resources Survey of 1959," that signaled the beginning of a unified, policy level concern for the State's coastal resources. This concern was re-emphasized in November 1969 with completion of an "Environmental Study of the Rehoboth, Indian River and Assawoman Bays," prepared by a group of State agencies in response to a request by Governor Russell W. Peterson. This study focused on the rapid loss of bay wetlands, indiscriminate dredging, pollution of the bays and ground waters caused by residential and industrial wastes, and the general despoliation of these recreational areas through "increasing and uncontrolled development."

In July of 1972, the Governor appointed a Wetlands Action Committee and charged it with making a thorough study of Delaware's coastal wetlands and with the formulation of policy and other recommendations. The Committee reported to him in early January 1973.

This committee concluded that the biological and aesthetic values of the coastal wetlands were simply too great and too widely enjoyed to permit their continued loss and deterioration. They recommended a statewide system for coastal wetlands preservation and control; an expanded program of public acquisition; development of public access points to facilitate public use of the coastal waters and lands; and consolidation of powers over the use of coastal lands, including subaqueous lands, in the

Department of Natural Resources and Environmental Control. These actions led to passage of the Wetlands Act of 1973 (Title 7, Chapter 66, Delaware Code), which establishes a permit system for use of wetlands in the State.

Other concerns over development practices in the coastal areas are addressed by legislation which precludes destruction of the beaches and barrier dunes and regulations which expand the State's control over environmentally unsound uses of land, water, underwater and air resources. The Beach Preservation Act of 1972 (Chapter 68, Title 7, Delaware Code) has as its purposes the enhancement, preservation and protection of the public and private beaches of the State. It makes acts of beach destruction punishable as crimes and prescribes means for maintenance and enhancement of these resources.

An additional piece of environmental protection legislation, the Environmental Protection Act, expands the authority of the State to prosecute violators of regulations and strengthens the State's capabilities to fix responsibility and impose penalties for environmentally degrading actions (7 Delaware Code, Chapter 60). Finally, much of the State's recent action in its coastal areas developed from the deep concern of many people and public officials in Delaware over the likelihood of industrial growth in the coastal zone resulting from the development of large new petroleum refineries or deepwater terminals for supertankers, or other heavy industries in areas not yet industrialized.

As a result of this concern, the Governor appointed a Task Force on Marine and Coastal Affairs in early 1970 to examine the situation and advise him on a proper course of action. In February 1971, the Task Force completed a preliminary report recommending that industries compatible with high environmental quality standards be encouraged, but that no further incompatible industries be allowed in the coastal zone. The Task Force also recommended prohibiting a deepwater port facility in the Delaware Bay. The report emphasized the recreational values of the coastal zone for Delawareans and for visitors from more heavily urbanized nearby states.

Shortly after release of the Task Force Preliminary Report, in the spring of 1971, the Governor introduced legislation, the Coastal Zone Act (House Bill #300), in the General Assembly, which follows recommendations of the Task Force on Marine and Coastal Affairs. On June 28, 1971, the Governor signed the Act into law. (Title 7, Chapter 70, Delaware Code).

2.A.

Other coastal-related actions have included: development of various plans, such as the Delaware Outdoor Recreation Plan in 1971 and the State Comprehensive Development Plan in 1967; a study of the potentials for a Delaware Deepwater Port, in 1970 and a study of the Delaware Bay relative to oil, ports, and marine transportation by a special study committee in 1973; preparation of a preliminary Coastal Zone Plan in 1973, as called for by the State's 1971 Coastal Zone Act; and development of administrative regulations under the Coastal Zone Act; Beach Preservation Act, Wetlands Act, and other environmental protection acts.

Another action which has had significant coastal management implications was the creation of the Delaware Tomorrow Commission, which was charged with the responsibility to develop a statewide plan for growth. Additional actions providing a foundation for coastal management efforts include planning programs being carried out under the requirements of the Environmental Protection Agency in the areas of water and air resources and solid waste management, the 1976 and 1978 updates of the State's Comprehensive Outdoor Recreation Plan, and the establishment of the Mid-Atlantic Governor's Coastal Resources Council (MAGRAC) and in-state committees to deal with OCS and other energy facilities related issues.

Despite the aforementioned progress which the State made towards developing and implementing a sound coastal management program, several problems - discussed in the next section - remained. There were two causes for these problems: (1) the diverse parties affected by coastal management programs were not being given adequate input into the decisions which were important to them, and (2) the agency or agencies responsible for administering programs designed to redress specific problems did not have the "big picture" of how other coastal problems were affected or sometimes generated by their decisions. The Coastal Management Program suffers from neither of these problems.

2.B.

REASONS FOR A PROGRAM

A. Background

Delaware's coastal area has been used, and unfortuantely often abused, during all of the State's recorded history. Most of Delaware's settlements of the colonial era were directly tied to the many rivers and the bay which facilitated trade and commerce. The tidelands provided a way of life for many residents engaged in fishing, oystering, trapping and shipping. By the middle of the nineteenth century, tidelands were being diked, drained, and converted to agricultural uses; a forewarning of events to come later. Tourism also began to prosper along the Bay shore with many former fishing and shipping settlements recognizing the recreational values of the Bay beaches and waters.

By the middle of this century, sport fishing and swimming, primarily at the ocean, emerged as the major uses of the coastal lands. At the same time, and coincidental with an ever growing use of the waters for shipping and port-related activities, the Bay and its tidelands sustained substantial use by hunters, trappers, commercial fishermen and oystermen.

In the sixties, increased mobility and the demands of an affluent society began to place great pressures on coastal areas for second homes, vacation sites and recreational pursuits. Pressure for oil refineries and other heavy industries and for ports also came to bear on the area.

B. Current Problems: Conflicting Land Uses

By the seventies, the foregoing events led to the need for striking a balance between preservation of the estuarine environment and residential and industrial development. But man's wants and needs for energy, employment and recreation raise the very crucial problem of progress versus environment in Delaware's coastal areas.

(a) Industrial Use of the Zone - Parts of the coast are already used for heavy industry, primarily the petroleum and petrochemical industries in or near the Wilmington area. The increasing demand for energy and for the derivatives of petroleum, combined with the shortage of sites in the older

urban portions of the Washington-Boston megalopolis, have led to great pressures for new ports capable of accommodating large vessels. While these uses may result in increased employment opportunities, many of them cause pollution, occupy large areas, place heavy demands on public utilities and services, are heavy energy users, or attract other uses which are themselves environmentally degrading.

(b) Tourism, Resort/Second Home Development and Recreation Development Demand - Much of the coast, especially that part fronting the Atlantic Ocean and the three large inland bays, is heavily used for resort related development. High transportation and highway costs, severe pressures on natural resources, demands for high capacity utility systems, and impairment of the area's visual beauty are only a few measures of the problem.

The State's resources have a natural limit beyond which their use for boating, swimming, hiking, camping or other form of recreation has a detrimental effect. Coastal management must come to grips with the demands for recreation and tourism, the facilities and opportunities that are desired, their impact on the resource base, and ultimately the proportion of resources that can be so used. Although current State policy, as reflected in the Coastal Zone Act of 1971 and elsewhere, favors the recreational and tourist use of the coastal area, abuse of the resource and incomplete understanding of use/resource relationships require that these activities receive a priority emphasis in Delaware's coastal management program.

(c) Marine Transportation - The Delaware River and Bay continue to be heavily used for shipping to and from the Ports of Philadelphia and Wilmington and the nearby industrial concentrations. They are also heavily used for transfer of petroleum products for the extensive refinery complexes of the Delaware Valley.

The greatest hazards to Delaware's Coastal Zone and the region from this activity involve shipping accidents, especially the hazards th transporting and off-loading crude oil in the open Bay. The disposal of spoils from the constant dredging required to maintain the navigational channels in the River, Bay and ports poses

another major environmental problem.

(d) Impact of Offshore Oil and Gas Development - Of primary concern to Delaware is the as yet unknown offshore and onshore effects from proposed oil and gas operations on the Outer Continental Shelf. Considerations of these activities and energy facility development in general are crucial management issues facing Delaware.

(e) Sport and Commercial Fishing - The coastal waters continue to be heavily used for commercial fishing and also for a competing use, that of sport fishing. These uses suffer from the demands for other uses of the coastal waters. Additionally, an allocation scheme between sport and commercial user groups soon may have to be addressed.

(f) Conservation of Wildlife and Marine Resources - The coastal areas of Delaware are a valuable and threatened habitat for an important and varied wildlife and marine community. Areas critical to the propagation and nursing of finfish, wetlands heavily used by migratory waterfowl, and waters coverting and supporting extensive shellfish populations are frequently threatened by pollutants, competing uses, and the general intrusion of man into the natural setting.

(g) Agriculture - To be more efficient and productive, especially in the face of the loss of farmlands to urban and resort uses, agricultural activities may require increased use of fertilizers, herbicides and pesticides. These, and the sediments resulting from runoff, may have detrimental impacts on other resources in coastal environments.

(h) Surface Transportation, Pipeline and Utility Uses - Portions of the coast are heavily utilized for surface transportation requirements. Summer traffic bottlenecks are a common occurrence resulting in demands for greatly improved roadway systems to accommodate peak usage. In too many cases, the natural resources, especially wetlands, have been damaged or permanently lost due to a limited understanding of the resource base or to a lack of construction techniques with which to lessen the environmental damage.

The coastal area is also impacted by utility transmission needs, especially for electric power, natural gas, and municipal and industrial sewage disposal requirements. Many uses and potential uses of the coast could involve pipelines crossing above, on or under the waters and lands of the area. These uses may disrupt the visual beauty of the area, impinge on natural wildlife habitat, increase the risks of major ecological damage, and complicate effective and efficient management practices.

Current Problems: Management

The Governor's Task Force on Marine and Coastal Affairs recognized an urgent need to improve the present structure in the State government for management of Delaware's coastal areas. Recent planning efforts have also dealt with the problems of overall management and the lack of a centralized structure for dealing with coastal issues. Coastal management has been further compounded by piecemeal legislation which has vested various agencies with authorities over specific portions or uses of the zone, without the benefit of any comprehensive policy or regulatory framework.

Several pieces of regulatory legislation have been passed in recent years for protection of the coastal area. Each was designed to deal with a specific problem area, for example, beach or wetlands. While these acts provide necessary controls, they are limited in scope and are not related to an overall management policy framework. There has been but one comprehensive act, the Environment Protection Act of 1973, enacted by the General Assembly in recent years. The powers provided in this Act are used extensively in carrying out State programs to protect the water and air resources. The Act provides one of the major tools for coastal zone management. Nonetheless, it does not provide the comprehensive policy framework needed to tie the

different statutes, regulations, procedures, appeals, measures, permit processes, together.

National and Regional Issues

Delaware Bay is the water gateway for commercial shipping to and from the Port of Philadelphia (including Wilmington, Chester, Paulsboro, Camden, Bristol, and Trenton) and for most freighter traffic serving Baltimore by way of the Chesapeake and Delaware Canal.

Accompanying the water-transportation system is a major network of railroads operated principally by the Penn Central and Baltimore and Ohio lines. It provides trunk connections to New York, Pittsburgh, Philadelphia, Baltimore, and Washington, D.C.

Pipelines for petroleum products, including natural gas, tie the Delaware Coastal Zone to all of the Eastern Megalopolis between New York and Washington. An electric power grid maintained by the Delmarva Power and Light Company connects four generating stations in Delaware and Maryland to other power systems throughout the Northeast.

Growing needs for fresh-water, particularly in northern Delaware, will probably require the development of additional surface-water supplies, much of which will originate in Pennsylvania and possibly in Maryland. The Delaware River Basin Commission has the authority to help solve water-distribution problems that might arise between Delaware and Pennsylvania. However, water-development involving Delaware and Maryland could require some additional interstate cooperation.

The exploratory work of the Commission for Regional Development (established by the Governors of Delaware, New Jersey, and Pennsylvania in 1968 and in existence until 1971) involving regional approaches to transportation needs in the Delaware Valley illustrates the concern about deepwater ports, regional airports, rail passenger transportation, and a more fully integrated system of roads and water crossings for motor vehicles.

There is a need for interstate and national policies and management arrangements for refuse dumping and mineral extraction. Because of the actual or potential environmental incompatibility of some industrial and commercial enterprises with the recreational uses of the coastal zone and the life pattern of many Delawareans, Delaware is vitally concerned about binding decisions regarding the location of such enterprises in the coastal zone of Delaware by authorities outside the State government, such as federal or interstate agencies.

2.B.

Challenge

Recognizing the pressures for the many diverse and often conflicting uses of Delaware's coastal area, it is imperative that a course of action be developed that will enhance the quality of life and conserve and improve the natural resources of this area. "Such guidelines must include the wise use of the land and water resources of the State's coastal zone for the economic and social benefit of its citizens." This challenge, issued by the Governor's Task Force on Marine and Coastal Affairs in 1970 is being met by Delaware's Coastal Management Program.

2.C.

BENEFITS OF AN APPROVED COASTAL MANAGEMENT PROGRAM

Delaware's Coastal Management Program offers four principal benefits to the State's residents:

(1) More effective protection and use of the land and water resources of Delaware's coast - The Coastal Management Program, with the cooperation of the many participants, has developed land and water use programs for the State's coastal areas, including unified policies, methods and processes for dealing with land and water use decisions of more than local significance.

The policies and management approaches contained in the Program provide a basis for more effective and efficient state agency coastal management actions, and the focus for coastal management recommended by the Governor's Task Force on Marine and Coastal Affairs in 1972. The program also provides a much desired emphasis on those areas whose characteristics or impending uses are of particular concern.

(2) Control over federal activities affecting the State's coastal areas - Traditionally, the State has had negligible control over federal activities impinging on its precious coastal resources. The Supremacy Clause in the Federal Constitution resolves all inconsistencies between federal and State authorities in favor of the federal authority. Congress in this instance, however, has recognized the importance of State control and has provided that federal activities must be consistent, to the maximum extent practicable, with states' Coastal Management Programs. Federal regulations have translated this requirement to prohibit, among other things, federal licensing and permit activities affecting state coastal areas, unless these have prior state approval or certification from the Secretary of Commerce.

Thus, dredging, dumping and oil development, for the first time, will come within the purview of State review under the Coastal Management Program.

(3) Financial Assistance - The federal government is shouldering most of the cost for administering Delaware's Coastal Management Program. Delaware citizens will enjoy the benefits of State-run programs, but pay only a small portion of their price. Some of the federal money will undoubtedly be spent on programs which the State and local governments would be forced to fund in the absence of a Coastal Management Program.

Coastal Management Program money will be available to assist local governments in developing plans for their coastal resources. It can also be used to aid local governments in administering those plans. The money will be available to acquire and preserve beaches and other coastal areas for the public welfare; to pay for new waste treatment plants, sewer systems, hospitals, schools, roads and other public facilities; to prevent shoreline erosion; to offset adverse environmental damage precipitated by outer continental shelf development; and to provide local units of government technical assistance and training programs to support Coastal Management policies.

(4) Coastal Awareness - A primary objective of Delaware's Coastal Management Program has been heightened public awareness of the coast, its resources and the issues of its use. As has been done throughout the Program development with technical papers, newsletters, and workshops, the Coastal Management Program offers a unique opportunity for public information and education activities. These public awareness activities, i.e., sponsorship of workshops and seminars, newsletters and other publications, training and educational courses, etc., are high priority items for the use of program funding.

MAJOR QUESTIONS

ADDRESSED BY THE PROGRAM

SECTION 3

3.

QUESTIONS ADDRESSED BY THE MANAGEMENT PROGRAM

The Delaware Coastal Management Program addresses the concerns and issues outlined in the preceding section and seeks answers to four general questions regarding the management of the State's resources:

(1) Which areas need management due to their fragile character, the pressures of development, or the protection of broad interests over those of individual or local concern?

(2) Which uses should be managed to ensure that both State environmental and economic objectives are achieved?

(3) Which uses of the State's resources should receive priority and how should conflicts between uses and policies be resolved?

(4) How should the priorities of use and the management policies be implemented, and by whom?

The answers to these questions have not come easily. In many cases the data to make judgments was unavailable. In others public awareness of the issue was lacking. In still others intergovernmental roles required evalaution and clarification; and in some cases policy was neither clear nor comprehensive. Activities during the three and one-half years of program development have addressed <u>many</u> of these problems.

Premises, Goals, and Objectives

Delaware, while a small State, is nonetheless characterized by diversity; diversity of resources, scenic values, economy, and life style. Recognizing this diversity, the Delaware Coastal Management Program has been prepared with the preservation, protection, wise use, and restoration of the State's resources in mind.

The purpose of the program, therefore, is to provide a systematic approach to decisions regarding the use of Delaware's resources which will provide for reasonable growth and development while conserving and protecting our irreplaceable resources.

3.

In order to achieve this overall purpose, four objectives were established:

(1) Develop methods to evaluate coastal land and water uses so that informed decisions can be made.

(2) Identify and give special attention to those geographic areas whose characteristics or impending use are of particular concern to the State.

(3) Develop a system of standards, guidelines, and controls to manage coastal land and water uses of more than local significance.

(4) Develop a system to coordinate coastal management functions of State concern in the executive branch of State Government.

In the process of achieving these objectives it was necessary to respond to issues and concerns that are broader than those specifically relating to a narrowly-defined coastal domain. While the degree of State involvement in management will differ, it is important to understand that the management program will have to balance competition for coastal resources with the capabilities of all portions of the State to a wide variety of activities.

Philosophy: A Question of Emphasis

In Delaware, the issues of impending oil refinery construction, extensive dredging and lagoon construction in wetlands, poor water quality, and construction on the beaches dominated earlier coastal management initiatives. In the early 1970's, Delaware's program emphasis was clearly environmental.

But times change and the importance of issues change with them. In recent years issues emphasizing jobs, economic growth, "image," and removal of constraints to development emerged, fed primarily by the severe slowdown in the national and state economy and the general "pendulum" swing that follows most periods of concentration on one side or the other of a matter of public importance.

During program development still other issues emerged. Recurring issues involved the need for better coordination between the levels of government, improvements in regulatory processes,

and more rational public investment decisions. Considerable discussion, and sometimes heated debate, on the issues of State versus local responsibilities for land use planning and regulation took place through the efforts of the Delaware Tomorrow Commission (a concurrent program to examine broad land use, development and public investment issues and options). These issues were the catalyst for the Land Use Planning Act which requires State-local coordination and review on important planning, capital investments, and development matters, and which mandates a simplification of the State regulatory process. This statute is a key element in Delaware's Coastal Management Program.

It was also recognized that certain uses, resources, and activities are of concern to the State at this time. Among these are: 1) Erosion and sedimentation from construction and agricultural activities; 2) A growing public concern for the preservation of those natural areas of important scenic, educational, and ecological value; 3) Challenges to the sanctity of state lands along the coast; and 4) The proper accommodation of uses resulting from oil and gas development, growing energy needs, and the desire to improve Delaware's economy. In response to these issues Erosion and Sedimentation Control and Nature Preserves legislation was prepared and enacted. A comprehensive survey of public lands was completed involving detailed historic title research and painstaking documentation of the ownership of properties abutting these irreplaceable coastal resources. Finally, emphasis was placed on consideration of development issues, in particular those involving regional and national interests in energy facilities, ports, offshore development, and marine transportation.

In preparing this report the program staff kept the following questions in mind:

(1) Does the activity or use contribute to the quality life in Delaware, in particular in its coastal areas?

(2) Does the activity require or specifically benefit from a coastal location as opposed to an inland location, and are there reasonable options?

(3) Does the use make long-term economic sense, in particular from a public investment standpoint?

(4) Does the degree of management applied to the uses of certain resources create unnecessary burdens on the State, the developer, the general public?

3.

(5) Is the use or the resource upon which it could occur of greater than local significance.

PARTICIPATION

IN PROGRAM DEVELOPMENT

SECTION 4

4.

PARTICIPATION IN PROGRAM DEVELOPMENT

Few requirements are more universal than those dealing with public involvement and information in the development of plans, programs, grant applications, engineering studies, permits, and other actions undertaken by governmental agencies. In every case, the intent of such requirements is to ensure that interested and affected parties have an opportunity to participate in the development of recommendations or actions to be undertaken. Regardless of the formal requirements, an informed and involved public is fundamental to the achievement of the support necessary for the success of any program.

In Delaware, public involvement in matters of statewide importance is almost a tradition; perhaps the small size of the State contributes to a better informed and more responsive citizenry. Certainly, in matters relating to uses of the State's lands and waters, such public participation has been extensive and long-standing. Public involvement in coastal management can be traced to events preceeding passage of the federal Coastal Zone Management Act of 1972. The process of enacting the State's Coastal Zone Act, Wetlands Act, and the 1972 Preliminary Coastal Zone Plan are but a few examples that inspired past public involvement in coastal planning.

A. Public Involvement Prior to Program Development:

A particularly important public involvement effort was the work of the Governor's Task Force on Marine and Coastal Affairs established in April 1970 by Governor Russell W. Peterson. The Task Force was charged with the responsibility of developing a master plan for the coastal and bay areas of Delaware. For 1½ years the Task Force, comprised of leaders from industry, education, conservation and government, debated issues of coastal concern: environmental quality; economic development; recreation; regulation and land acquisition; education and research needs; management options; and the relationship between Delaware and its region. From the 15 official meetings, numerous interviews, and an extensive series of contacts with the public, industry representatives, planning and other agencies, and environmental/conservation groups came the first comprehensive look at Delaware's Coast. The 1971 Coastal Zone Act was a major accomplishment of the Task Force's work.

Another important public involvement effort led to passage of Delaware's Wetlands Act. A Governor's Wetlands Action Committee was established in 1972 to examine the causes of wetlands loss, to evaluate the value of wetlands to Delaware, and to recommend legislative approaches to protect and preserve those wetlands which had not yet been damaged.

In recognition of the many and diverse interests related to coastal wetlands in all three counties of the state, the Governor appointed 35 members to the Committee representing a broad spectrum of the citizenry.

The bi-partisan Committee was composed of residents of all three counties, urban and rural citizens, men and women, members of all age groups. The members represented industry and business, science and the professions, sport and commercial fishing, the academic community, agriculturists and marsh owners, sportsmen and preservationists, boaters and other outdoor recreationists, realtors and developers, private conservation groups, municipal and county officials, state legislators, and the heads of various state agencies.

The Committee conducted an extensive information gathering activity including the taking of testimony from natural resources management groups, development interests, and legal authorities. Following the preparation of recommended policy, legislation was drafted and hearings were held. A wetlands act was passed in 1973 and embodied the recommendations of the Committee.

Yet another public involvement effort occurred during this period. The Delaware State Planning Office (now the Office of Management, Budget and Planning) began the preparation of a Coastal Zone Plan pursuant to the requirements of the 1971 Coastal Zone Act. Public input (both from private and public interests) was solicited through various technical and advisory bodies. Numerous informal discussions were held, newspaper inserts and other informational mechanisms were used, and five public hearings were conducted on the plan.

The effort was successful. The Coastal Zone Plan of 1973 was ultimately rejected by the Delaware Coastal Zone Industrial Control Board. Some of the reasons for rejection were based on technical problems (relating to performance standards, etc.). At least one reason for rejection was a lack of comprehensiveness, particularly regarding land development policies throughout the State.

4.

Also in 1973, Governor Sherman W. Tribbitt presented his Quality of Life message to the Delaware General Assembly. This message restated many of the concerns raised in 1971 by the Task Force. It called for strong regulation over air and water pollution and development on beachlands, and it proposed a Coastal Zone Management Act to bring many uses of coastal lands and waters under State management. Delaware's Beach Preservation Act, Environmental Protection Act, and associated regulations can be traced to this step, and to the extensive public input generated through the earlier coastal management efforts.

B. Public Involvement During Program Development:

Public involvement efforts during program development recognized two factors: (1) The extensive existing record of involvement in coastal matters; and (2) Concurrent activities of the Delaware Tomorrow Commission, in particular the examination of land use, economic development, and public investment issues and the development of State policy for those issues. Given these factors it was decided that the CMP would address information and public awareness gaps, build on earlier public involvement, and participate in the deliberations of the Delaware Tomorrow Commission. It would also build on the Water Quality Management (208) Programs underway in two of the State's three counties. Since the programs had large citizen committees dealing with coastal and other issues, no citizens' body was established. Rather a technically-oriented Coastal Zone Management Committee (CZMC), comprised of State, federal, county, and local officials was created to assist during program development. The CZMC is described later.

Nevertheless, the CMP remained committed to providing a full opportunity for the public to be involved in program development efforts.

In the early stages of the program, public participation events happened rather haphazardly. Inadequate staff and, more importantly, the uncertainty of what the program was all about (complicated by the ever-changing, sometimes ambiguous and confusing federal guidelines) contributed towards this lack of coherence.

Eventually, an organized public participation scheme or plan was developed with objectives designed to fulfill the federal (CZM) requirements and provide Delaware's "Coastal Public" with the opportunity for participation in the program.

4.

Delaware took a broad view of what constituted the "public". Accordingly, it was felt that the public should consist of all those parties, "public" or "private," who have an interest in the Coastal Management Program. Thus, other State agencies, relevant federal agencies, local elected officials, the State's legislators, other coastal states and territories (each has an interest in what the others have been doing), libraries, news media, special interests groups (industry, environment, agriculture, resort/recreation, the League of Women Voters, etc.) and last but not least, those members of what were called the "new public," identified through Phases I and II of our public participation plan constitute Delaware's "coastal public."

DELAWARE COASTAL MANAGEMENT PROGRAM PUBLIC PARTICIPATION PLAN

A. Objective of Plan

To provide the opportunity for participation in the development of Delaware's Coastal Management Program.

B. Summary of Plan

The Public Participation Plan was developed in three phases:

Phase 1 - Designed to build public awareness - to reach as many people as practicable. Emphasis was on arousing interest and concern for the Coastal Management Program and issues.

Phase 2 - Designed to inform and receive input on the program as it developed from known interest groups and others identified through the Phase 1 process.

Phase 3 - Designed to get public approval through the required public hearings.

C. Plan Components

Phase 1 - Objective was to build public awareness - to inform as many people as practicable about the Program.

4.

Principal Means Chosen to Achieve Objective:

(a) Coastal Management Program newsletter - "NEWS." A regular (every other month) newsletter was used as a means of reaching a large number of private citizens, interested groups and organizations, public officials, and governmental agencies. Published continuously since July 1975, the newsletter is now regularly distributed to over 10,000 persons, including 1,800 - 2,000 copies mailed to addresses and 5,000 sent to "Rural Box Holder" or "Postal Patron" in selected areas where response and involvement is desired. About 1,200 copies are routinely placed in information racks throughout the State. One issue, Volume 1, No. 6, of which 10,000 were printed and mailed or placed in public buildings and other locations throughout the State, stressed the need for public involvement - its theme: "It's Your Coast, Get Involved."

This particular issue contained a plea for public involvement in the program and heralded the forthcoming series of public involvement working papers which were to become the backbone of Phase II of the public participation plan. This issue of NEWS, as well as subsequent issues, contained a clip out coupon so that readers not already on the mailing list could send in their name and address and not only receive subsequent issues of "NEWS," but also the series of public involvement working papers as they were developed. Large posters with the "Get Involved, It's Your Coast" theme were also placed in public buildings, shopping centers, commercial establishments, schools, libraries and other places as part of this early promotional theme.

The newsletter, particularly in its expanded eight page format, has contained articles on the reasons for the CMP, various legislative proposals, status of important coastal matters (such as offshore drilling), significance and value of important coastal resources, and proposed policies and authorities for coastal management. Recent issues have contained draft sections of the program document in an attempt to solicit public reaction.

(b) League of Women Voters Coastal Management Program Presentations

Twenty familiarization presentations were conducted by a select cadre from the League of Women Voters under contract to the Coastal Management Program.

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To initiate this effort, an all day workshop was conducted with the League cadre and program staff. The format for the presentations was developed during this workshop. In addition, the League cadre was given a comprehensive briefing on all aspects of the program, although the emphasis of their task was to arouse interest and not necessarily to provide detailed, technical information.

Under the leadership of Rita Smith, State Land Use Chairman of the League, members of the group, individually or in pairs, conducted 20 presentations before a total of 620 individuals.

(c) Supplementary Means

1. Posters, brochures, pamphlets;
2. Newspaper articles;
3. Staff briefings and presentations;
4. Television show;
5. Radio spots;
6. Miscellaneous individual contacts; and
7. Manned displays at fairs, exhibitions, and related events.

Phase I of the public participation plan also dove-tailed nicely with the program's procedure for federal-state coordination (See Federal Coordination Chart at the end of this Section).

— PHASE 2 - Objective was to inform and get public input into the development of Delaware's Coastal Management Program.

Principal Means Chosen to Achieve Objective:

(a) Public involvement working papers containing draft summaries of major program proposals (boundaries, geographic areas of particular concern, goals and objectives, etc.)

This series of working papers was distributed to the "public" identified in the program's public participation plan. These publics consisted of:

(1) Relevant federal agencies;
(2) Mayors and town officials;
(3) Delaware General Assembly members;
(4) Coastal Zone Management Committee;

(5) State/Territory Coastal Zone Management Program Managers;
(6) Public and School Libraries;
(7) Interest Groups;
(8) News media; and
(9) "New public" (identified through Phase I and II efforts).

Phase II of the public participation plan also dove tails nicely with contacts 3 and 4 of the program's procedure for federal-state coordination. Eight working papers have been prepared during program development (see list of publications).

(b) Technical reports were prepared and distributed. These reports, written in layman's language, were designed to inform the public about important coastal resource and use issues and to serve as handbooks for public and private decision-makers. Subjects covered included coastal erosion and geology, wetlands, coastal storm damage, hydrology, mineral resources, and public services as related to various land and water uses. (see list of publications).

(c) Formal and informal presentations on selected issues and on the program in general were made whenever appropriate and possible. Often these presentations focussed on OCS impacts or related matters, however, they offered an opportunity to discuss the program and the need for a comprehensive approach to resource management.

(d) The newsletter (NEWS) also served as a mechanism for exchange of information between the program staff and the public. Most issues contained articles dealing with program proposals and solicited reader review and comment. This mechanism has the advantage of reaching a large number of people without the often emotionally charged setting of a public hearing.

(e) A Coastal Zone Management Committee, representative of all levels of government and a variety of interests, met regularly to discuss program elements and approaches. Through a network of memberships and adivsory bodies the materials were disseminated and input was received. This Committee, along with legislators and others, also received, reviewed and offered extensive comment on an early draft of the program.

(f) Finally, the activities of the Delaware Tomorrow Commission and its Committees provided an opportunity for extensive policy input during program development. Over 100 people representing every major interest and concern participated directly in the deliberations of the Commission as it formulated broad land and water use policy (coastal and otherwise), debated land use planning/coordination legislation, and dealt with problems of economic development and public investment. A public opinion survey (conducted by Oliver Quayle and Associates), a variety of reports and analyses, and considerable press coverage supported this effort. Additionally, a legislative hearing was held on the proposed land use legislation (and an erosion and sedimentation control act) to receive public input. The process of amendment and ultimate passage of the necessary legislation are testimony to the considerable public input led to their introduction.

All of these efforts, and scores of individual contacts, have provided for constructive involvement by the public in the development of the Delaware Coastal Management Program.

PHASE 3 - Public Approval

Principal Means Chosen to Achieve Objective:

This phase of the program began with the release of the Discussion Draft and the initiation of a series of workshops and hearings scheduled in November 1978. Consistent with federal regulations a Coastal Management Program and Draft Environmental Impact Statement was prepared reflecting the revisions from the earlier documents and workshops/hearings. The CMP/DEIS was issued in March 1979 and hearings were held late April. Appropriate notices and opportunities for comment were provided.

The CMP/DEIS was also submitted throught the review and comment process as required under the Land Use Planning Act, and the CMP after approval by the Office of Coastal Zone Management will be filled as an amendment to the Delaware Development Plan. By letter dated June 1, 1979, the CMP was approved by the Governor and recommended for federal approval.

The steps leading to this CMP/Final Environmental Impact Statement are described in the list of Public Participation Activities that follows.

4.

DELAWARE'S COASTAL MANAGEMENT PROGRAM
CHRONOLOGY OF
PUBLIC PARTICIPATION ACTIVITIES*

August 21, 1974 - First regional coastal zone managers conference, hosted by Delaware, Holiday Inn, Dover, DE.

January 24, 1975 - Second regional coastal zone managers conference, hosted by Virginia, Williamsburg, VA.

February 24, 1975 - First printing of Delaware Coastal Management Program brochure.

March 1, 1975 - Coastal Management Program public forum, Wesley College, Dover, DE.

May 14, 1975 - First of series of mini-workshops,: "Agriculture Mini-workshop."

June 19, 1975 - Second in series of mini-workshops, "Environmental Mini-workshop."

June 20, 1975 - Third regional coastal managers conference, hosted by Maryland, Annapolis, MD.

June 25, 1975 - Third in series of mini-workshops - "Industry Mini-workshop."

July 15, 1975 - CMP Program presentation to New Castle County Planning Board.

July 16-20, 1975 - CMP Program literature on display at Delaware State Fair.

July 29, 1975 - Federal-state coordination procedure initiated with execution of Contact 1.

August 6, 1975 - CMP Program presentation to New Castle County Council.

August 21, 1975 - Fourth in series of mini workshops "Recreation/Tourism Mini-workshop."

August 22, 1975 - OCZM sponsored radio spot announcements disseminated to area radio stations.

August 26, 1975 - First issue of bi-monthly CMP newsletter "NEWS" mailed to identified public.

September 11, 1975 - CMP Committee's Subcommittee on public participation formed.

September 19, 1975 - Fifth in series of mini-workshops "Regulatory Workshop."

September 25, 1975 - Sixth in series of mini-workshops "Regulatees Workshop."

4.

September 1, 1976 - First in series of public involvement working papers, Working Paper Number 1, Program Overview and Public Review sent to "Coastal Public."

September 20, 1976 - Working Papers 2 and 3 sent to "Coastal Public."

September 22, 1976 - First in series of twenty League of Women Voter CMP presentations, Dover, DE.

September 27, 1976 - LWV presentation - Georgetown.

October 5, 1976 - LWV presentation - Newark.

October 7, 1976 - Meeting in Philadelphia with six agencies of Department of Interior to explain program.

October 18, 1976 - CMP booth at Wesley College's Serendipity Exposition.

October 19, 1976 - LWV presentation - Newark.

October 25, 1976 - LWV presentation - Odessa.

October 26, 1976 - LWV presentation - St. Georges.

October 27, 1976 - LWV presentation - Camden.

October 28, 1976 - Symposium on natural areas preservation, sponsored by Delaware Nature Education Society, CMP presentation made.

November 8, 1976 - LWV presentation - Wilmington.

November 12, 1976 - LWV presentation - Wilmington.

November 16, 1976 - LWV presentation - Concord.

November 17, 1976 - LWV presentation - Wilmington.

November 29, 1976 - LWV presentation - Wilmington.

November 30, 1976 - LWV presentation - Selbyville.

December 2, 1976 - Environmental conference, Delaware Nature Education Center, CMP presentation made.

December 6, 1976 - TV show, Channel 6, Philadelphia, PA, on OCS Issues, moderated by League of Women Voters, Director of Office made presentation on CMP efforts and on OCS issues.

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December 15, 1976 - CMP presentation made to Delaware State Boundary Commission.

December 21, 1976 - LWV presentation - Wilmington.

January 11, 1977 - LWV presentation - Dover.

February 1, 1977 - LWV presentation - Dover.

February 2, 1977 - CMP staff presentation - Seaford.

February 16, 1977 - CMP briefing by CZM committee member (Jensen) to Lewes teachers.

March 30, 1977 - CMP staff briefing to University of Delaware graduate class in Public Administration.

April 7, 1977 - Post presentation meeting with LWV cadre to critique value of presentations.

April 27, 1977 - CMP presentation to Delmarva Advisory Council.

May 9, 1977 - Surveyed Delaware local officials for potential environmental resources/issues short course.

May 16, 1977 - Regional coastal managers meeting, hosted by Virginia.

May 25, 1977 - Distributed Lewes CCD Pilot Study Summary Reports to "Coastal Public".

June 21, 1977 - Distributed Working Paper No. 4, Program Goals and Objectives to "Coastal Public".

August 15, 1977 - Working Paper No. 5, Federal-State Interaction and the National Interest disseminated to "Coastal Public".

August 25, 1977 - Meeting with Kent County Tax Ditch Managers Association regarding erosion and sedimentation control.

August 1977 - Staff assistance to Delaware Association for Preservation of Farmland in tabulation of survey of public opinions on land use issues (from State Fair).

September 14, 1977 - Council on State Planning meeting - presentation on CMP activities.

October 9, 1977 - COAST DAY program at College of Marine Studies, Lewes; CMP display and materials prepared.

October 1977 - Working Paper No. 6, Legal Authorities and Organization mailed to public.

October 1977 - CMP display placed and manned at Delaware State College's Serendipity Fair. Staff distributed materials and answered questions about the program.

October 1977 - Numerous interviews with federal agencies to determine their interests and concerns re: resources and uses of Delaware's coastal zone (including Departments of Agriculture, Defense, Transportation and, Interior; Corps of Engineers; Water Resources Council; and others).

November 9, 1977 - Council on State Planning meeting - presentation on coastal issues, particularly public lands problems and coastal erosion and flooding concerns.

November 10, 1977 - Meeting with Port of Wilmington officials regarding port plans, policies, expansion issues, etc.

December 1, 1977 - Delaware Sea Grant Advisory Council meeting re: formulation of research needs and directions, particularly in coastal management areas.

December 14, 1977 - Meeting with Delaware League of Local Governments regarding coastal energy impact program, etc., and establishment of cooperative program with League regarding improved distribution of information to local governments.

December 19, 1977 - Meeting with representatives of new (federal) Department of Energy regarding energy policy and concerns.

December 1977 - Institution of "target area program" for distribution of newsletter and other materials in order to generate interest and obtain public input.

December 1977 - Cooperative effort with Coastal Sussex County Water Quality (208) Management Program to inform public of 208 and CMP efforts - special edition of newsletter featuring articles on 208 program coupled with bulk distribution throughout 208 area.

January 1978 - Numerous newspapaer articles appeared on program progress and outlook for completion.

January 29, 1978 - Draft Coastal Management Program document prepared and sent to county and local officials, legislator,s OCZM and others for initial review and comment.

February 24, 1978 - Presentation in Dover to the Trowel Club (a Masonic Organization) regarding Offshore oil and gas development and the Coastal Management Program.

March 6, 1978 - "Governor's Workshop on Management of Shoreline Erosion and Flood Prone Areas," held in Rehoboth Beach and co-sponsored by the Coastal Management Program and the Department of Natural Resources and Environmental Control. Major effort involving public officials, legislators, coastal processes and coastal storm experts, and the public to assess the problems and explore new approaches to management of the coastal areas (over 100 attendees).

March 1978 - Extensive mailing and inquiry/response efforts as follow-up to

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March 6 workshop.

April 1978 - Review/informational paper prepared regarding Senate Bills 358 and 359 (Land Use Planning and Erosion Control) and sent to agricultural land owners in Delaware. Bulk copies also distributed through agri-business establishments. Notice of Hearings on SB 358 and 359 mailed.

April 1978 - Working Paper No. 7, The National Interest in Resources and Facilities of the Delaware Coastal Zone, was mailed.

April 1978 - Information on Coastal Energy Impact Program sent to local governments and to counties.

May 2, 1978 - Public hearings held by Delaware Senate Committee on Land Use Planning Act and Erosion and Sediment Control Act. Staff prepared briefing papers for Director and legislators.

May 15, 1978 - Coastal Program Manager's meeting hosted by Georgia.

May 24, 1978 - Meeting with representatives of Delaware farm groups and legislators regarding farmland preservation approaches.

May 25, 1978 - Coastal Energy Impact Program workshop on allocation processes, etc. held with county and local officials, state agencies.

May 1978 - Numerous meetings and discussions with farm groups and others regarding Land Use Planning Act and Erosion and Sediment Control Act; efforts led to amendments to the legislation and broad support of the proposals

June 5, 1978 - Presentation by Program Manager to Milford Rotary Club regarding OCS impacts, CMP and related issues.

June 6, 1978 - House of Representatives briefing on proposed legislation (SB 358 and 359).

June 15, 1978 - Coastal Zone Management Committee meeting - presentation by new owners of Lewes port property regarding potentials for OCS, fisheries, or other uses.

June 22, 1978 - Testimony before Senate on land use and erosion control legislation.

June 1978 - Interagency meetings regarding special projects for Urban Waterfronts and for Coastal Fisheries Assistance - involved federal, state, county and local officials as well as private citizens in development of program proposals for supplemental funding assistance.

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July 7, 1978 - Presentation to officials from east coast states and media at the Governor's Atlantic Coast Conference (re: possible east coast management coordination group).

July 1978 - Beach Regulation changes completed and distributed to public.

August 1978 - Proceedings of March 6 Workshop on Management of Shoreline Erosion and Flood Prone Areas published.

August 1978 - Working Paper No. 8, dealing with shoreline erosion planning and access matters prepared.

August 30, 1978 - Public hearing held on proposed Beach Regulation Changes.

August 31, 1978 - Discussion Draft, Delaware Coastal Management Program sent to the printers.

September, 1978 - Distributed Delaware Coastal Management Program Discussion Draft to public, state, local and federal agencies.

September 15, 1978 - Meeting with Delaware River Basin Commission staff regarding CMP coordination and possible multi-state programs.

October 1978 - Briefing of the New Castle County Water Resrouces Agency (Water Quality Management)Technical Committee regarding CMP policies.

October 18 and 28, 1978 - Legal notices and announcements of the five CMP Workshops scheduled for November.

October 22, 1978 - Second Annual COAST DAY program at the College of Marine Studies, Lewes; CMP Display.

October 26, 1978 - CMP display placed and manned at Delaware State College's Serendipity/Life Sciences Fair.

November 1, 1978 - CMP Public Workshop, Georgetown

November 3, 1978 - Informal CMP briefing of environmental groups including Delaware Nature Education Society, Audubon Society, Sierra Club, and Delawareans for Orderly Development.

November 8, 1978 - CMP Public Workshop, Middletown

November 9, 1978 - CMP Public Workshop, Lewes

November 21, 1978 - CMP Public Workshop/Hearing, Dover

November 27, 1978 - CMP Public Workshop/Hearing, Wilmington

November 28, 1978 - Briefing on CMP to the New Castle County Planning Board.

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December 4, 1978 - Workshop with representatives American Petroleum Insitute, various oil companies, and the Delaware Oilman's Association.

December 6, 1978 - Presentation at League of Women Voters Forum in Dover regarding Delaware regulatory structure and offshore oil and gas development.

January 18, 1979 - Presentation at the Annual Meeting of the Delaware Association of Conservation Districts regarding implementation of the Erosion and Sediment Control Act.

January 18, 1979 - Release of Summary of the Discussion Draft and distribution to over 2,000 individuals and agencies for review and comment.

March 22, 1979 - Distribution of DCMP/DEIS to Public, State, local and Federal agencies.

April 11, 1979 - Briefing of Federal agencies on DCMP, Washington, D.C.

April 18, 1979 - Workshop on Information and Education, Dover.

April 27, 1979 - DCMP/DEIS Hearing, Wilmington, Delaware, 10:00 A.M.

April 27, 1979 - DCMP/DEIS Hearing, Wilmington, Delaware, 8:00 P.M.

April 28, 1979 - DCMP/DEIS Hearing, Dover, Delaware, 10:00 A.M.

April 28, 1979 - DCMP/DEIS Hearing, Rehoboth, Delaware, 2:30 P.M.

May 7, 1979 - Energy Facilities Siting Committee meeting with American Petroleum Institute on Coastal Management Program/DEIS.

May 25, 1979 - Coastal Management Program/DEIS review with Natural Resource Defense Council, Wilmington, Delaware.

*This list identifies major activities but is in no way a complete listing of every public involvement effort during program development. Countless individual contacts, responses to requests for information, meetings, and correspondence with OCZM, other federal agencies, state and local governments, interested groups and private citizens have occurred since July 1974. All of these have added to the comprehensiveness of the program and to the considerations of policy and approach contained in the Discussion Draft.

Publications List - Delaware Coastal Management Program

Many reports, working paper, and program documents were prepared during the CMP development phase. These are listed below. Many of these reports are no longer available in original form but can be obtained in microfilm form.

CMP Technical Reports:

No. 1., Delaware's Changing Shoreline, May 1976; Prepared by by the Department of Geology, University of Delaware (319 p.) This report is a summary of the known geology and geologic processes of the Delaware coast. Its purpose is to better enable public officals and private citizens to utilize geologic data and interpretations in decision-making. Technical information and interpretations are presented and illustrated for use by the non-geologist.

No. 2., An Atlas of Delaware's Wetlands and Estuarine Resources, November 1976; Prepared by the College of Marine Studies, University of Delaware (528 p.) This report is an inventory and analysis of wetlands in Delaware and includes discussions of wetlands management issues, principles of wetlands ecosystems, classification of wetlands by vegetation and discussions of environmental parameters and life histories and environmental requirements for important fish and birds found in the Delaware estuary. It includes extensive maps, photographs, and drawings relating to the above subjects.

No. 3., Hydrology, Geology and Mineral Resources of the Coastal Zone of Delaware, September 1976; Prepared by the Water Resources Center, University of Delaware, (245 p.). A "state of the art" report on Delaware's geology, hydrology and mineral resources for use by technicans and non-technicians in resource decision-making.

No. 4., Coastal Storm Damage 1923-1974, September 1977; Prepared by the Department of Geography, University of Delaware (441 p. plus pocket maps). This report is a chronology of coastal storms in Delaware, an assessment of coastal community flooding and storm damage as a result of March 1962 and December 1974 storms, and an assessment, based on personal interviews, of individual perceptions of and behavorial reaction in response to coastal storm phenomena.

No. 5., The Impact of Seasonal Population - State Services in the Beach Resort Areas of the Delaware, March 1977; Prepared by the Office of Management, Budget, and Planning. (34 p.). Preliminary report on the impacts of seasonally variable population on selected State reviews, particularly in the health, welfare, public safety, corrections, and consumer affairs areas.

Special Reports and Studies:

a) Critical Natural Areas, Kent and Sussex Counties:

Prepared for the CMP by the Delaware Nature Education Society, April 1976. (184 p.) This report concludes a statewide study begun in 1973 by DNES to identify, characterize, and recommend management approaches for areas of unique or typical natural occurrence in its situation, type of plant life, animal-plant community, or geological, archeological, aesthetic features, or combinations thereof. The statewide survey was published as Delaware's Oustanding Natural Areas and Their Preservation by the DNES.

b) Coastal Zone Management Methodology; (proposed)

Prepared by CMP staff and Center for Ecological Research in Planning and Design of the University of Pennsylvania, September-November 1975. (16 p.). This report attempted to develop a methodology for CMP management which was responsive to OCZM threshold papers and interim regulations dealing with use permissibility and suitability.

c) Data Inventory Report; April 1975. Prepared by Delaware Department of Natural Resources and Environmental Control. (48 p.). This report is an inventory of coastal zone information available to or collected by various agencies and organizations. It was a reference document used to identify CMP information needs, most of which were addressed by the technical reports.

d) Delaware and Outer Continental Shelf Development; Roles and Systems at Various Levels of Government; June 1976. Prepared by CMP staff (151 p. plus appendices). An analysis of the various responsibilities, authorities and decision-making processes in State and local governments related to OCS related activities.

e) Coastal Zone Management Related Research at the University of Delaware (1968-1975); Prepared by the Sea Grant Marine Advisory Service, College of Marine Studies, University of Delaware. Annotated bibliography of research projects and publications relating to Coastal Zone Management.

Proceedings of Workshops and Forums

a) Proceedings of Final Mid-Atlantic-States Coastal Zone Management Workshops, August 21, 1974; Prepared by CMP staff (26 p.)

b) Proceedings of Public Forum - Planning for Coastal Zone Management in Delaware March 1, 1975; Prepared by CMP staff (20 p.)

c) Proceedings of the Governor's Workshops on the Management of Shoreline Erosion and Flood Prone Areas, March 6, 1978; Prepared by CMP staff (78 p.)

Lewes County Census Division (CCD) Management Study Series

The following papers were prepared by the CMP staff of a pilot application of a strategy for coastal management. The areas covered included the municipalities of Lewes and Rehoboth Beach and adjacent rural and suburban portions of Sussex County. (Number of pages varies)

1. Demographic and Erosion Profile, Oct. 1975
2. Transportation Facilities Profile, Oct. 1975
3. Sewer and Water Facilities Profile, Nov. 1975
4. Human Services and Resources Profile, Oct. 1975
5. Delaware's Changing Shoreline, Nov. 1975
6. Coastal Storm Hazards, Nov. 1975
7. Existing Land Use, Nov. 1975
8. Groundwater Resources in Eastern Sussex County, March 1976
9. Wetlands, May 1976
10. Soils and Their Implications for Devlopment, March 1976
11. Estuarine Plant and Animal Life, May 1976

- Lewes CCD Pilot Study - A Unique Partnership for Coastal Management Planning - Summary Report (April 1977)

CMP Program Document Working Papers

The following documents were prepared by the CMP staff as working papers to address various coastal management program development requirements. They were distributed to federal, state and local officals and the public in order to obtain input on significant program components. The titles are self-explantory. (Number of pages varies).

1. Program Overview and Public Review Guidelines, Aug. 1976
2. Coastal Zone Boundaries, Sept. 1976
3. Geographic Areas of Particular Concern, Sept. 1976
4. Goals and Objectives,
5. Federal-State Interaction and the National Interest,
6. Authorities and Organization,
7. The National Interest in Resources and Facilities on the Delaware Coastal Zone, March 1978*
8. Beach Erosion Control and Shoreline Access Planning, Sept. 1978*

* Incorporated by Reference in the Delaware Coastal Management Program.

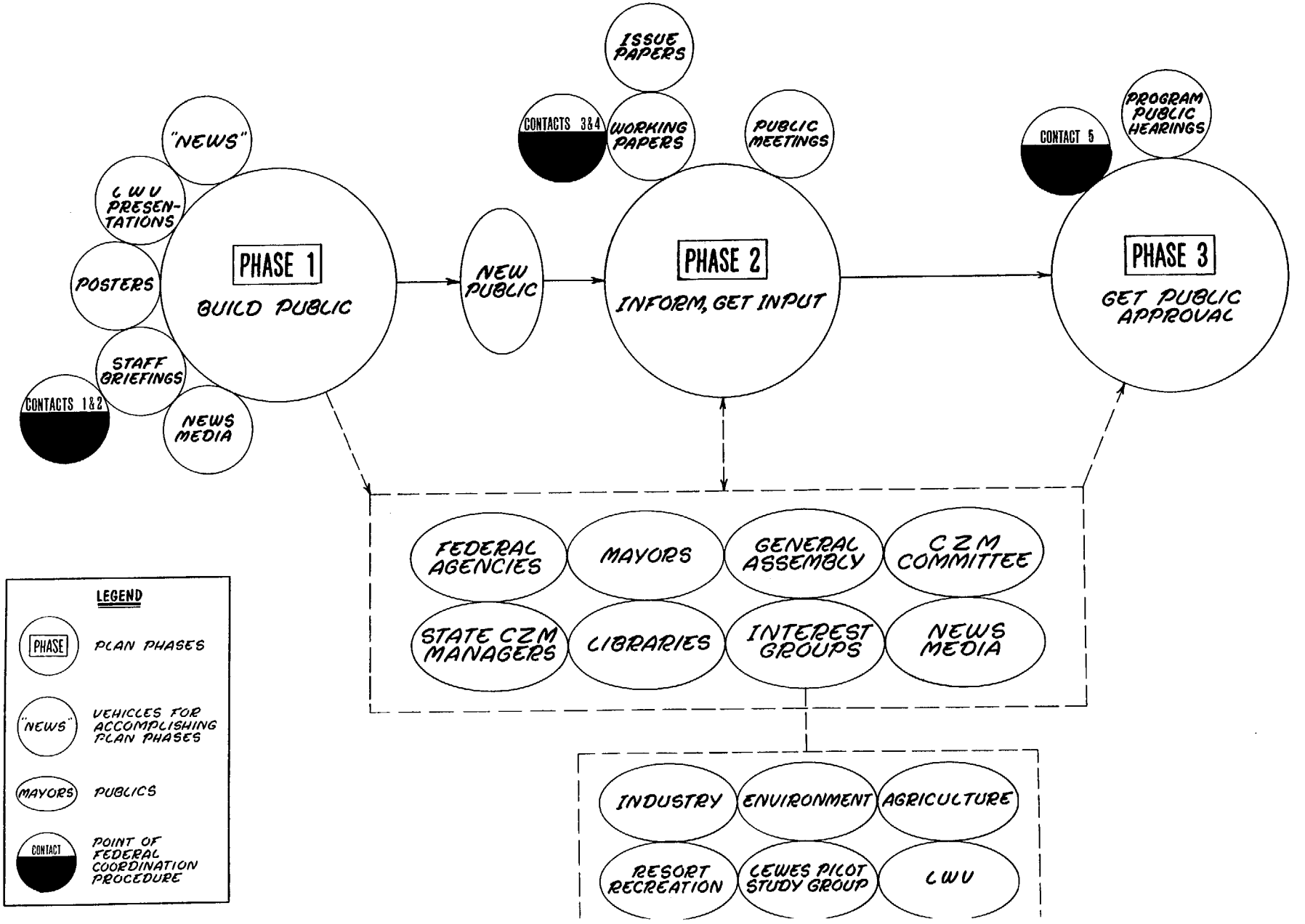
CMP Program Documents (all prepared by CMP staff)

1. Delaware Coastal Management Program, Preliminary Draft, January 1978 (OCZM and inital review only - not distributed)

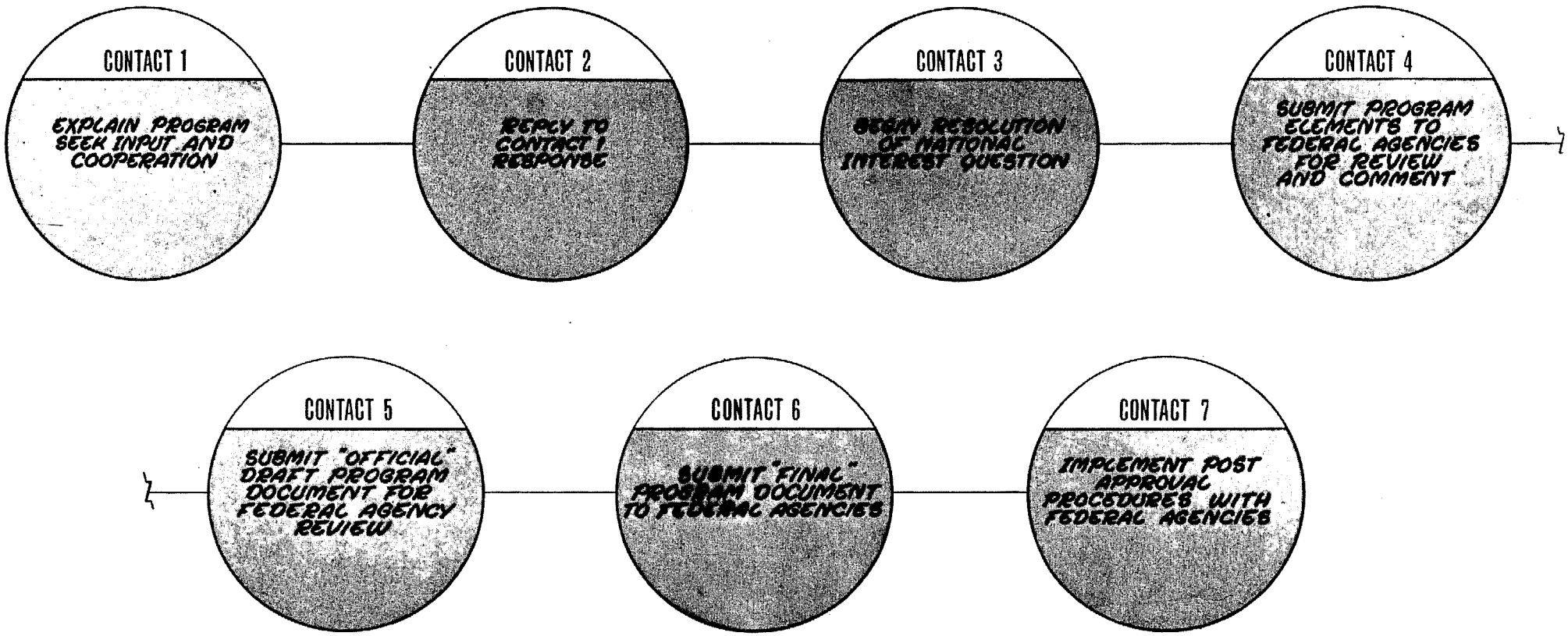
2. Discussion Draft, Delaware Coastal Management Program, September 1978, and Summary, September 1978.

3. Delaware Coastal Management Program and Draft Environmental Impact Statement, February 1979.

DELAWARE COASTAL MANAGEMENT PROGRAM
PUBLIC PARTICIPATION PLAN



DELAWARE COASTAL MANAGEMENT PROGRAM PROPOSED PROCEDURE FOR FEDERAL-STATE COORDINATION



MANAGEMENT ISSUES

RESOURCES SUBJECT TO MANAGEMENT 5.A.
Wetlands 5.A.1.
Beaches and Shorelines 5.A.2.
Coastal Waters 5.A.3.
Underwater Lands and the Coastal Strip 5.A.4.

SECTION 5A

5.A.

RESOURCES SUBJECT TO MANAGEMENT

Introduction

Section 5.A. discusses those coastal resources, and uses thereof, which are of such importance as to require regulatory controls. Uses occurring in these areas have the potential for significant impacts on coastal waters, a key consideration in the development of Coastal Management Programs.

The public policy framework applicable to these areas has been set forth in State statutes and regulations enacted to strictly control their use. The Section gives particular emphasis to the significance and value of these crucial resources and the management issues relating to their use, for which such strict contol is necessary.

The resources covered in Section 5.A. are those most coastal in character: wetlands; beaches; submerged lands; coastal waters; and the limited coastal strip (the area covered by Delaware's landmark 1971 Coastal Zone Act). Many other resources and uses are also of interest to the Coastal Management Program, however, less sweeping State managerial/regulatory authority is necessary. These resources and uses are described in the following sections: 5.B., Areas of Special Interest; and 5.C., Other Areas of Interest. Many development issues are discussed in Section 5.D. although development activities affecting the areas covered in Section 5.A. are specifically discussed in the context of these vulnerable coastal resources.

5.A.1.

WETLANDS

SIGNIFICANCE OF WETLANDS

The value of all wetlands has, in the past, been underestimated. Except for a few farsighted individuals who perceived the importance of the wetlands, these areas have been viewed more as wastelands than as anything of value. Unlike the ties between man and the forests and farmlands, which have always been strong and obvious, those between man and marsh systems have been weak and obscure. The importance of the marsh systems, then, usually depended on how they could be modified to be more recognizably useful to man.

It is now known that the importance of wetlands lies not in their potential for modification, but in their natural function as the foundation of estuarine productivity. Tidal wetlands contain a combination of fresh water and sea, and are among the most productive systems known in terms of total ogranic material produced. Man has created certain specialized agricultural systems that are very productive and rival the estuaries in this respect. But, he has done so only by using large amounts of energy in the form of manpower, fertilizers, pesticides and machinery. The estuarine areas, however, are productive without the direction of or input from man and are self-fertilizing, self-sustaining energy production and transfer systems. Only tropical rain forests, coral reefs, and some algae beds are more productive; the best farmlands are only half as productive.

Wetlands support a variety of mammals, birds, fin fish, shell fish and other living organisms. Wetlands represent an essential link in the life cycle of the majority of the sport and commercial fish taken in the marshes, estuaries, and offshore waters. According to some sources approximately 63% of the commercial catch on the Atlantic Coast is made up of species which are believed to be estuarine dependent. They are also the habitat for dozens of migratory bird species and numerous resident wildlife species.

As a part of Delaware's natural heritage, wetlands contribute immeasurably to the quality of life of all Delawareans. Wetlands are one of the significant open areas remaining in Delaware; wetlands possess a natural beauty found nowhere else. It is not surprising, then, that Delaware's wetlands are used more for sightseeing, photography, and other so-called passive forms of recreation than for hunting and fishing.

5.A.1.

Wetlands are also a significant Coastal resource because they contribute to water quality and coastal stabilization. In effect wetlands act as a free tertiary treatment plant for nutrients. When polluted water enters the marsh, the nutrients are trapped by tidal circulation, absorbed by vegetation, and eventually recycled in the aquatic food web. Wetlands also have a capacity for absorbing water and the energy from storm waves, and therefore prevent storm damage, provide erosion control, and contribute to harbor maintenance.

Finally, wetlands are significant because of their value to education. Wetlands, for instance, serve as natural and accessible laboratories for the study of many biological processes upon which elemental food chains are based.

PROBLEMS OF WETLANDS UTILIZATION AND MANAGEMENT

The Governor's Wetlands Action Committee in its Janaury 2, 1973 report found that:

> "Delaware's coastal wetlands are in jeopardy. They are being damaged, destroyed and reduced in size by physical alteration and by pollution. In recent years Delaware has permanently lost a significant portion of her coastal wetlands. Tidal marshes are attractive industrial sites. Industry finds the land cheap, water transportation easy, and waste disposal convenient. Coastal wetlands have been used as spoil disposal sites for navigational dredging operations. Residential developers find it exceedingly profitable to dredge and fill coastal wetlands to provide locations for recreational housing and trailer parks instantly accessible by both boat and automobile. The conflicts and competition for the use of coastal wetlands in Delaware are essentially the same as those now faced by the twenty-nine other coastal states in this country. The destruction and degradation of some of Delaware's important coastal wetland areas has been and is proceeding at a rate that could soon spell their end."

According to the Wetlands Action Committee, Delaware was losing about 1,000 acres of wetlands per year (from a total of 100,000 to 120,000 acres), much of it to residential development and highway construction.

5.A.1.

Loss and damage may be evident to the eye when a marsh is altered by ditching, dredging, impoundment or development. Not apparent to the eye, however, is the ecological damage caused by man's other activities. Because of the role wetlands play in the production of food and other support for life, any activity which impairs the natural flow of water and sediments to and from the wetlands or changes their quality or other physical features has direct and long-term impacts on the fishery. Even minute changes, over extended periods of time, can shift or eliminate an entire plant or animal population. For example, the direct relationship between reduced wetlands productivity and the decline in major commercial and sport fish harvests, has been documented in studies performed in Delaware, the Chesapeake Bay, Florida, Louisiana, and Texas. The following is an impact assessment of some human actions which may damage the State's wetlands and interfere with the uses they support.

DREDGING:

Dredging is the act of removing land or bottom material to create and maintain channels; to obtain sand, gravel and shells for construction materials; to establish marinas and boatyards; and to create waterfront canals or lagoons.

The primary impact of channel dredging is the destruction of the community of organisms living on or in the land covered by water (benthic organisms). The primary impact of lagoon dredging is the destruction of wetlands. In both cases, many important estuarine functions are affected in the areas dredged. For example, the natural contour and composition of the subsurface on which shellfish settle and grow is often removed through dredging.

Aside from the destruction of habitat, dredging creates new flow patterns, in many cases introducing more saline (salty) water into dredged areas. Deep holes left after dredging tend to trap organic matter. Lack of water circulation in these deep holes leads to decomposition of the matter which is characterized by the "rotten egg" smell of hydrogen sulfide. Such conditions render an area uninhabitable for most forms of life. Moreover, these holes represent a safety hazard for swimmers and clammers. Other disadvantages include increased turbidity; destruction of habitat from silt deposition; altered tidal exchange; altered mixing and water circulation patterns; and possible pollution of fresh water aquifers.

SPOIL DISPOSAL:

Spoil is the sand, stiff clay, soft mud, muck, shell or other bottom material removed by dredging which must be either discarded or, preferably, put to some constructive use.

5.A.1.

Pumping spoil onto a site adjacent to the dredge site can be a damaging side product of dredging. It may be dangerous to the estuarine ecosystem since large quantities of silt become suspended in the water and sharply increase turbidity. Increased turbidity decreases the amount of light penetrating the water and often leads to decreased productivity of algae. Suspended sediment also demands more oxygen from the water. Oxgen concentration can be critical during the hot months of the year when the water is warm and the dissolved oxygen concentration is relatively low.

Suspended sediment, in addition to fertilizing the water, also reintroduces toxic materials that have been deposited in some bottom sediments. Baltimore Harbor, for instance, contains high concentrations of "heavy metals" (cadmium, zinc, etc.) which can be highly toxic to aquatic life. These heavy metals can also be concentrated in fish and cause illness in humans when the fish are consumed. The growth and survival of clams, oysters, crabs, shrimp and other benthic organisms can be affected by even moderate levels of suspended sediment. As the silt settles, these organisms are covered. Further, the loss of these organisms affects other animals such as fish and waterfowl.

Since many estuarine fish (such as white perch and river herring) have eggs that sink to the bottom, deposits of suspended sediment in estuaries and tidal creeks during spawning periods can destroy a brood stock. Layers of dead oysters, for example, have been caused by intermittent spoil disposal in Florida and the upper Chesapeake. Thoughtless spoil deposition not only reduces fish and shellfish harvests, but ultimately can lead to biologically dead areas of no use at all.

Finally, indiscriminate placement of spoils can adversely affect fresh water aquifers. Infiltration of the brackish and salty waters contained in the spoils may contaminate shallow ground water reservoirs thereby reducing their utility for domestic, industrial and agricultural water supplies.

The CMP acknowledges that some of the preceeding statements may be in disagreement with findings of the Corps of Engineers' Dredge Disposal Research Program, however, the absence of summaries and concise descriptions and recommendations hamper effective use of the results of the Corps research.

IMPOUNDING:

The major reason for impounding wetland areas is to encourage waterfowl use and to control mosquitoes in areas where there is little tidal fluctuation on a daily basis. Impounding a marsh involves placing embankments around the area to limit or stop the natural tidal flow. The marsh is then flooded with water or,

alternatively, water that is already present is trapped behind the embankments and the area is converted into a shallow pond. Frequently, a salt water environment is thereby changed to a fresh water habitat.

As may be expected, permanently flooding a marsh with fresh water causes extensive changes in both plant and animal life. Vegetation undergoes a change from the grasses typical of salt marshes to plants more characteristic of fresh water communities.

The amount of fishlife typically increases when a marsh is impounded, but the number of separate species diminishes. Increased fish populations in turn attract more species of fish-eating birds. In Bombay Hook, for instance, a 1957 study identified 86 species of birds present after impounding, as opposed to 55 species in the same area before impounding.

One of the important functions of a marsh is to supply nutrient-rich water to the estuary. A decrease in available nutrients may have effects on the fertility of the estuarine food chain. The use of the marsh as a spawning and nursery ground for estuarine species is sometimes altered by its conversion to an impoundment.

DITCHING:

Ditching is the act of creating a network of narrow and shallow channels on the surface of the marsh. Permanent pools and low areas are thereby connected to the tidal creeks, and water on the marsh surface is effectively drawn off. Dredge material taken out of the ditches typically is deposited on either side of the ditch.

Most marshes in Delaware were ditched by the U.S. Civilian Conservation Corps during the depression years of the 1930's to control the salt marsh mosquito. Shallow standing water was discovered to be the optimum condition for the breeding of salt marsh mosquitoes. By ditching the marsh, it was theorized that these areas would be drained and that the channels would expose the mosquito larvae in the pools to mosquito consuming fishes.

Unfortunately, indiscriminant ditching of marshes is destructive of the existing vegetation and wildlife of marshes. Ditching effectively drains the marsh, converting low marsh into a community more characteristic of the high marsh and uplands. Thus, high marsh plants quickly invade recently ditched areas and a highly desirable and productive marsh is replaced by a less productive marsh.

Drainage of the permanent pools on the surface of the marsh has been suggested as the single most damaging factor to wildlife from ditching. These pools often support beds of widgeon grass,

an excellent food for waterfowl. The pools also supply drink and shelter for wildlife. Drainage often destroys these characteristics of the pools, either by drying them out or by permitting the intrusion of higher salinity water which kills the grass.

Once ditching alters the vegetation, changes in the animal life soon follow. Ditching is claimed to be responsible for marked decreases in the number of invertebrates, mostly molluscs and crustacea. Invertebrates are staple items in the diets of many birds and animals. Thus both food and shelter areas for all animals may be reduced. Recent improvements in the technology of mosquito control, particularly conversion to open water management techniques, significantly reduce the adverse impacts of former ditching approaches.

RESIDENTIAL AND COMMERCIAL DEVELOPMENT:

According to a 1969 study of the Rehoboth, Indian River and Assawoman Bays, at least 4,300 acres of the marshes and wetlands of Delaware had been lost in the preceding 30 years to residential and commercial development. The possibilties for new losses grow each year with pressure for additional development.

Wetlands development can affect the coastal areas in many ways, the most obvious of which is the destruction of the physical habitat due to dredging and filling operations. Development and site preparation practices also lead to other severe ecological problems. Surface water runoff and circulation patterns of wetlands and estuaries are usually upset by unnatural erosion and siltation. Furthermore, the communities and industries which often accompany residential or commercial development, produce large amounts of waste materials that are frequently introduced into wetlands water systems.

Finally, lagoon-type residential development can often cause serious ecological problems. The wetlands consumed by the development can no longer contribute to the larger estuarine ecosystems which depend on them. Further, most lagoons are constructed with only one opening into the adjacent bay, a practice which seriously hinders water circulation. Complete flushing of the lagoons is rare, so water in the lagoons often stagnates and is then unable to support a rich biotic community. Such lagoons also contribute to large fish becoming trapped during low tide.

One region of the State that is experiencing a great deal of residential development and, hence, is faced with many of these problems is the area surrounding the small bays of Sussex County. Little Assawoman, Assawoman, Rehoboth and Indian River Bays attract residential waterfront development because they are more protected than the open coastline adjacent to the ocean and because they offer much in the way of water recreation.

WASTE DISPOSAL:

Traditionally, the cheapest and most expedient locations for disposal of solid waste have been on lands bordering wetlands, which had little marketable value unless "reclaimed." Unfortunately, waste disposal threatens the maintenance of a healthy estuarine environment. It destroys the productivity of the estuarine fringe where solids are most frequently dumped. In addition, improper waste disposal on or near the wetlands surface pollutes groundwater when the water enters the waste and saturates the refuse. The result is a highly polluted, stinking seepage into the ground.

Similarly, estuaries and rivers leading to estuaries and wetland areas have been used for liquid waste disposal. Liquid wastes from municipal and industrial point sources have six types of impacts which tend to restrict other uses in the estuary: Unsightly floating materials interfere with recreational pursuits; toxic materials destroy organisms directly or damage their reproductive capabilities by poisoning their food supply; organic wastes decrease the dissolved oxygen necessary for aquatic life; excessively abundant nutrients cause rapid and extensive growth of certain flora and cause adverse effects in others; bacteria cause public health hazards; and heated wastes reduce dissolved oxygen and cause other adverse effects. Concerted efforts by State and county water quality management programs, adopted by the CMP, are remedying many of these problems. Section 5.A.3. (Coastal Waters) describes the CMP water quality management effort.

GENERAL CMP POLICIES FOR WETLANDS MANAGEMENT

1. THE PRODUCTIVE PUBLIC AND PRIVATE WETLANDS IN THE STATE SHALL BE PRESERVED AND PROTECTED TO PREVENT THEIR DESPOLIATION AND DESTRUCTION.

This policy is a cornerstone of the CMP. The importance of wetlands has been recognized by a variety of commissions, task forces, committees, agencies, and public officials. In its 1972 report, the Governor's Task Force on Marine and Coastal Affairs, defined as a major objective "the promotion of policy guidelines and certain key recommendations for the management and conduct of marine and coastal affairs in Delaware." Among the many issues examined by this group was the use of the State's wetland areas and their economic and ecological values. problems arise because these bays are relatively shallow and have restricted openings to the ocean for water exchange. Therefore, the small bays have a slow flushing rate and pollutants tend to become trapped in the bay system rather than being carried out to the ocean.

5.A.1.

In 1972, the Governor appointed a Wetlands Action Committee to study the State's coastal wetlands and formulate policy. The Committee declared

> "that much of the coastal wetlands of this State has been lost or despoiled by unregulated dredging, dumping, filling and like activities and that the remaining wetlands of this State are in jeopardy of being lost or despoiled by these and other activities; that such loss or despoliation will adversely affect, if not entirely eliminate, the value of such wetlands as sources of nutrients to finfish, crustacea and shellfish of significant economic value; that such loss or despoliation will destroy such wetlands as habitats for plants and animals of significant economic and ecological value and will eliminate or substantially reduce flood damage and adversely affect the health and welfare; that such loss or despoliation will substantially reduce the capacity of such wetlands to absorb silt and will thus result in the increased silting of channels and harbor areas to the detriment of free navigation. Therefore, it is declared to be the public policy of this State to conserve the public and private wetlands and to prevent their despoliation and destruction."

In addition, the 1967 State Preliminary Comprehensive Development Plan, the plans of New Castle and Kent Counties, and those of at least eight communities, contain specific policy statements calling for the preservation of tidal marsh/estuarine/ wetlands areas for their environmental, recreational and aesthetic values. Moreover, as recently as 1976, the Delaware Tomorrow Commission, a blue-ribbon task force on State growth policy, formulated and adopted the following broad policy: "Delaware should strengthen programs to protect natural and man-made resources . . . (and) should continue protection of coastal and estuarine areas throughout the State." This policy was officially adopted by the Governor and incorporated as part of the Delaware Comprehensive Development Plan pursuant to Title 29, Chapter 91 of the Delaware Code.

Naturally, these and other manifestations of concern for the wetlands were not overlooked by the CMP. Several program activities were aimed at increasing the interest in wetlands and furthering public understanding and concern for these critical

resources. A working paper was prepared for the Lewes-Rehoboth area study (Lewes CCD Pilot Study). The March/April 1976 issue of "NEWS," the program newsletter, was devoted entirely to wetlands and their vulnerability. A series of workshops with representatives of various interests (resorts, industry, agriculture, conservation) discussed many coastal issues, among them the importance of wetlands management. Finally, an intensive review of the State's coastal wetlands was undertaken by the College of Marine Studies at the University of Delaware. The product, "An Atlas of Delaware's Wetlands and Estuarine Resources," was published in November 1976 and is a landmark inventory and assessment of the State's wetlands and water resources. It is important, however, not to confuse the Atlas with the wetland maps maintained by the Department of Natural Resources and Environmental Control, and which serve as the basis for the CMP regulatory policies.

2. ACTIVITIES IN OR ADJACENT TO WETLANDS SHALL BE CONDUCTED SO AS TO MINIMIZE WETLANDS DESTRUCTION OR DEGRADATION, TO PRESERVE THE NATURAL AND BENEFICIAL VALUES OF WETLANDS, AND TO PROTECT THE PUBLIC INTEREST THEREIN.

This policy makes it clear that the public interest in protecting wetlands will be safeguarded from activities outside wetlands, as well as ones occurring in them. While the Wetlands Act and Regulations deal primarily with regulated wetland areas the State's authority to manage adjacent uses is derived from other statutes. The Land Use Planning Act (Chapter 92, Title 29, of the Delaware Code) specifically identifies wetlands as a "critical area" and requires that State or local land use planning actions involving critical areas are subject to the review and consideration procedures set forth in the Act. Initial activities relating to preparation of critical areas plans (as required by the statute) have considered the word "involving" to be broader than the geographic extent of the area itself. Hence, land uses proposed adjacent to the wetland but not in it would meet the "need for review" test.

State authorities related to water quality (Environmental Quality, Sediment and Erosion Control, and Underwater Lands Statutes) provide the broadest protection of wetlands from the potentially adverse impacts of adjacent uses. Any wetland, by definition, is affected by water. The State's authority under the Environmental Protection Act (see §6003(a)(2)) extends to all uses which affect water quality and provides for a State permit and adherence to strict standards. Additionally, the NPDES permit system protects wetlands from point source pollutant

discharges. The Sediment and Erosion Control Statute requires approval of plans involving control of sediments resulting from construction and land disturbing activities with the primary objective being the prevention of this form of pollutant from reaching State waters (including those associated with wetlands). Finally, the Underwater Lands Act regulates activities involving these lands such that adverse impacts on water quality and surrounding uses are minimized. Hence, the likely impacts on wetlands resulting from such operations are subject to State control. In each action under these authorities the Department of Natural Resources and Environmental Control must consider the impacts of the proposed action on all resources which may be adversely affected, thereby affording protection to wetlands from adjacent uses.

SPECIFIC CMP POLICIES FOR WETLANDS MANAGEMENT

3. WETLANDS TO BE MANAGED BY THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL ARE THOSE MEETING THE CRITERIA SET FORTH IN SECTION 6603(8) CHAPTER 66, TITLE 7, DELAWARE CODE.

This policy specifies which lands are subject to regulation by DNREC. The Delaware Wetlands Act sets forth criteria to be used in the development of wetlands regulations and maps, including evelvation above local mean high water, influence of tidal water, capability for growing certain wetland-type plants, and size. These criteria are detailed in the Authorities discussion at the end of this section. Wetlands are also regulated by the U.S. Army Corps of Engineers. The Corps regulates activities in waterways under the Rivers and Harbors Act of 1899 (historic navigable waters) and adjacent wetlands and inland waters under the provisions of Section 404 of the Clean Waters Act.

Most of the wetlands in the State are covered by the wetlands maps. A 1953 U.S. Department of the Interior survey identified approximately 22,000 acres of coastal fresh wetlands, 93,300 acres of coastal saline wetlands, and 15,900 acres of inland fresh wetlands. According to the U.S Soil Conservation Service the tidal marsh and tidal fresh water marsh soil associations encompassed approximately 113,000 in 1969, confiriming the 1953 survey.

The mapping program is believed to have identified almost all of the coastal saline wetlands and over 90 percent of the coastal fresh wetlands existing in 1973. Of the remaining coastal fresh and inland wetlands (approximately 25-26,000 acres combined) a majority are in public ownership or meet the size criteria necessary for regulation. For example, most of the approximately 11,000 acre Great Cypress Swamp in Sussex County, an inland freshwater wetland, is subject to the Wetlands Act. A large portion of the area is

owned by a private conservation group further insuring its protection.

Many other inland freshwater wetlands are fringe areas surrounding ponds or isolated wetlands along tributaries. In many cases these freshwater wetlands are under public control through State or local ownership of the pond or within a State or local park (i.e., the freshwater water wetlands along the Brandywine Creek State Park.) Probably less than 10,000 of the estimated 120-130,000 acres of wetlands of all types in the State are not covered by State regulation of public agency management.

A new survey of tidal wetlands based on photo-interpretation of vegetation types coupled with ground verification is contemplated as part of the State's first CMP implementation grant activities. This survey will result in revised wetlands maps replacing the 1973-76 vintage maps and correcting for time and scale deficiencies of the earlier maps.

4. "WETLAND-TYPE" AREAS NOT SUBJECT TO DNREC REGULATION, INCLUDING FRESHWATER WETLANDS, SWAMPS, BOGS, LOWLYING AND POORLY DRAINED LANDS NOT COVERED BY THE OFFICIAL WETLANDS MAPS, SHALL BE EVALUATED FOR THEIR WILDLIFE, GROUNDWATER RECHARGE, SCENIC AND OTHER VALUES AS PART OF THE PREPARATION OF REGISTRIES OF NATURAL AREAS AND THE DEVELOPMENT OF CRITICAL AREAS PLANS, AS PROVIDED BY THE DELAWARE NATURAL AREAS PRESERVATION SYSTEM ACT AND THE DELAWARE LAND USE PLANNING ACT, RESPECTIVELY.

The CMP recognizes that these other "wetland-type" areas have wildlife, groundwater supply, scenic and other values which should be considered as part of land an water use activities. Thus, such areas will be evaluated for as part of the programs identified in the policy statement above. The Land Use Planning Act specifically identifies wetlands of all types as areas to be included in the "Critical Areas Plan." Actions affecting wetlands would thereby be covered by the required notice, review, comment, and consideration steps set forth in the Act. As part of the final implementation grant activities an assessment, of freshwater wetland issues will be undertaken. This effort may include aerial photography, inventories, and related actions.

5. ACTIVITIES WHICH MAY ADVERSELY AFFECT WETLANDS SHALL REQUIRE STATE APPROVAL PURSUANT TO THE POLICY STATEMENTS BELOW. THE CMP, HOWEVER, REQUIRES NO SUCH APPROVAL FOR THE FOLLOWING ACTIVITIES: CONSTRUCTION OF FOOT BRIDGES, DUCK BLINDS, WATERFOWL NESTING STRUCTURES, BOUNDARY MARKERS, OR AIDS TO NAVIGATION THAT DO NOT PREVENT THE EBB AND FLOW OF THE TIDE; STATE CONDUCTED MOSQUITO CONTROL ACTIONS; AND HUNTING, FISHING, HAYING, TRAPPING, AND GRAZING OF DOMESTIC ANIMALS.

5.A.1.

This policy encourages and promotes the use and enjoyment of wetlands for their recreational, wildlife, aesthetic, and educational values. It also removes from the approval process certain activities which do not significantly harm wetlands.

6. NO ACTIVITY SHALL TAKE PLACE IN WETLANDS UNLESS (A) THE ACTIVITY REQUIRES WATER ACCESS OR WATER FOR THE CENTRAL PURPOSE OF THE ACTIVITY AND (B) THERE EXISTS NO REASONABLE ALTERNATIVE ON ADJOINING NON-WETLAND PROPERTY OF THE OWNER.

This policy protects wetlands from most the types of activities that can and should be accommodated in less critical areas. At the same time it reserves a limited right for the private wetlands owner to use his or her property when alternatives are unavailable and when such location is essential to the use proposed. The primary purpose of the policy is to prevent further loss of wetlands while recognizing the historic right of private ownership of lands and establishing a threshold consideration for projects along with criteria specified in the following policies.

7. IN ORDER TO ASSURE THAT ANY ACTIVITY IN THE WETLANDS IS APPROPRIATE, STATE APPROVAL SHALL BE REQUIRED PRIOR TO THE INITIATION OF SUCH ACTIVITIES, EXCEPT NO SUCH APPROVAL SHALL BE REQUIRED FOR THE ACTIVITIES IDENTIFIED IN POLICY STATEMENT NUMBER 5. THE FOLLOWING FACTORS SHALL BE CONSIDERED PRIOR TO SUCH APPROVAL: THE ENVIRONMENTAL IMPACT OF THE PROPOSED USE; THE NUMBER AND TYPE OF SUPPORTING FACILITIES REQUIRED AND THEIR IMPACT; THE EFFECT OF THE ACTIVITY ON NEIGHBORING LAND USES; THE APPROPRIATE STATE AND LOCAL COMPREHENSIVE PLANS FOR THE GENERAL AREA; THE ECONOMIC IMPACT OF THE ACTIVITY IN TERMS OF JOBS, TAXES GENERATED, AND LAND AREA REQUIRED; AND THE AESTHETIC IMPACT OF THE PROPOSED ACTIVITY. ALTERNATIVE METHODS OF CONSTRUCTION SHALL ALSO BE CONSIDERED PRIOR TO PERMIT APPROVAL.

The policy established the mechanism used to implement the general policies. The approval process is based on an existing State permit system and pursuant to the Wetlands Act and Regulation. It is noted that the Wetland Regulations may be subject to review following the resolution of pending litigation and, as appropriate, for the purpose of developing more specific project review and approval standards.

8. IN CONSIDERING THE ENVIRONMENTAL IMPACTS OF A PROPOSED ACTIVITY IN WETLANDS, THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL SHALL CONSIDER THE CUMULATIVE IMPACT OF INDIVIDUAL PROJECTS.

5.A.1.

The CMP recognizes that many projects have limited environmental impacts individually however, the cumulative impact of a number of projects in a confined area could be significant. While criteria for assessing cumulative impact are not readily available, the Department will investigate those concepts and approaches that have been used in other areas and attempt to develop reasonable approaches for Delaware. Initially, the Department will maintain maps showing the location and extent of project which will be referenced in making a permit decision. Such maps will also be compared with other indicators of environmental quality, particularly adverse changes in flora, fauna or water quality, to identify any apparent correlations between permittted activities and the noted change. Such correlations will be included in the factors considered in the permit decision.

9. THE DREDGING OF CHANNELS IN WETLANDS BELOW THEIR EXISTING DEPTH OF THEIR CONTROLLED DEPTH AS ESTABLIHED BY THE CORPS OF ENGINEERS SHALL NOT BE PERMITTED IF SUCH DREDGING PRODUCES STEEP SLOPES OR UNSTABLE SIDES, DOES NOT ALLOW FOR THE NORMAL DAILY TIDE EBBS AND FLOWS, OR IF IT OTHERWISE INTERFERES WITH MAINTENANCE OF STATE WATER QUALITY STANDARDS.

This policy and the next one address the dredging problems discussed above. In some cases the CMP will prevent wetlands dredging altogether. If the criteria in policy numbers 9 and 10 can be satisfied, a permit for the dredging activity may be issued, but only after consideration of the factors listed in policies number 6 and 7.

10. THE DREDGING OF ANY CHANNEL THROUGH WETLANDS THAT HAS ONLY ONE OUTLET TO NAVIGABLE WATER THROUGH WHICH THE NORMAL DAILY TIDE EBBS AND FLOWS SHALL BE PROHIBITED, UNLESS THE CHANNEL IS EQUIPPED BY AERATORS OR OTHER MEANS TO MAINTAIN STATE WATER QUALITY STANDARDS FOR STREAMS.

The comments on policy number 9 applies here also. It is noted that aerators alone may not prevent water quality deterioration from pollutants generated by adjacent development or malfunctioning individual or package sewage systems. In carrying out these policies the State considers the dredge and fill guidelines proposed by EPA pursuant to Section 404(b) of the Clean Waters Act. Once those regulations are finalized the State will review them and options regarding State takeover of the 404 permit process. At the present time the proposed guidelines and role in procedures do not appear to be satisfactory to many states, and in Delaware a takover of a federal program offers new incentives. It is noted that the State can deal with disposal of dredged material under the provisions of Chapter 60 of 7 Delaware Code which defines these materials as pollutants.

5.A.1.

AUTHORITIES

The authority for enforcing the CMP policies related to Delaware wetlands is vested in the Department of Natural Resources and Environmental Control under the Wetlands Act of 1972 and regulations adopted pursuant thereto. State water quality standards, also enforced by the Department and discussed in Section 5.A.3. of the document, may also prevail in situations involving dredged lagoons.

Authorities Table One cities the specific authority for each of the policy statements.

AUTHORITIES TABLE

Policy Number	Authority
1	7 Delaware Code 6602
2	7 Delaware Code 6602,6003(a)(2) and, 6119, and 4001
3	7 Delaware Code 6603(8) Tidal wetlands are defined in Section 6603(8) as "Those land above the mean low water elevation including any bank marsh, swamp, meadow, flat or other low land subject to tidal action in the State along the Delaware Bay and Delaware River, Indian River Bay,

3 (continued)

Rehoboth Bay, Little and Big Assawoman Bays, the coastal inland waterways, or along any inlet, estuary tributary waterway or any portion thereof, including those areas which are now or in this century have been connected to tidal waters, whose surface is at or below an elevation of 2 feet above local mean high water, and upon which may grow or is capable of growing any but not necessarily all of the following plants:

Eelgrass (Zoxtera marina), Widgeon Grass (Ruppia maritima), Sago Pondweed (Potamogeton pectinatus), Saltmarsh Cordgrass (Saprtina Alterniflora), Saltmarsh Grass (Spartina cynosuroides), Saltmarsh Hay (Spartina patens) Spike Grass (Distichlis spicata), Black Grass (Juncus gerardii), Switch Grass (Panicum virgatum, Three Square Rush (Scirpus americanus), Sea Lavendar (Limonium carolinianum), Seaside Goldenrod (Solidago sempervirens), Sea Blite (Suaeda maritima), Sea Blite (Suaeda linearis), Perennial Glasswort (Salicornia virginica), Dwarf Glasswort (Salicornia bigelovii), Samphire (Salicornia europaea), Marsh Aster (Aster tenuifolius), Saltmarsh Fleabane (Pluchea purpurascens var. succulenta), Mock Bishop's Weed (Ptilimnium capillaceum), Seaside Plantain (Plantage oliganthos), Orach (Atriplex patula var. hastata), Marsh Elder (Iva Frutescens var. oraria) Goundsel Bush (Baccharis halmifolia), Bladder wrack (Fucuh vesiculosis), Swamp Rose Mallow, Seaside Hollyhock or Marsh Mallow (Hibiscus palustris), Torrey Rush (Scirpus torreyi), Narrow-leaved Cattail (Tupha angustifolia), and broad-leaved Cattail (T. latifolia.")

These wetlands, as well as the Great Cypress Swamp, are mapped on an official set of Wetlands Maps at a scale of 1:2400 (1" = 200'). The maps are maintained by the Wetlands Section of the Department of Natural Rsources and Environmental Control in Dover.

5.A.1.

Policy Number	Authority
4	Executive Order Number 61; 7 Delaware Code, Chapter 73 and 29 Delaware Code, Chapter 92
5	7 Delaware Code 6604 and 6606; DNREC REGULATIONS, December 23, 1976, WETLANDS REGULATIONS, Section 2.01(F)
6	DNREC REGULATIONS, December 23, 1976, WETLANDS REGULATIONS, Section 2.01(E)
7	7 Delaware Code 6604 and WETLANDS REGULATIONS
8	Executive Order 61
9	DNREC REGULATIONS, December 23, 1976, WETLANDS REGULATIONS, Section 2.01(A) (B) and (C)
10	DNREC REGULATIONS, December 23, 1976, WETLANDS REGULATIONS, Section 2.01(B)

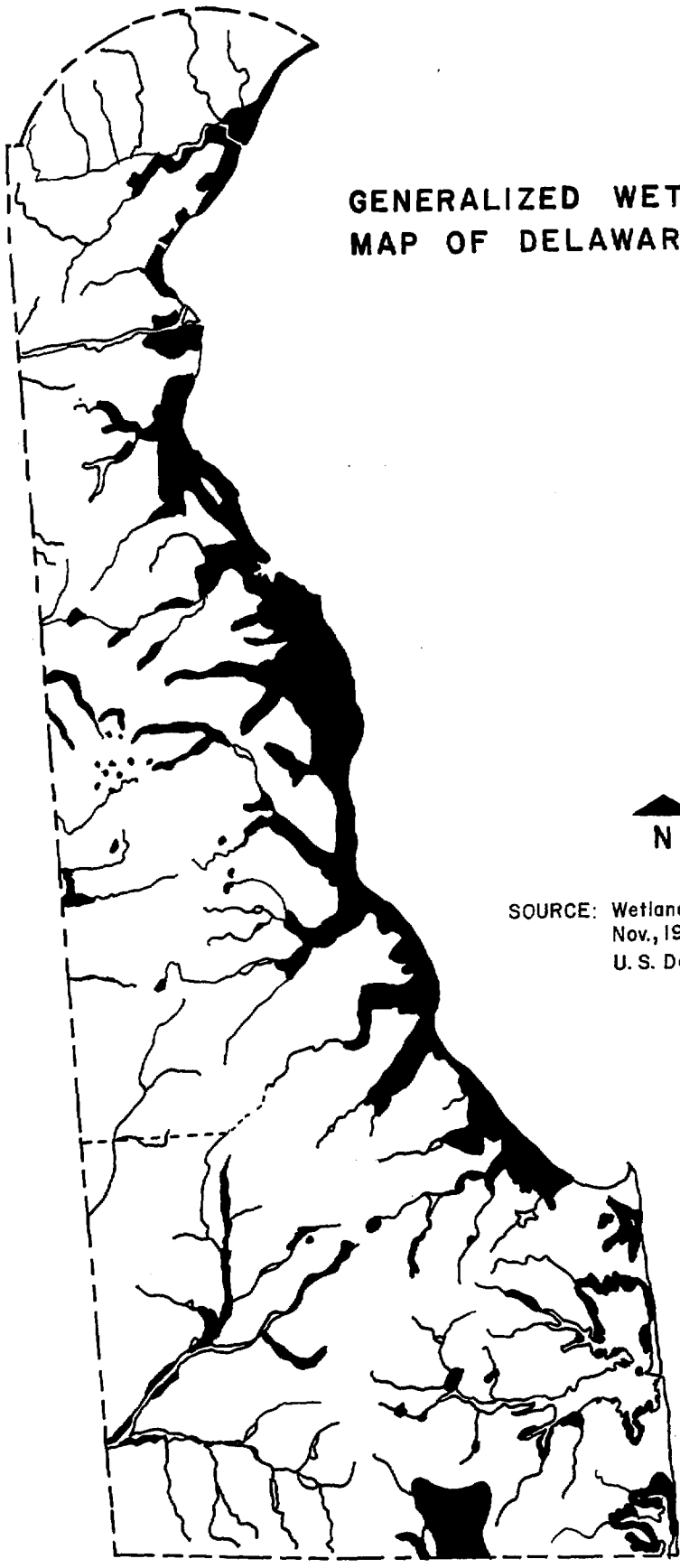
Selected References: Wetlands

1. An Atlas of Delaware's Wetlands and Estuarine Resources, Technical Report No. 3, Delaware Coastal Management Program, Dover, November 1976. (contains extensive references on specific subjects).

2. Impacts of Construction Activities in Wetland Areas of the United States, U.S. Environmental Protection Agency, April 1976.

3. Report of the Governor's Wetlands Action Committee, Dover, 1973

4. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware, Newark).



GENERALIZED WETLANDS
MAP OF DELAWARE

N

SOURCE: Wetlands of Delaware Inventory, Nov., 1953.
U. S. Dept. of the Interior

A LIST OF THE COMMON AND SCIENTIFIC NAMES OF THOSE SPECIES OF PLANTS USED TO DEFINE AND DELINEATE THE WETLANDS OF THE STATE OF DELAWARE ACCORDING TO THE WETLANDS ACT OF 1972.

Common Name	Scientific Name
Black Grass	Juncus jerardii
Bladder Wrack	Fucus vesiculosis
Cattail (Broad leaved)	Typha latifolia
Cattail (Narrow leaved)	Typha angustifolia
Dwarf Glasswort	Salicornia bigelovii
Eelgrass	Zostera marina
Groundsel Bush	Baccharis halimifolia
Marsh Aster	Aster tenuifolius
Marsh Elder	Iva frutescens var. oraria
Mock Bishop's Weed	Ptilimnium capillaceum
Marsh Mallow	Hibiscus palustris
Orach	Atriplex patula var. hastata
Perennial Glasswort	Salicornia virginica
Sago Pondweed	Potamogeton pectinatus
Salt Marsh Fleabane	Pluchea purpurascens
Salt Marsh Cordgrass	Spartina alterniflora
Salt Marsh Grass	Spartina cynosuroides
Salt Marsh Hay	Spartina patens
Samphire	Salicornia europaea
Sea Blite	Suaeda linearis
Sea Blite	Suaeda maritima
Sea Lavender	Limonium carolinianum
Seaside Goldenrod	Solidago sempervirens
Seaside Plantain	Plantago aliganthos
Spike Grass	Distichlis spicata
Switch Grass	Panecum virgatum
Three-Square Rush	Scirpus americanus
Torrey Rush	Scirpus torreyi
Widgeon Grass	Ruppia maritima

BEACHES AND SHORELINES

SIGNIFICANCE OF BEACHES

Barrier beaches are narrow strips of land made up of unconsolidated material extending parallel to the coast and often separated from the mainland by a body of fresh, brackish, or salt water or a marsh. Some of Delaware's beaches occur on Pleistocene age highlands which outcrop along the coast. Such beaches exist at Bowers, Rehoboth Beach, and Bethany Beach. The State's sandy beaches occur intermittantly along the Delaware Bay from Augustine Beach to Bowers and continously from there along the Bay and Atlantic Ocean to the Maryland border.

Delaware's Atlantic barrier beach is the State's most important and heavily utilized outdoor recreational resource. There are 24.5 miles of sandy beach bordering the Atlantic Ocean from the mouth of Delaware Bay to the Maryland border. This coastal recreation area also includes Rehoboth, Little Assawoman, and Indian River Bays which lie landward of the barrier. This extensive beach area lies within a day's drive of over 21 million people. There are 2.5 million annual visits to the coastal area. The State's travel industry nets about $202,000,000 a year, a significant portion of which is generated in the Sussex County coastal area.

There are two state parks, Cape Henlopen and Delaware Seashores, which attract large numbers of visitors each year for swimming, surf fishing, nature study, and boating. Of the 24.5 miles of ocean beach, 12 miles are contained within these parks.

The barrier beaches on the Delaware Bay are significantly less important to the tourist industry. With the exception of the Lewes area, the amenities that attract tourists are not present at these locations. The extensive marshes that back these very narrow beaches prevent significant development. In addition, there is no surf to speak of and most areas are characterized by muddy offshore substrates and very turbid waters, which are not conducive to water contact recreation. Use of these beaches by the general public is limited and recreation benefits accrue primarily to property owners and their guests.

The quality and proximity of Delaware's beaches to the Washington, Baltimore, and Philadelphia metropolitan areas, coupled with the fact that on an average summer weekend 70% of the visitors to the Sussex County coastal area are from out-of-state, make these shores a resource of national significance in addition to being important to the State's residents and economy.

Aesthetics is also an important attribute of Delaware's beaches. The State is fortunate to own three large, undeveloped tracts of oceanfront property which mitigate the visual intrusion of continuous resort development characteristic of the Mid-Atlantic region from Maryland to New York. Delaware Seashore State Park (two tracts) provides extensive views of rolling coastal dunes, inland water bodies, and back barrier marshes. Cape Henlopen State Park features upland pine forests, extensive marshes along the Lewes-Rehoboth Canal, large "walking dunes" (the largest north of Nags Head, North Carolina) and the Cape itself.

The inherent conflict between intense development of the barrier beach for resort and vacation purposes, and natural beach dynamics becomes particularly evident after storms. It is usually not until then that the importance of undisturbed beaches and dunes, as they relate to storm protection, are realized. All other things being equal, development located so as to leave the natural beach and dune undisturbed will suffer significantly less damage during storms than will development located on or in front of the dune or in areas where the primary dune has been significantly altered. This is because the structure of the beach serves as natural protection against wave action. The slope of the beach face absorbs wave energy during normal conditions. During times of elevated water level when waves wash up over the berm, coastal sand dunes form an effective barrier to storm waves and protect developed, low-lying back-barrier areas. Even when breached by severe storms, dunes gradually rebuild themselves to provide protection against future storms. Dune vegetation plays an important role in the development and maintenance of sand dunes. Grasses and other plants act as a trap for windblown sand and tend to stabilize dunes. The importance of dunes as natural beach protection has been recognized, and efforts are being made to restore dunes that were destroyed during development of the coastal zone.

PROBLEMS WITH DEVELOPMENT AND PROTECTION OF BEACHES

The construction of "walls" of condominiums, summer homes, resorts, and highways along the beach areas produce permanent economic barriers within a dynamic, changeable natural system. Without development there exists a not-so-fragile natural system which is a product of, and that modifies itself to, high energy storms. With development there exists a quasi-permanent system that is no longer allowed to change. A very fragile system is thereby created that becomes increasingly more stressed. This stressed system will exist only until it is subjected to periods of high energy. At this time, major change will occur and the "fragile" system will ultimately be restored to a natural equilibrium, but at man's expense.

In preparation for construction, the usual procedure was to level the dunes and beach in order to build as close to the shoreline as possible. Without the defense that the normal shape of the beach affords, buildings become endangered by even normal seasonal onshore-offshore movement of sand. Moreover, removal of the sand supply contained in the dune does not permit the beach profile to flatten during storm wave attack. Because sand is no longer available for the formation of offshore sand bars which can mitigate storm wave attacks, such waves can concentrate their energy on shoreline structures. Even during moderate storms, extreme damage can occur as waves remove the sand supporting the buildings. Moreover, the absence of protective dunes exposes the back-barrier area, often as heavily built up as the beach front, to wave attack, washover, and flooding.

The dynamic equilibrium that exists on an undisturbed beach is alien to man's static sense of equilibrium. Once a line has been established, whether it be a shoreline or a property line, man unreasonably expects it to stay put. Once structures are placed on or very near the beach the "instant" geology of the shoreline becomes apparent, and when buildings or other improvements are threatened man intervenes with his structural defenses in an attempt to "hold the line." Over the years, numerous methods to hold the line have been tried; most have been unsuccessful, have caused unforeseen damage to adjacent property, or both.

When shorefront land is subdivided into small lots and sold for high prices, there then is a fixed object against which shoreline changes can be conveniently measured. The coastal dwellers first become dismayed by the loss of land, then alarmed. The new owners are soon in an uproar when they find their land disappearing at a rate ranging from two to five feet per year. The process of erosion has not changed, only the attitude toward it. Something must be done at once! Remedies for beach erosion are sought from the federal and State governments because the extent of the problem and the costs involved are always beyond the ability of the individual to solve himself. The problems associated with specific beach and/or property protection measures are discussed briefly below.

A. Dune Stabilization

Natural dune stabilization processes are enhanced or accelerated by the placement of snow fence and planting of beach grass in many of Delaware's coastal areas. It is used primarily to prevent wave overwash during moderate storms and to reduce overwash during severe storms. It has no effect, however, on long-term shoreline recession which is a function of the continued action of the water on the land motivated by historic sea level rise. While this technique is successful along relatively undeveloped shores, development often encroaches onto the beach or dune and renders this method impractical.

Of particular importance when using this technique is the location of the stabilized dune in relation to the shoreline. In most of the developed areas of the coast, there is no room to construct a dune that will be in reasonable equilibrium with a storm environment. Many of these "artificial" dunes are, therefore, located too close to the surf zone. When a storm occurs, wave energy is concentrated on the dune rather than absorbed by a wide beach face. Such dunes are subject to catastrophic failure from undermining wave action, and their protective attributes are significantly diminished.

A related problems with dune stabilization is the vulnerability of dunes to destruction from pedestrian and vehicular traffic. American beachgrass is very sensitive to trampling. Once the grass is destroyed, the dune is much more vulnerable. Dune "blowouts" may then result which provide paths of least resistance to storm waves.

B. Beach Nourishment

Beach nourishment is the process of dredging or hauling sand from marine or inland sites and placing it on the beach and nearshore zone. Its purpose is to replace beach sands that have been removed by littoral processes or storm events and to extend the beach further seaward. Unlike the structural defenses discussed below, beach nourishment generally does not adversely affect the beach or adjacent properties.

The principal drawback to beach nourishment is its cost and the fact that its effectiveness is temporary. While nourishment material may remain on the beach for as much as a decade during times of relatively calm weather, a single intense storm or a few moderate storms can negate the effort in a very short period of time. The nourishment material does, however, provide storm protection which would otherwise not exist. Moreover, such projects rarely, if ever, outlast the retirement life of the bonds used to finance them.

C. Bulkheads, Seawalls, and Revetments

These structural defenses are built parallel to the shore to reinforce or replace the function of natural dunes along open coastlines. A bulkhead is a vertical wall constructed of steel, timber, or concrete piling, and is usually a temporary defense against wave action. It is constructed in developed areas where coastal erosion has progressed to a point where beach and dune maintenance is no longer an option for physical or economic reasons. As the beach continues to erode, the bulkhead is exposed to direct wave attack. Waves breaking against the structure result in scour at the toe of the bulkhead caused by the downward deflected component of wave energy. The net result is accelerated beach erosion and eventual removal of the beach itself.

Bulkheads are also quite vulnerable to destruction during storms through undermining at the base or ends or by direct wave attack. Once the bulkhead is destroyed, not only are the shoreline properties susceptible to erosion and wave damage, but the bulkhead timbers can also act as battering rams and cause additional damage. A number of privately constructed timber bulkheads were destroyed at Slaughter Beach, Broadkill Beach, and South Bethany during the storms of March, 1962 and December, 1974 and again at South Bethany in October and December, 1977.

In contrast to bulkheads, seawalls are massive structures designed to withstand direct wave attack. They are constructed in areas where beaches have eroded to the point that major private and public improvements are imminently threatened by waves. Seawalls, like bulkheads, reflect incoming wave energy and scour, and eventually remove the beach. The importance of recreational beaches to the people of the State and the economy of Sussex County, coupled with the inordinate expense of these structures, render the construction of seawalls generally inappropriate in Delaware. Several such structures, which were proposed by the Corps of Engineers as part of the Beach Erosion Control and Hurricane Protection Project for the Delaware Coast, have been turned down by the State for these reasons.

A revetment is a shore protection device, usually consisting of concrete or layers of stone, placed on the beach and designed to armor the seaward face of the shore. The sloping protection dissipates wave energy and is less damaging than a seawall. These structures, however, seriously hinder recreational use of the beach and are normally inappropriate for use along the public beaches of the Atlantic Coast. On the Delaware Bay, shoreline revetments can provide a measure of protection from recession of the beach. In order to properly perform this function, the structure has to be a substantial one, costing in the neighborhood of $100 to $200 per lineal foot. Except at Port Mahon, where substantial public investment is threatened by shoreline erosion, there are no other areas along the Delaware Coast where public benefits outweigh costs of this magnitude.

D. Breakwaters

Breakwaters are structures designed to reduce wave energy reaching the shore and are generally constructed to protect a harbor and provide shelter for boats, rather than solely for shore

protection purposes. The reduction or eliminaton of wave energy reaching the beach affects the shoreline immediately landward of the breakwater. No longer subject to normal wave action, the area of quiet water shoreward of the breakwater becomes a site of sediment deposition, shoaling, and seaward accretion of the shoreline. Interruption of the littoral transport stream causes rapid erosion of the beach downdrift of the breakwater. There are some areas along the coast where breakwaters can perhaps be utilzied without producing significant erosion effects. Such areas include isolated sandy beaches bounded on both ends by marsh shoreline. A breakwater, if designed to protect the entire shore segment, does not adversely affect any beach. Breakwaters can also be effectively used to trap sand at updrift inlet jetties for periodic transfer to eroding downdrift beaches.

E. Groins

Groins are wall-like structures extending from the backshore into the surf zones, usually perpendicular to the shoreline, that widen the beach by trapping sand moving along the shore. The groin interrupts the natural longshore transport of sand and creates a null area on the updrift side which causes the deposition of sand. Waves refracted around the end of the groin are devoid of their normal sand content and, as a result, have an erosive effect on the downdrift side. The retreat of the beach on the downdrift side is roughly equal to the beach advance on the updrift side. The usual solution to this problem is to prefill the groin compartment and/or to build another groin and then another and another. However, for every cubic yard of sand that is trapped within the groin compartments from the littoral drift, there will be a corresponding loss from the downdrift beach.

At present, there are four significant groin fields along the Delaware coast. They are located at Bethany Beach, Rehoboth Beach, Broadkill Beach, and Slaughter Beach. The groins at Rehoboth Beach are the only ones that have "stabilized" the shoreline. (This stabilization can largely be attributed to the beach nourishment at Indian River Inlet). The others, while slowing erosion in the vicinity of the groin field, have not halted the process. The beaches of Slaughter and Broadkill have subsequently required beach nourishment to temporarily hold the shore, and Bethany Beach is in need of nourishment to maintain the beach. In each case, however, these groin fields have had substantial effects on erosion of adjacent beaches. In summary,

when no beach protection structures are constructed, everyone shares the problem. But, when one part of the shore is protected, the remainder of the shore must supply the sand.

F. Jetties

Jetties are large structures, usually constructed of sheet pile or rock, and built at river mouths or inlets to confine the flow of water to a narrow zone. Usually constructed in pairs, they are designed to protect and maintain inlets for navigation. Natural inlets have a tendency to migrate and occasionally close and reopen in other locations. Moreover, such inlets are subject to constantly shifting channels and shoals. Without the stabilizing effect of a pair of jetties, most inlets would be too hazardous for navigation. While they are beneficial to the channel, jetties are similar to groins in their effect on the shoreline. The interruption of the littoral drift produces an accumulation of sand on the updrift side and accelerated shoreline recession on the sand starved, downdrift side. The effects of jetties on beach erosion are of greater magnitude than groins because of their greater size and the presence of an inlet. On the flood tide, most of the sand that bypasses the updrift jetty is swept into the inlet and deposited as a tidal delta in the slack water area behind the inlet. On the ebb tide, sand bypassing the jetty is swept seaward and deposited in an offshore shoal. Most of this sand is permanently lost from the littoral system and must be replaced, if the beach downdrift of the inlet is to be maintained. Only the periodic dredging of sand from the accreting side or inlet shoals and pumping it to the eroding side will restore the natural longshore flow.

There are two pair of Delaware jetties, one at Roosevelt Inlet and another at Indian River Inlet, that are causing significant erosion of the beach. The Roosevelt Inlet jetties are causing erosion of the public beach at Lewes which is threatening backlying private property. At Indian River Inlet, the jetties are affecting a two-mile stretch of beach within Delaware Seashore State Park and erosion threatens to undermine the foundation of the approach to the inlet bridge. Because of the threat to public beaches and private property resulting from these public navigation facilities, the beaches affected by them have been designated by the CMP in Appendix C as areas for preservation and restoration.

Unfortunately, almost anything that either speeds up erosion of a coast or retards the normal motion of sand along shore affects all other property within the littoral zone. Any "remedial" action that does not consider the effects on the downdrift beaches only causes more problems, because there are few beach locations where structures can be utilized to protect the shore without adding substantially to erosion elsewhere.

5.A.2.

PROBLEMS WITH ACCESS TO BEACHES AND SHORELINES

One of the greatest problems facing Delaware today in recreation is how the public and private sectors can satisfy the demand for recreation and yet not destroy the natural resources of the State. Already the specter of over-development has appeared in the Sussex County resort areas. Significant portions of the Rehoboth and Indian River Bays are closed to the taking of shellfish because of domestic pollution resulting from improper development of the shoreline. The major part of this development has taken place within the last 25 years. Since 1938 the percentage of developed shoreline along these bays increased from 4.5 percent to about 30 percent. Conflicts between urbanization and recreation are many and include increased water pollution from failing septic systems package treatment plants, and other waste discharges; destruction of shoreline and aquatic habitat; and reduced public shoreline access. Moreoever, in resort areas the prime development sites are adjacent to water bodies, which means development will be widely scattered with its attendant adverse effects on government expenditures for roads, utilities, and other services. This type of development reduces the possibilites of future public access to the shoreline.

The need for parklands has not always been recognized, and money available to public agencies for land acquisition has seldom been adequate for all needs. The price per acre for undeveloped coastal lands along the Delaware River and Bay has increased twenty-fold from 1954 to 1970.

The escalation of coastal property value illustrates a dilemma faced by public recreation agencies. The great demand for coastal recreation opportunities is, of course, reflected in land prices. As land prices increase, however, public agencies are able to supply less and less of this most desired commodity for use by the general public. Eventually, the State is priced out of the market (despite federal land acquisition grants) and increasing amounts of land are being converted for use by the few at the expense of the many. A case in point is a 1.5 mile stretch of barrier beach north of Bethany. It is the last large parcel of privately owned beachfront land between Virginia and New York. Its proximity and accessibility to eastern metropolitan areas, coupled with increasing demands for public recreational beaches, would suggest this area as a prime candidate for public acquisition. The State's fiscal situation, now and in the foreseeable future, prevents the State from considering this possibility. Since purchase is the only available management alternative to private development, the land will eventually be converted to condominiums and second homes. By the time demand on the existing seashore parks becomes excessive, the State will have no other option than to turn visitors away.

Perhaps the most volatile development issue in the resort area is one concerning high-rise condominium development along the oceanfront. This issue is largely one of aesthetics and overcrowding, although water pollution and natural area destruction are also raised. Proponents of this type of recreation development point to construction jobs, high land prices, market demand, local property tax revenue (and no school children) and other economic benefits as justification for high-rise construction. Opponents argue such structures disrupt the view of the coast, disturb dunes and barrier habitat, contaminate groundwater, create congestion and traffic problems, and severely restrict public access and use of the beach.

Other conflicts arise between day-use visitors and coastal property owners. The former are competing for access to a limited resource and often encroach onto private beaches, cause noise and litter problems, and generally antagonize the seasonal resident. This conflict has led to some shoreline property being closed to the general public. Providing public access to the beach is an expensive proposition and, therefore, local government has attempted to remedy this situation by requiring public access easements along private beaches as a condition to development approval. The question of who should pay for this access and what, if any, cost-sharing arrangements should be made have yet to be resolved.

The most acute, and perhaps insoluable problem relating to shoreline access, involves the lack of boat launching facilities, particularly those with access to the excellent Delaware Bay fishing waters. This problem arises not because of a lack of desire to provide them, but because of an almost complete lack of fast land sites within a reasonable distance of the Bay and adjacent to deep water. The lower Delaware Bay Coast is characterized by broad marshes adjacent to all of its tidal rivers. Development of launching facilities would require extensive wetlands filling in order to construct ramps and parking lots. These activities are contrary to the Wetlands Act. As yet, suitable sites have not been located. However, given the characteristics of the coast there are certainly insufficient possible locations to satisfy present demand.

Most of the preceding discussion dealt with problems associated with development of the shoreline and the associated problems of physical and visual degradation of the resource, as well as the closing off of the shoreline to possible <u>future</u> public use and enjoyment. However, the provisions of the Coastal Zone Management Act dealing with shoreline access are concerned with the provision of public access to <u>existing public shorelines</u>. Delaware is fortunate,

however, that 72 percent of the Atlantic beaches is either owned outright by public agencies or the public possesses perpetual easements to them. Access to this public shoreline is not prevented by intervening private development as it is in many states.

Those public beaches backed by private development are characterized by numerous public rights-of-way dead-ending at the dune which provide ample access for the public.

Moreover, access is provided to all other public shorelines, and furthermore, the specter of private development restricting access to these shores or the Atlantic beaches does not exist. Nonetheless, the ever-growing popularity of the beaches and other shorelines compels a close watch on the relationship between the demand for the resource and the ability to get to it. The primary means for monitoring the supply and the demand for shoreline access is the State Comprehensive Outdoor Recreation Planning process. (SCORP)

Other shoreline access and protection problems and issues are discussed in Sections 5.B.1. (Public Lands) and 5.B.2. (Natural Areas).

A map showing all publicly owned lands and wetlands adjoining the State's tidal waters, as well as those shores where the public has a right of use, is contained at the end of this subsection. Working Paper No. 8 contains a description of each area which includes, as appropriate, the size of the area; parking capacity; launching ramps; sanitary facilities; natural, historic, and aesthetic assets; agency plans for increasing access; and constraints on additional public access.

GENERAL CMP POLICIES FOR BEACH MANAGEMENT

Beach Erosion Control

1. THE PUBLIC AND PRIVATE BEACHES OF THE STATE SHALL BE PRESERVED, PROTECTED, AND ENHANCED TO PREVENT THEIR DESTRUCTION AND DESPOLIATION.

This policy is a cornerstone of the CMP. Numerous studies, reports, task forces, committees, and governmental agencies have recognized the value of Delaware's beaches and the need for their protection. The value and vulnerability of the State's beaches were recognized early in the development of the CMP. The program contracted with the University of Delaware for two studies of coastal processes and their effects on beaches and shorefront development. One report, entitled Delaware's Changing Shoreline,

described the long-term geological processes causing the coast to retreat landward. The second report, entitled Coastal Storm Damage - 1923-1974, examined particular storms, notably those occurring in 1962 and 1974, and described the effects of storm induced flooding and erosion on a community-by-community basis. Both studies documented the need for managing the beach/dune system as well as the consequences of not doing so.

The CMP has also devoted three editions of a newsletter, the "NEWS", to various aspects of coastal dynamics. The Governor, under the auspices of the CMP, has also convened a Workshop on the Management of Shoreline Erosion and Flood Prone Areas. The purpose of the workshop was to focus public attention on those problems and to discuss the physical and fiscal constraints of various remedies, as well as management options. Proceedings of the workshop were published in August, 1978. Most recently, the CMP has undertaken the development of Working Paper No. 8, Beach Erosion Control and Shoreline Access Planning, which assesses in detail beach erosion and access problems and solutions in Delaware.

The words "preserve, protect, and enhance" can be interpreted in several ways depending on one's point of view. Beachfront property owners often interpret these words to mean that it is the government's responsibility to take whatever measures are necessary to prevent beach erosion and protect private investment. Others may interpret these words as requirement that the State should prohibit further beachfront construction or reconstruction.

The policies below do not conform to either interpretation. For the State to assume the responsibility for beach and property protection would be too expensive and futile in the long run and would raise questions of tax payer equity. To prohibit construction on lots which were created prior to the Beach Preservation Act and which lie wholly or largely seaward of the building line would raise the constitutional question of taking of property without just compensation. The CMP acknowledges the legal, monetary, and practical limits to beach protection and the policies that follow elaborate on how the State intends to deal with them.

Beach and Shoreline Access

2. PUBLICLY OWNED BEACHES AND SHORELINES SHALL BE MANAGED AND MAINTAINED TO ASSURE ADEQUATE AND CONTINUED PUBLIC ACCESS TO THESE AREAS WITHIN THE CARRYING CAPACITY OF THE RESOURCE.

SPECIFIC CMP POLICIES FOR BEACH MANAGEMENT

Beach Erosion Control

3. THE SANDY SHORES AND DUNES OF THE DELAWARE BAY AND THE ATLANTIC OCEAN SHALL COMPRISE THE BEACHES MANAGED

PURSUANT TO THE CMP. BEACHES ARE THOSE PORTIONS OF THE SHORE WHICH EXTEND FROM THE MEAN HIGH WATER MARK INLAND 1,000 FEET, OR TO A ROADWAY FOR AUTOMOBILES, WHICHEVER IS CLOSER. IN ADDITION TO THE BEACH, THE AREA REGULATED SHALL EXTEND SEAWARD A DISTANCE NECESSARY TO CONTROL ANY ACTIVITY WHICH MAY FOSTER BEACH OR DUNE EROSION.

This policy identifies which beaches and adjacent areas are subject to regulatory control. Although the State has many miles of inland shoreline, research conducted on behalf of the CMP by the University of Delaware (Delaware's Changing Shoreline, Technical Report #1) demonstrates that significant shoreline erosion only occurs along the Delaware Bay and Atlantic Ocean, and therefore, regulatory control for erosion purposes is necessary only in these areas.

The area subject to regulatory control described above is governed by two Delaware statutes and the regulations adopted pursuant thereto. The lands landward of the high water mark are regulated by the Beach Preservation Act, as are structures or activities which cross that mark. Lands seaward of the high water line are regulated by the Underwater Lands Act. This act and its regulations allow for consideration of the effects any structure or activity may have on the beach. The Beach Preservation Act, for example, does not regulate offshore breakwaters even though these structures may cause beach erosion. Both of these statutes are administered by DNREC, albeit by different divisions. DNREC, therefore, possesses the necessary legal authority to regulate all activities, structures, or uses which may affect beach preservation, protection, or enhancement. Regardless of the statute governing a particular activity, structure, or use the policies contained in this subsection shall be the basis upon which the permit decisions are made.

4. EXCEPT AS NOTED IN POLICY NO. 6, NO NEW CONSTRUCTION, RECONSTRUCTION, OR OTHER ACTIVITY ADVERSELY AFFECTING BEACHES AND DUNES SEAWARD OF THE BUILDING LINE, AS ESTABLISHED BY POLICY NO. 7, SHALL BE PERMITTED.

5. NO PERMIT SHALL BE GRANTED FOR ANY BUILDING OR ASSOCIATED STRUCTURE, OTHER THAN DUNE CROSSOVERS, ON A LOT CREATED AFTER MAY 6, 1974 WHICH DOES NOT CONTAIN SUFFICIENT LAND AREA TO ALLOW CONSTRUCTION OF THE BUILDING AND ASSOCIATED STRUCTURES ENTIRELY LANDWARD OF THE BUILDING LINE.

6. IN THOSE CASES WHERE EXISTING LOTS ARE OF SUCH SIZE AND SHAPE TO PRECLUDE THE ERECTION OF A BUILDING WHOLLY LANDWARD OF THE BUILDING LINE, SUCH BUILDINGS MAY BE PERMITTED PROVIDED THAT:

5.A.2.

(1) THE BUILDING, INCLUDING ITS SEWERAGE SYSTEM, IS CAPABLE OF WITHSTANDING THE NATURAL FORCES AND CONDITIONS WHICH MAY BE EXPECTED DURING THE DESIGN STORM; AND

(2) THOSE MEASURES ARE TAKEN WHICH ARE NECESSARY TO PROTECT ADJACENT PROPERTIES FROM EROSION OR FLOODING WHICH MAY BE INDUCED BY THE PRESENCE OF THE BUILDING.

B. IN THOSE CASES WHERE STRUCTURES, OTHER THAN BUILDINGS, ARE PROPOSED, SUCH STRUCTURES MAY BE PERMITTED PROVIDED THAT:

(1) THE STRUCTURES REQUIRES A BEACHFRONT LOCATION TO CARRY OUT ITS INTENDED PURPOSE;

(2) ALL SUCH STRUCTURES SHALL BE CAPABLE OF WITHSTANDING THE NATURAL FORCES AND CONDITIONS WHICH MAY BE EXPECTED DURING THE DESIGN STORM; AND

(3) THE STRUCTURE SHALL NOT CAUSE INCREASED EROSION OR FLOODING POTENTIAL ON ADJACENT BEACHES OR PROPERTY; OR, WHEN STRUCTURES MAY CAUSE ADVERSE EFFECTS ON ADJACENT BEACHES OR PROPERTY, THOSE MEASURES DESIGNED TO MITIGATE THESE ADVERSE EFFECTS SHALL BE REQUIRED.

Policy Numbers Four through Six form the backbone of the CMP beach efforts. Experience with and research into coastal erosion and storm damage has pointed to a number of causes of beach related problems. Those problems result primarily from destruction or alteration of natural protective barriers to storm waves and interference with littoral transport processes. In order to properly manage beaches, those actions having adverse effects on them must be controlled.

Prior to State control of the beaches, the underlying cause of many of the problems facing the shoreline was the subdivision of beachland in such a manner that created lots located on and seaward of the dune. Construction on such lots, of course, altered or destroyed the dune and increased the likelihood of flooding and beach erosion on such properties as well as adjacent properties. Once such lots are created, there are legal questions whether construction can be prohibited. There is, however, substantial judicial precedent for the establishment of setbacks and other regulatory controls which prevent conditions that may be injurious to the public health, safety, and general welfare. Recognizing this, the CMP has established a policy to break the chain of events which has led to destruction of the dune.

A problem arises, however, regarding construction on lots which do not contain adequate room landward of the building line for erection of structures and which were created prior to the establishment of the State regulatory controls If such cases

involve new construction or reconstruction of buildings, the CMP policy requires measures to mitigate the probable adverse effects the construction may pose to adjacent beaches or property. This policy balances the interest of adjacent property owners to be secure from unreasonable dangers to life and property which can result from unregulated beachfront development, with the interests of beachfront property owners to reasonably use their property. The CMP, however, reserves the right to deny beachfront buildings and other structures when the dangers posed by them are such that mitigation of the potential impacts cannot be assured.

The Division of Soil and Water Conservation of DNREC has estimated that there are 41 lots which would definately be subject to this policy. There are approximately 20 more lots which may be subject to this policy. Of the 41 lots, 25 are located in South Bethany, 4 in Sussex Shores, 9 in Tower Shores, and 3 in Indian Beach. Of the remaining lots, 10 are in Bethany Beach and 10 are in the Dewey Beach/Rehoboth-By-The-Sea area. The remainder of the bay and ocean communities have no non-conforming lots.

7. A BUILDING LINE SHALL BE ESTABLISHED AND MAINTAINED WHICH SHALL GENERALLY PARALLEL THE COAST AND APPROXIMATE THE LANDWARD TOE OF THE PRIMARY COASTAL DUNE. WHERE THE PRIMARY COASTAL DUNE DOES NOT EXIST OR ONLY PARTIALLY EXISTS, THE LANDWARD TOE WILL BE APPROXIMATED BY EXTRAPOLATING A LINE BETWEEN EXISTING PORTIONS OF THE LANDWARD TOE OF THE DUNE, EXCEPT WHERE SUPERSEDED BY A PUBLIC ROADWAY FOR THE USE OF AUTOMOBILES. IN THOSE AREAS, THE EASTERN BOUNDARY OF THE ROADWAY SHALL BE THE BUILDING LINE.

This policy establishes the seaward limit of construction except in those instances noted in Policy 6. The establishment and maintenance of the building line is the responsibility of the Delaware Department of Natural Resources and Environmental Control (DNREC), pursuant to its regulations.

In August 1978 the CMP proposed certain changes to the Regulations Governing Beach Protection and the Use of Beaches. Among those changes was a proposal to revise the definition of the building line. The present definition, which uses the landward toe of the dune, is imprecise and, therefore, open to dispute. The proposed definition would have used a distance 100 feet landward of the seaward 11 foot contour as the building line along the Atlantic coast and 75 feet landward of the 9 foot contour along the Delaware Bay. This line would also have been surveyed by the State and referenced to the State plane coordinate system. This new building line would have the advantage of being precisely determined. Moreover, it would treat everyone equally, which the present definition does not do.

At the public hearing several citizens felt that the building line should be surveyed prior to a change in the regulations, so that property owners could determine how this new building line might

affect them. Many were unclear on the location of the line and were, therefore, unable to comment intellegently on the proposal. The CMP felt that these comments had merit and have, therefore, decided not to change the regulations until a recommended building line can be surveyed and another public hearing held. Until such time as a new building line can be established (probably late in the fall of 1979) the old line shall remain in force.

8. PEDESTRIAN OR VEHICULAR ACCESS ACROSS THE PRIMARY DUNE ON ANY STATE OWNED BEACH SHALL BE PROHIBITED EXCEPT AT THOSE LOCATIONS PROVIDED BY DNREC FOR SUCH USE. MOREOVER, DAMAGE OR DESTRUCTION OF VEGETATION ON ANY STATE OWNED BEACH OR DAMAGE OR REMOVAL OF BEACH PRESERVATION WORKS INSTALLED OR MAINTAINED BY DNREC ON ANY BEACH SHALL BE PROHIBITED.

9. ACTIONS DEEMED NECESSARY BY DNREC TO PREVENT AND REPAIR DAMAGES FROM EROSION OF PUBLIC BEACHES SHALL BE TAKEN WITHIN THE LIMITS OF FUNDS MADE AVAILABLE FOR SUCH PURPOSES.

The "actions" contemplated by the policy statement include those beach protection measures discussed previously. That discussion makes it clear that there are drawbacks involved in the use of such measures. Thus, they are not always desirable, and DNREC--which has considerable practical experience with the use of beach protection methods--is given flexibility to determine when they are appropriate.

10. ACTION TO REDUCE SHORELINE RECESSION ON PRIVATE BEACHES MAY BE TAKEN BY DNREC, BUT ONLY UNDER THE FOLLOWING CONDITIONS:

    (A) WHERE DANGEROUS CONDITIONS EXIST ON ANY PRIVATELY OWNED BEACH WHICH CONSTITUTE AN EMERGENCY; OR

    (B) IN THOSE INSTANCES WHERE OWNERS OF PRIVATE BEACHES ALLOW FREE PUBLIC USE OF SUCH BEACHES IN RETURN FOR THE ASSISTANCE.

The CMP recognizes that State protection of private beaches is a subsidy to individuals that have unwisely built cottages along flood and erosion prone shorelines. Although the CMP has described the long term futility and inordinate expense of beach protection measures, the Beach Preservation Act, nevertheless, provides a fund to protect beaches in return for public use easements.

11. TO THE MAXIMUM EXTENT POSSIBLE THE FOLLOWING SYSTEM OF PRIORITIES SHALL BE UTILIZED FOR THE EXPENDITURE OF LIMITED BEACH PRESERVATION FUNDS:

    1. First priority shall be given to those beaches which suffer substantial and chronic erosion due to the presence of public navigation works;

5.A.2.

2. Second priority shall be given to those intensely used, publicly owned beaches undergoing critical erosion. This category will be subdivided further according to the degree of public use, ease of access, rate of erosion, value of the area to the economy, and possible beneficial effects protection efforts may have on downdrift Delaware beaches. Protection of private beachfront structures will not be an overriding consideration;

3. Third priority shall be given to all remaining publicly owned recreational beaches;

4. Fourth priority shall be given to intensely used, publicly accessible private beaches;

5. Fifth priority shall be given to sparsely used, publicly accessible beaches; and

6. The last priority shall be given to privately owned, restricted beaches. In fact, all beach protection funds and State disaster-related reconstruction aid shall be restricted unless and until the beaches are opened to public use.

The Delaware Beach Preservation Act establishes a $1,000,000 revolving fund for the purpose of enhancing, preserving and protecting beaches. It has been demonstrated over the years the Act has been in existence that the monies available, including federal matching funds, are not adequate to prevent beach erosion. The priority system is established to guide the Department in protecting the State's most valuable beaches.

12. ALL BONDS ISSUED FOR BEACH PRESERVATION PROJECTS SHALL NOT BE ISSUED FOR A PERIOD LONGER THAN THE EXPECTED USEFUL LIFE OF THE WORK BEING FINANCED.

Since the Beach Preservation Act was established, it has been standard practice to issue 20-year bonds for beach protection projects. Experience has shown, however, that many of these projects, particularly beach nourishment, have useful lives considerably less than this. Sound financial practice dictates the debt service on any capital project should be retired prior to the expiration of the project's useful life. Thus, the CMP requires that no bonds be issued if the project's expected useful life does not at least match the period required to repay the debt.

13. NON-STRUCTURAL EROSION CONTROL METHODS ARE PREFERRED OVER STRUCTURES AND ARE, THEREFORE, ENCOURAGED BY THE CMP.

In order to develop a procedure for handling erosion effects, the literature was surveyed to determine the adequacy of procedures and methods used in the past and to establish future management priorities. The beginning of this subsection described the advantages and disadvantages associated with particular erosion control techniques. This research shows that non-structural beach management methods are to be preferred. This preference is based upon the following findings:

a) The dynamic stability of the coastline is dependent upon the ability of natural processes to continue uninterrupted. Preserving natural buffering capabilities afforded by the beach/dune system reduces the need for costly structural "solutions" and protects downdrift areas from their erosive effects.

b) There is a need to control construction practices and building location in natural buffer areas because of the adverse effects caused by development of the dune and immediate beachfront.

c) Recent studies by the Corps of Engineers and others point to the inadequacies of structural "solutions" alone and show, in many cases, the exacerbation of erosion problems through the construction of groins, bulkheads, breakwaters, etc. Many of these problems have been observed near existing protective structures in Delaware.

These findings form the basis of the CMP procedures which is articulated in the above policies. Basically, priority is given to non-structural protection of dunes and beaches through restriction or conditioning of development along private beaches and through dune construction, stabilization and, in some cases, beach nourishment along public beaches. In defining permissible uses in this area, the protection of the natural buffering function of the beach and dune was considered most important. Moreover, the history of erosion control in Delaware, whether measured by the number of projects or monies expended, shows that emphasis has been and will continue to be placed upon non-structural techniques. Structural measures to lessen the effects of erosion on beaches or upland property are only deemed appropriate in densely developed areas of significant value to the public and where the dune has been irrevocably lost. All such cases, however, are to be reviewed individually to ensure that adverse effects on other areas are minimized.

5.A.2.

Beach And Shoreline Access

14. THE SUPPLY AND DEMAND FOR ACCESS TO DELAWARE'S PUBLIC BEACHES AND OTHER SHORELINES SHALL BE STUDIED PERIODICALLY THROUGH THE STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLANNING PROCESS(SCORP). WHEN THE NEED FOR ADDITIONAL ACCESS FACILITIES TO THESE PUBLIC BEACHES AND SHORELINES, BEYOND THOSE ALREADY IN PLACE, THE STATE WILL UNDERTAKE EFFORTS TO PROVIDE SUCH ACCESS AS LONG AS IT CAN BE DONE IN A MANNER CONSISTENT WITH THE PURPOSES FOR WHICH THESE LANDS WERE SET ASIDE.

Delaware is fortuate to own a substantial amount of shore and beach land, particularly along the Atlantic coast, which is readily accessible to the public. There is, at present, plenty of publicly accessible beachfront in Delaware. Growth in public usage of these lands, however, has been increasing yearly and there may come a time when the demand for access facilities, particularly parking and sanitation, will approach the existing and planned supply. The policy recognizes this possibility and provides for continued monitoring of beach and shore use, so that additional access areas can be provided in advance of the need. For a detailed assessment of access to all public shorelines in Delaware, the reader is referred to Working Paper No. 8, Beach Erosion Control and Shoreline Access Planning.

Other policies which act to protect public shorelines and beaches and access thereto may be found in Sections 5.B.1. (Public Lands) and 5.B.2. (Natural Areas).

AUTHORITIES

Management of the barrier beaches in Delaware is vested in DNREC pursuant to Title 7, Chapter 68, of the Delaware Code (Beach Preservation Act of 1972) and the regulation adopted thereunder. During development of the CMP it became evident that the Regulations Governing Beach Protection and the Use of Beaches needed to be modified to provide the predictability required for federal approval of the CMP. As mentioned in the discussion under Policy 7, these proposed changes will not take effect until after the new building line has been surveyed and another public hearing is held. Although the proposed regulation would be an improvement over the present one, it is the opinion of the Attorney General's Office that the present regulation contains sufficient authority to enforce the policies in the CMP. Moreover, the Secretary of DNREC and the Director of OMBP have signed a Memorandum of Understanding which states that DNREC will interpret the present regulation in a manner consistent with CMP policy until such time that the new regulation is adopted.

5.A.2.

Working Paper No. 8, Beach Erosion Control and Shoreline Access Planning, contains a copy of the proposed regulations that went to public hearing in August 1978. Although this regulation will be modified as a result of the building line survey and the hearing officers report, it should provide interested persons with an idea of the kind of changes contemplated.

Statutes which help the State acquire and protect access to public beaches and shorelines include the Nature Preserves Act (Title 7, Chapter 73 of the Delaware Code), Title 7, Chapter 45 (Public Lands), and Title 7, Chapter 47 (State Parks). For the most part these statutes and the policies derived from them serve other purposes beside shoreline access and are more appropriately discussed in Subsections on Natural Areas (5.B.2.) and Public Lands (5.B.1.). Insofar as these policies provide and protect access to public shorelines, they have been incorporated here by reference. Working Paper No. 8 contains a detailed discussion of the applicable policies and authorities.

In addition to these laws, several other State statutes used to implement the CMP by protecting various natural resources also help protect the beaches and shorelines. In this regard, the Delaware Environmental Protection Act, the Delaware Wetlands Act, and the Delaware Coastal Zone Act are particularly important. These statutes are discussed elsewhere in the document and in Appendix E (Legal Authorities and Organization).

AUTHORITIES TABLE TWO

Policy Number	Authority
1	7 Delaware Code 6801, 6803, and 6810
2	7 Delaware Code 4701(c)
3	7 Delaware Code 6803(c); 7 Delaware Code 6151; Regulations Governing the Use of Water Resources and Public Subaqueous Lands, Regulation IV, Section 1.
4	Regulations Governing Beach Protection and the Use of Water Resources and Public Subaqueous Lands, Regulation IV, Section 4.
5	Regulations Governing Beach Protection and the Use of Beaches, Section 3.01.
6	Regulations Governing Beach Protection and the Use of Beaches, Sections 3.01, 4.01, 4.02

5.A.2.

Policy Number	Authority
	Regulations Governing the Use of Water Resources and Public Subaqueous Lands, Regulation IV, Section 4
7	Regulations Governing Beach Protection and the Use of Beaches, Section 1.
8	7 Delaware Code 6803(c) and 6803(d); Regulations Governing Beach Protection and the Use of Beaches Section 3.02
9	7 Delaware Code 6803(b) and 6806
10	7 Delaware Code 6801, 6803(f), 6806, and 6810.
11	Executive Order Number 61
12	Executive Order Number 61
13	Executive Order Number 61
14	7 Delaware Code 4701(c); Executive Order Number 61

Pending revision of the Regulations Governing Beach Protection and the Use of Beaches enforcement of the policies contained herein have been assured through a Memorandum of Understanding between the Secretary of the Department of Natural Resources and Environmental Control and the Director of the Office of Management, Budget, and Planning.

5.A.2.

Selected References: Beaches

1. Barrier Islands and Beaches: Technical Proceedings of the 1976 Barrier Islands Workshop, The Conservation Foundation, May 1976.

2. Beach Erosion: Causes, Processes, and Remedial Measures, Dr. Robert G. Dean, CRC Critical Reviews in Environmental Control, Sept. 1976. (Article contains extensive biblography).

3. Delaware Coast Beach Erosion Control and Hurricane Protection, General Design Memorandum, Phase II, Philadelphia District, Corps of Engineers, June 1975. Also Supplement No. 1. Feb. 1976.

4. Delaware's Changing Shoreline, Technical Report Number 1, Delaware Coastal Zone Management Program, May 1976. (Report contains extensive bibliography).

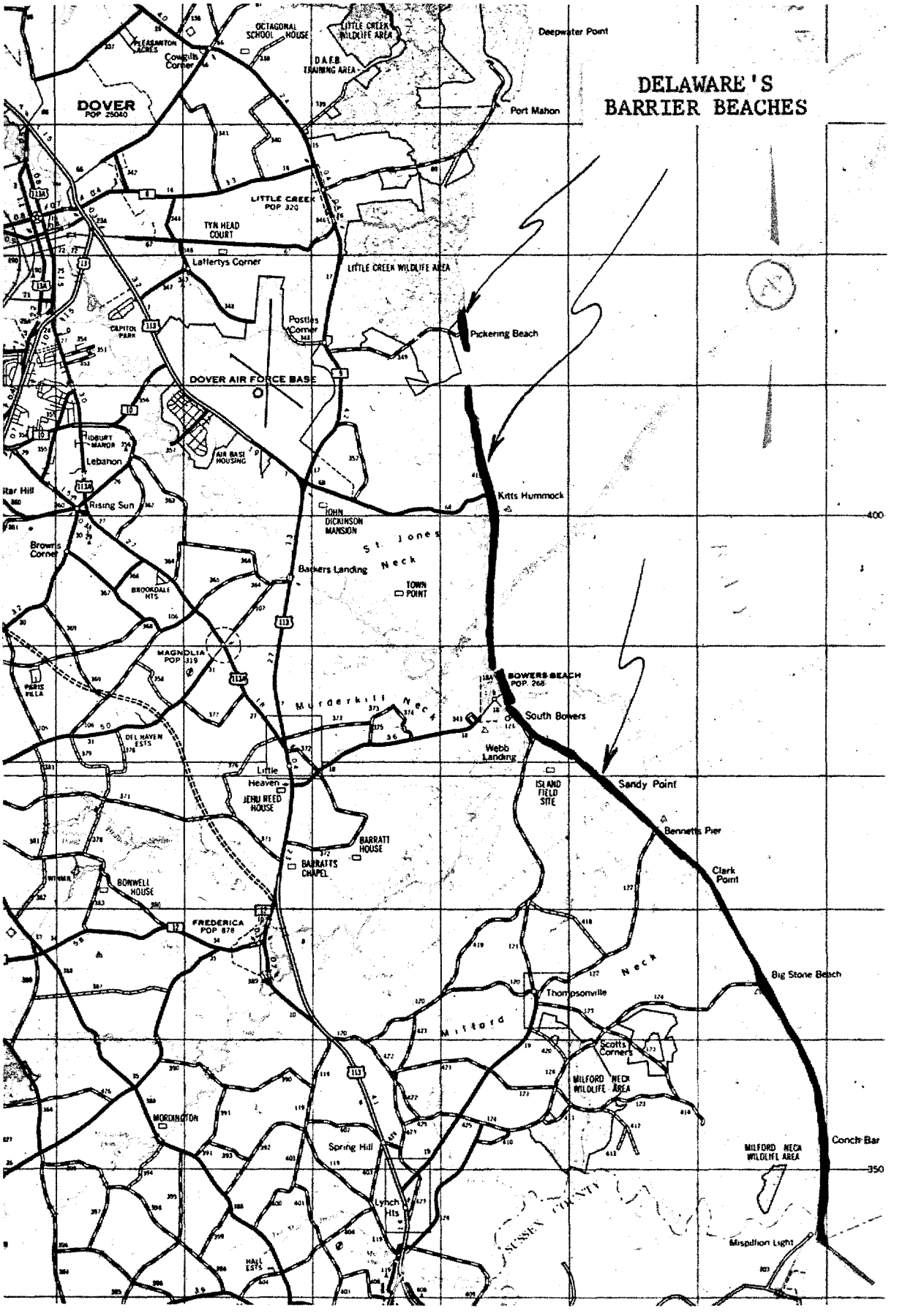
5. Erosion Insurance Study, Erosion Hazard Management Subcommittee, Great Lakes Basin Commission Standing Committee on Coastal Zone Management, June 1978.

6. The Ocean's Reach: Digest of a Workshop on Identifying Coastal Flood Hazard Areas and Associated Risk Zones, New England River Basins Commission, Feb. 1976.

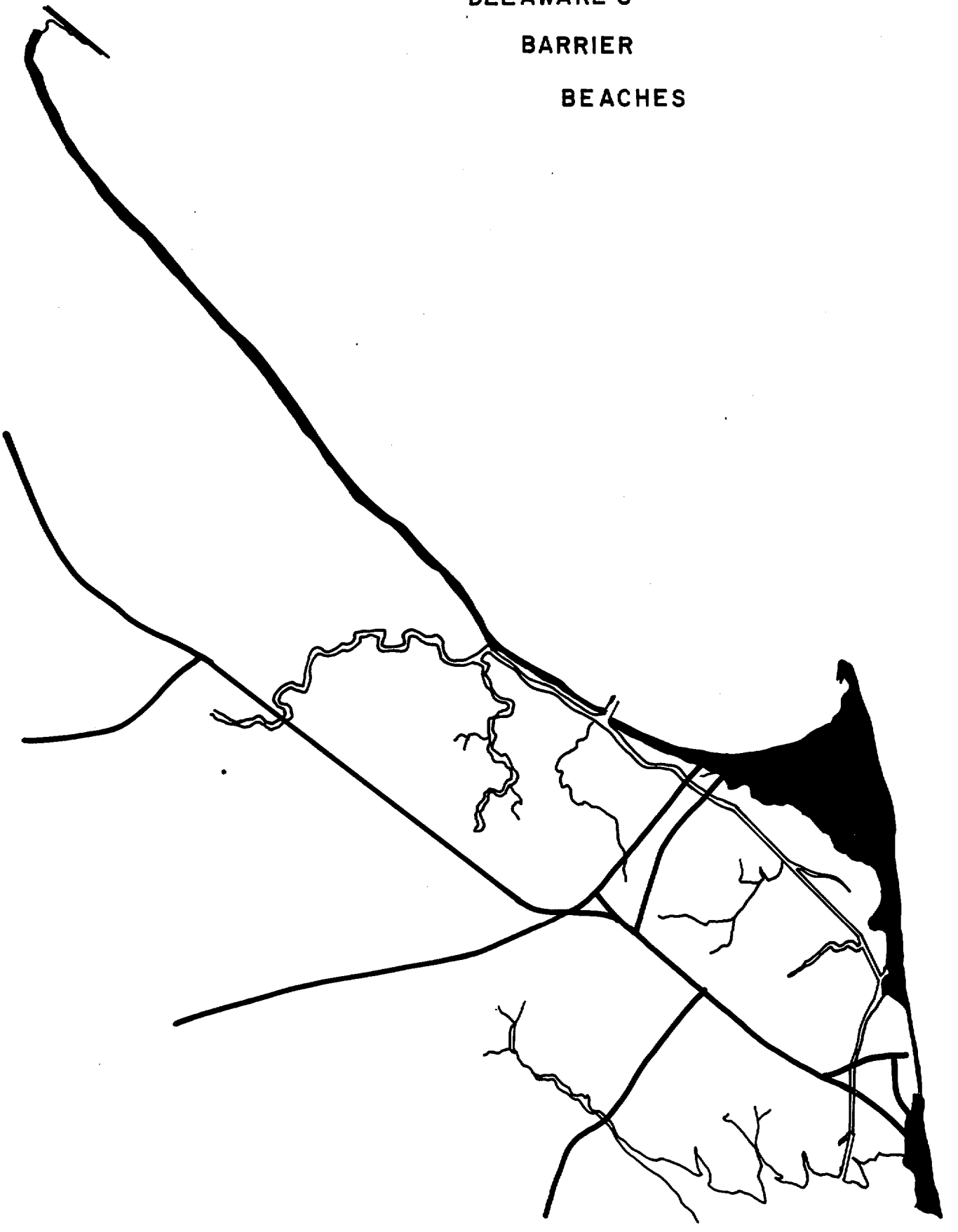
7. Proceedings of the National Conference on Coastal Erosion, Federal Insurance Administration, National Flood Insurance Program, July 1977.

8. Shore Protection Manual, U.S. Army Corps of Engineers, Coastal Engineering Research Center, 3 Vols., third edition, 1977. (Report Contains extensive bibliography).

9. Waves and Beaches: The Dynamics of the Ocean Surface, Willard Bascom, Anchor Books, Doubleday and Co., New York, 1964.


DELAWARE'S
BARRIER BEACHES
Deepwater Point
Port Mahon
DOVER
POP 25040
OCTAGONAL SCHOOL HOUSE
LITTLE CREEK WILDLIFE AREA
D.A.E.B. TRAINING AREA
PLEASANTON ACRES
Cowgills Corner
LITTLE CREEK
POP 320
TYN HEAD COURT
Laffertys Corner
LITTLE CREEK WILDLIFE AREA
Postles Corner
Pickering Beach
CAPITOL PARK
DOVER AIR FORCE BASE
AIR BASE HOUSING
HOBURT MANOR
Lebanon
Star Hill
Rising Sun
Kitts Hummock
JOHN DICKINSON MANSION
St. Jones Neck
Browns Corner
Barkers Landing
TOWN POINT
BROOKDALE HTS
MAGNOLIA
POP 319
BOWERS BEACH
POP 265
Murderkill Neck
South Bowers
Webb Landing
DEL HAVEN ESTS
Little Heaven
JEHU REED HOUSE
ISLAND FIELD SITE
Sandy Point
Bennetts Pier
BARRATT HOUSE
BARRATTS CHAPEL
Clark Point
BONWELL HOUSE
FREDERICA
POP 878
Big Stone Beach
Thompsonville
Milford Neck
Scotts Corners
MILFORD NECK WILDLIFE AREA
MORDINGTON
Spring Hill
Conch Bar
MILFORD NECK WILDLIFE AREA
Lynch Hts
SUSSEX COUNTY
Mispillion Light
HALL ESTS
400
350

DELAWARE'S BARRIER BEACHES



DELAWARE'S
BARRIERS
BEACHES

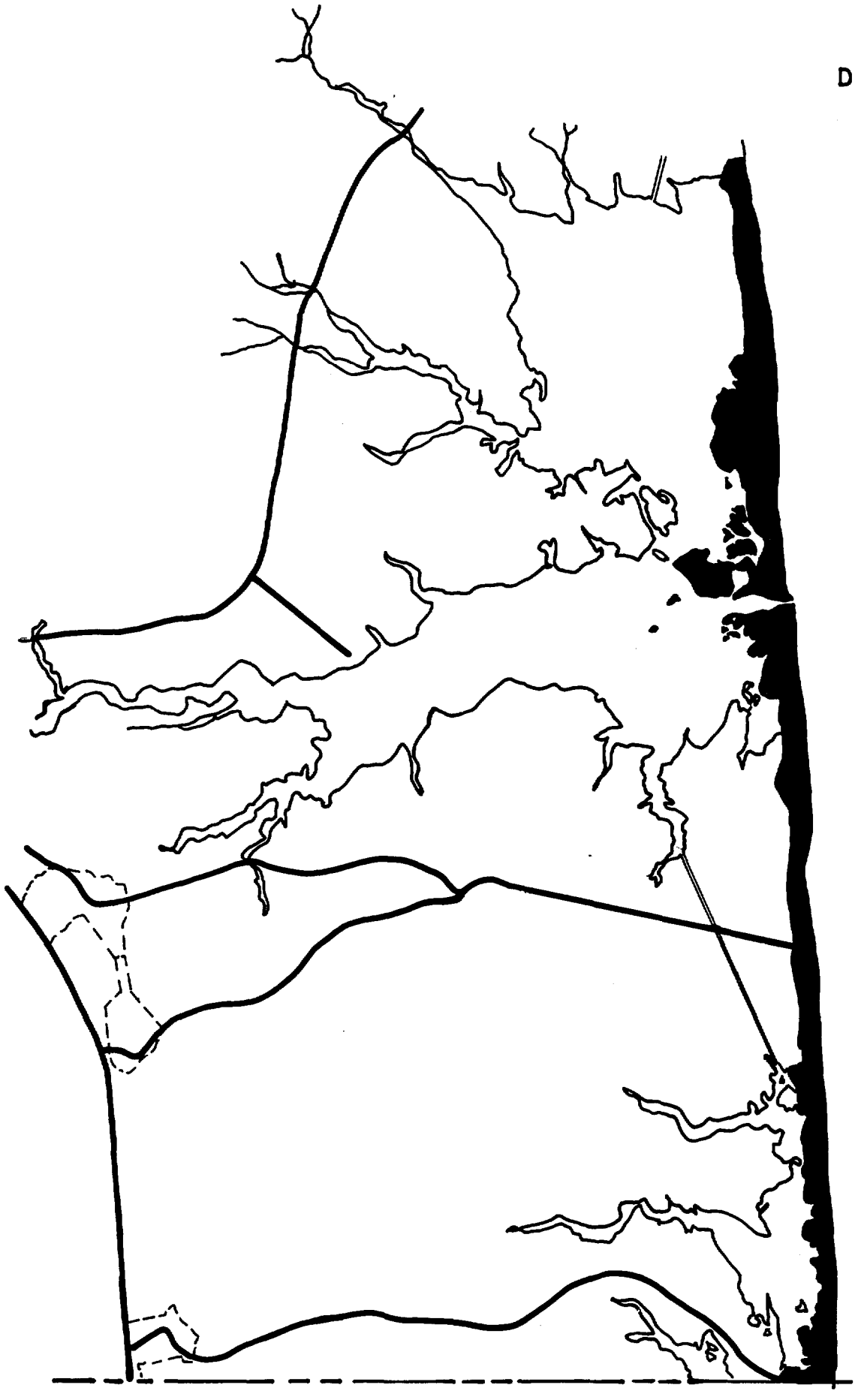
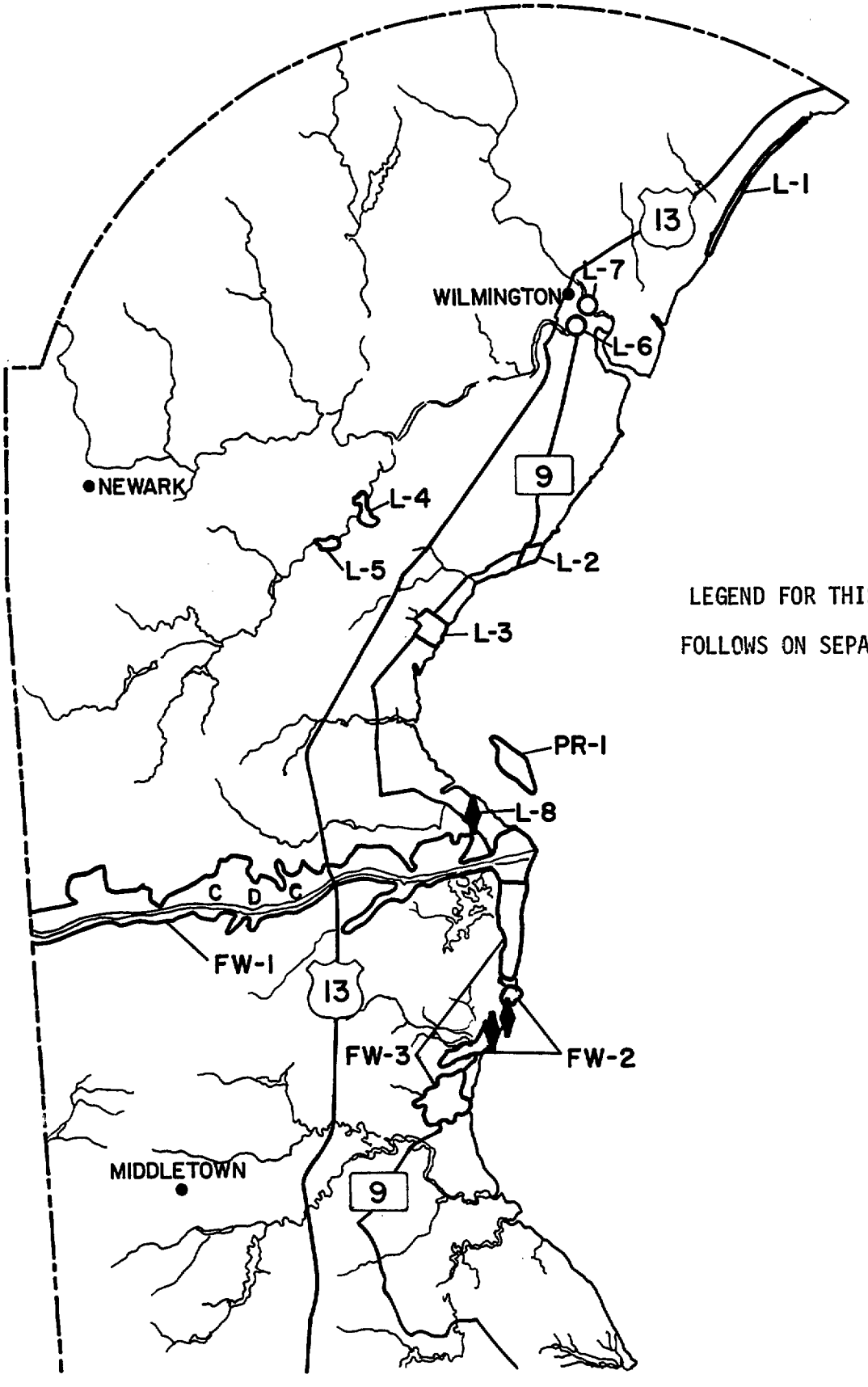


FIGURE I

PUBLICLY OWNED OR MANAGED LANDS
PROVIDING PUBLIC ACCESS TO TIDAL WATERS



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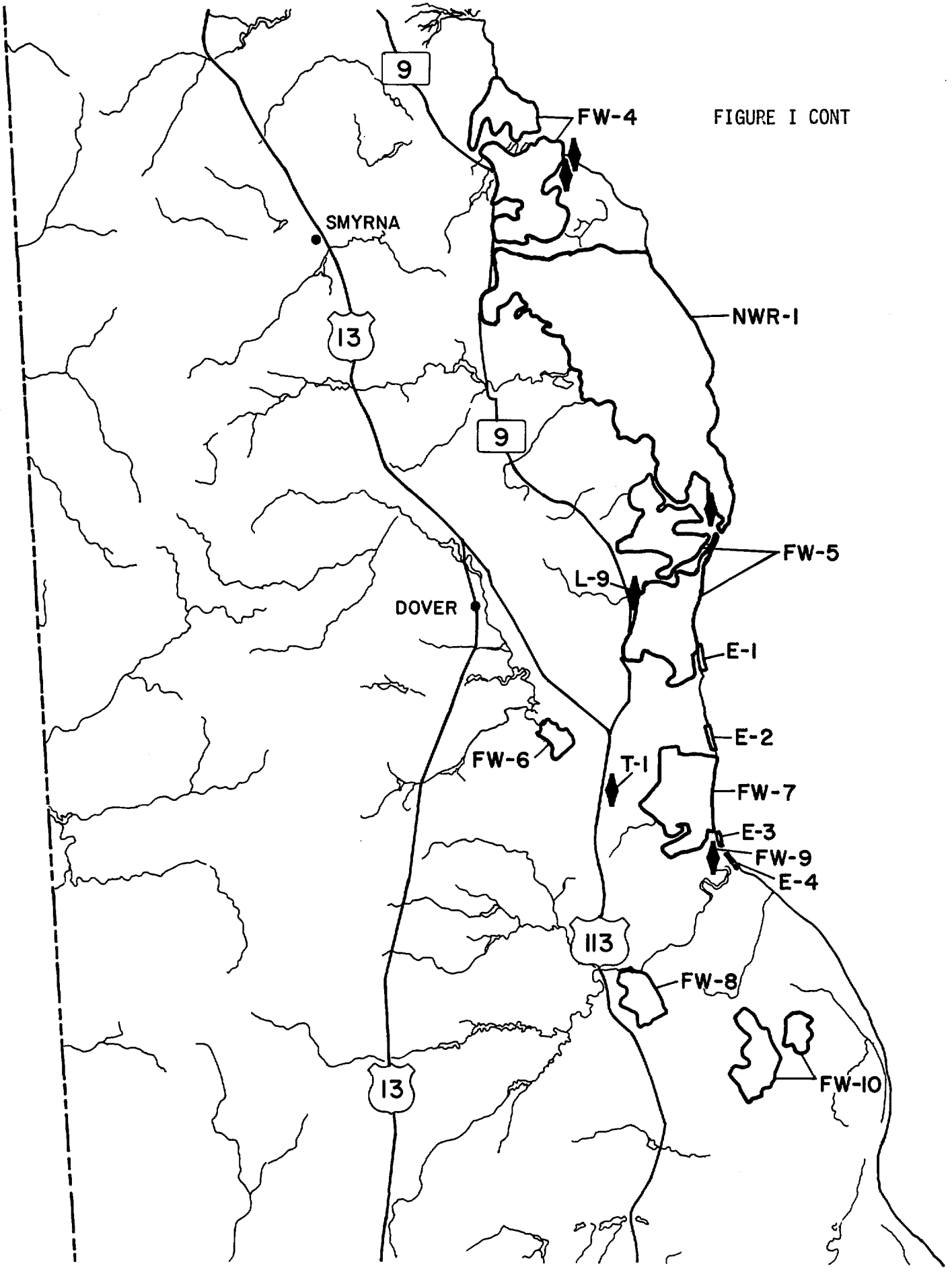

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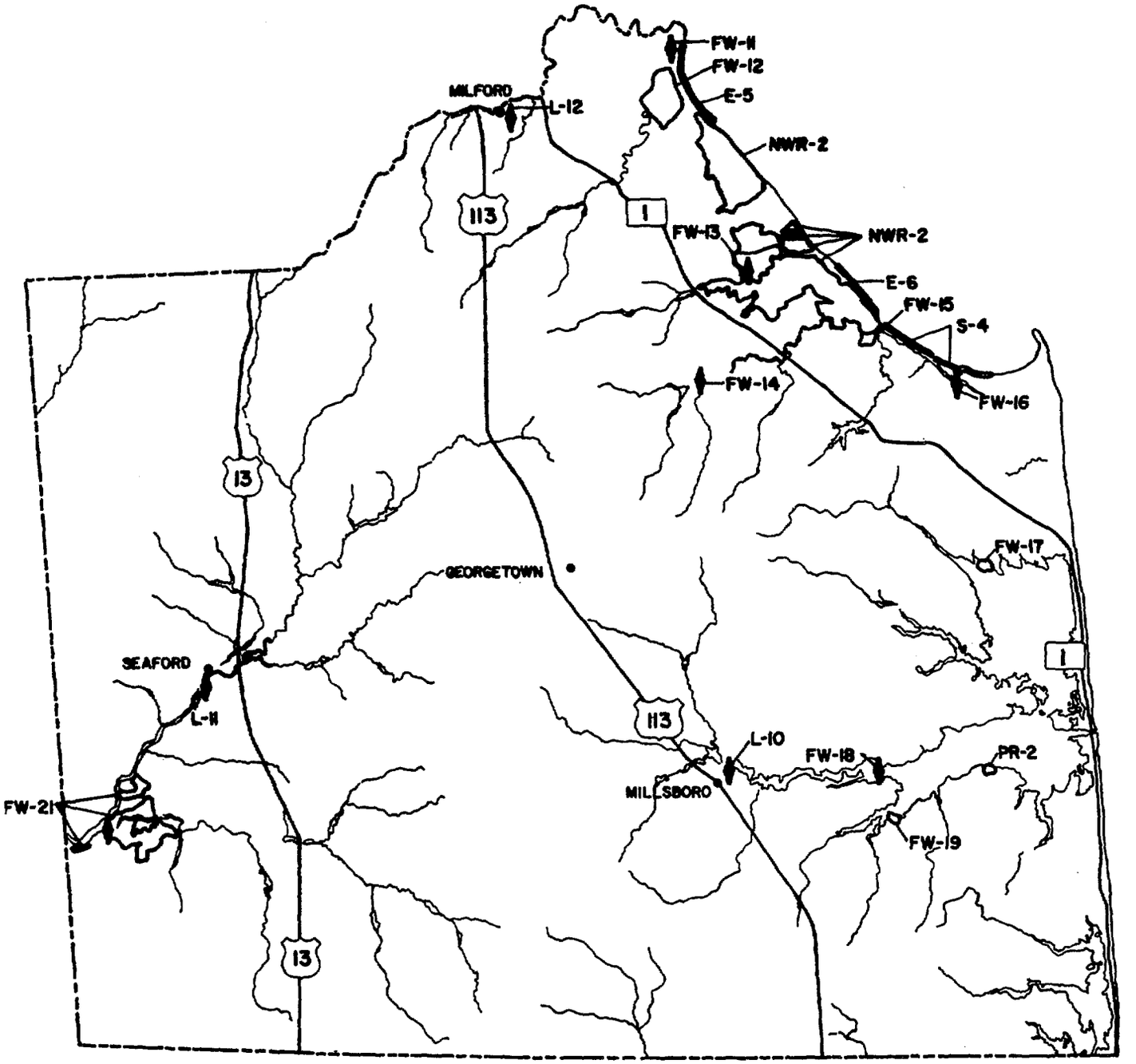

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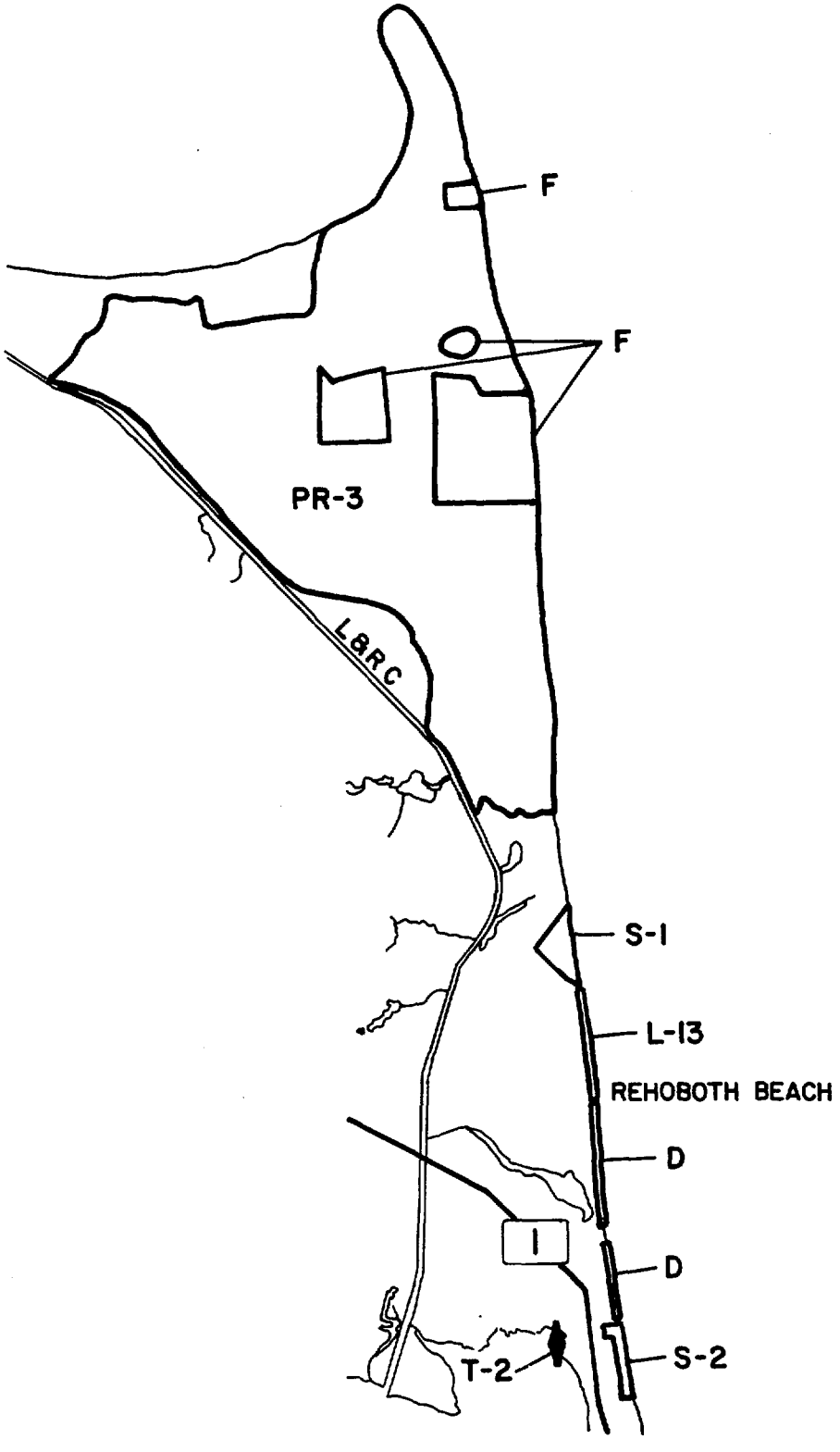

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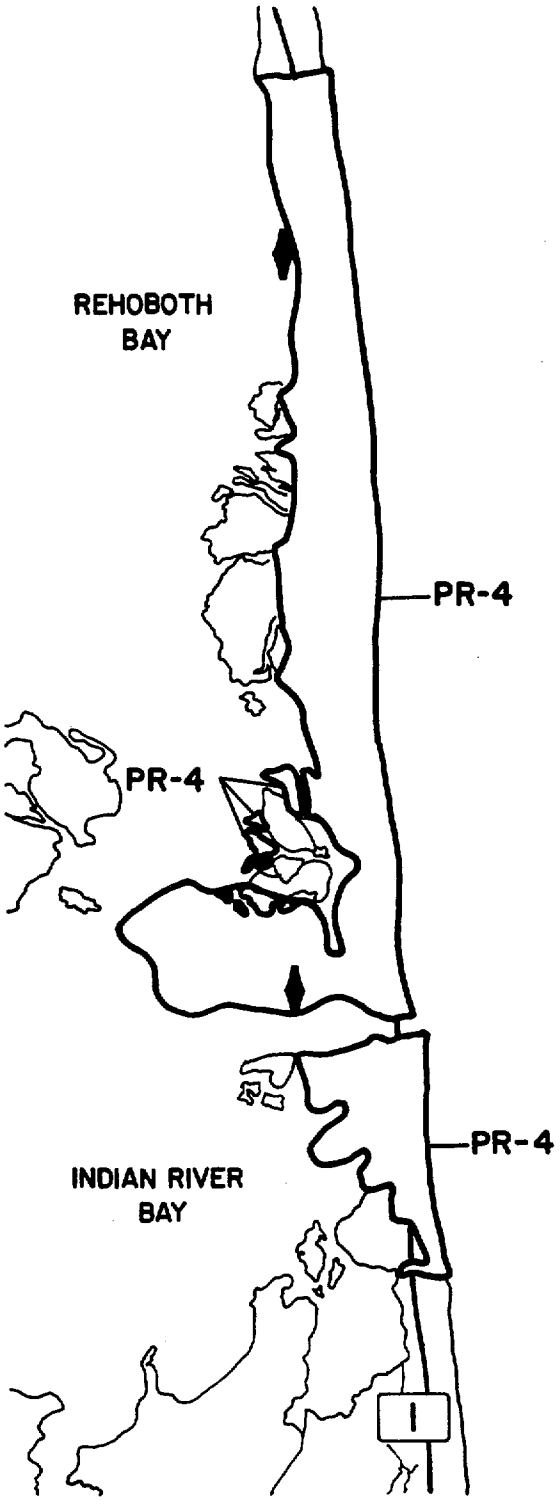

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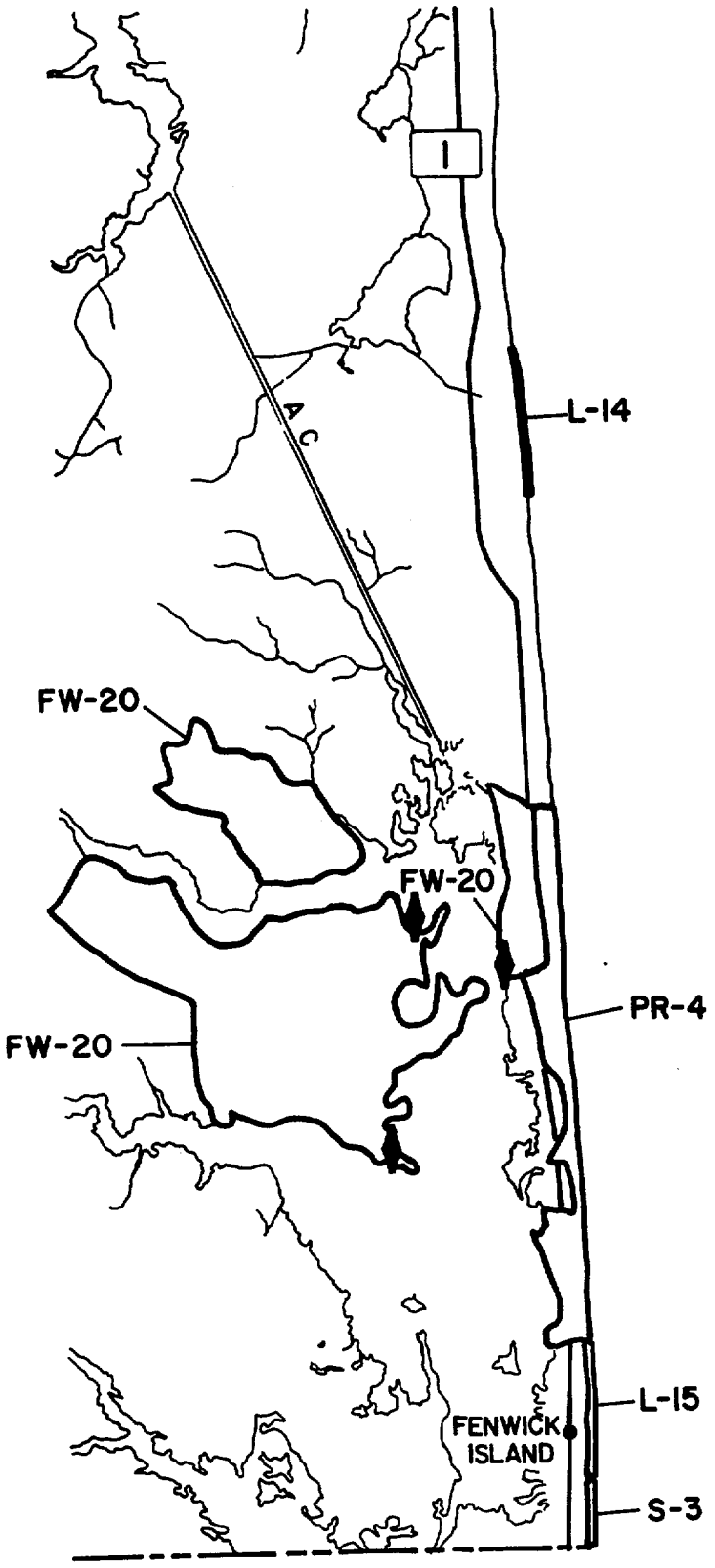

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Legend of Figure # 1

DIVISION OF FISH AND WILDLIFE, DNREC

FW-1	Chesapeake and Delaware Canal
FW-2	Augustine Fishing Area
FW-3	Augustine Wildlife Area
FW-4	Woodland Beach Wildlife Area
FW-5	Little Creek Wildlife Area/ Port Mahon
FW-6	Roberts Tract
FW-7	Lofland and Buckaloo Tracts
FW-8	Penuel - Elfreth Bamberger Tracts
FW-9	Bowers Access Area
FW-10	Milford Neck Wildlife Area
FW-11	Cedar Creek Access Area
FW-12	Fitzgerald - Anderson/ Stokes Tract
FW-13	Primehook Wildlife Area
FW-14	Milton Access Area
FW-15	Oyster Rocks
FW-16	Lewes Access Area
FW-17	Love Creek Access Area
FW-18	Rosedale Access Area
FW-19	Pepper Creek Access Area
FW-20	Assawoman Wildlife Area
FW-21	Nanticoke Wildlife Area

DEPARTMENT OF TRANSPORTATION

T-1	Bakers Landing Access Area
T-2	Dagsworthy Street Access Area

DIVISION OF PARKS AND RECREATION, DNREC

PR-1	Fort Delaware State Park
PR-2	Holts Landing State Park
PR-3	Cape Henlopen State Park
PR-4	Delaware Seashore State Park

OTHER STATE BEACHES

S-1	Deauville Beach
S-2	Dewey Beach
S-3	Fenwick Island
S-4	Lewes Beach and Beach Plum Island

BEACHES DEDICATED TO PUBLIC USE

D	Rehoboth/ Dewey Beach

BEACHES WITH PUBLIC USE EASEMENTS

E-1	Pickering Beach
E-2	Kitts Hummock
E-3	Bowers Beach
E-4	South Bowers
E-5	Slaughter Beach
E-6	Broadkill Beach

U.S.FISH AND WILDLIFE SERVICE

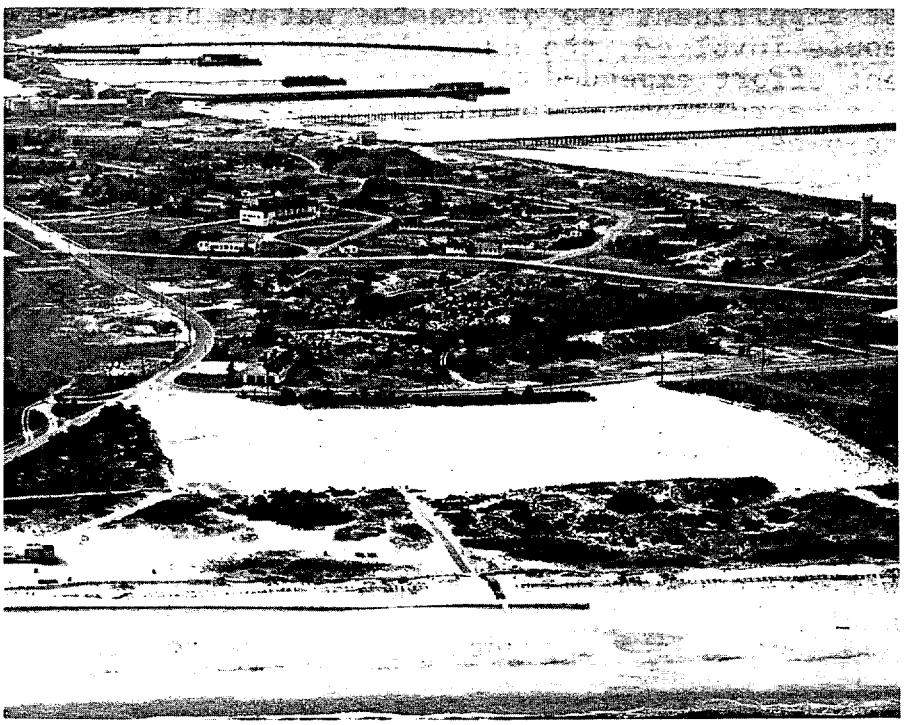
NWR-1	Bombay Hook National Wildlife Refuge
NWR-2	Primehook National Wildlife Refuge

DEPARTMENT OF DEFENSE

F-	U.S. Military Reservation

LOCAL GOVERNMENT

L-1	Fox Point Park
L-2	Battery Park
L-3	Ommelanden Park
L-4	Coventry Ridge Park
L-5	Lewden Green
L-6	Christina Park
L-7	Kirkwood Park
L-8	Delaware City Access Area
L-9	Little Creek Access Area
L-10	Millsboro Access Area
L-11	Seaford Access Area
L-12	Milford
L-13	Rehoboth Beach
L-14	Bethany Beach
L-15	Fenwick Island



COASTAL WATERS

SIGNIFICANCE OF COASTAL WATERS

The significance of coastal waters to Delaware and the Coastal Management Program is underscored in the Statute which created the Program. Section 304(1) of the Coastal Zone Management Act defines the area to be managed by the Coastal Management Program to include coastal waters and land "only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters." Thus, coastal waters comprise the prominent Coastal Management Program resource and the many cross-references in this section to other sections of the document reflect the fact that concern for coastal waters dominates the Coastal Management Program.

Most of Delaware is near coastal waters, and no part of the State is farther than eight miles from tidal water. Delaware's coastal waters include the Atlantic Ocean to the three-mile limit, Delaware's portion of the Delaware River and Bay, the three Little Bays of southeastern Sussex County (Rehoboth, Indian River and Assawoman), and many tidal streams. Excluding these streams, the State's coastal waters are 493.3 square miles in area and approximately twenty percent of Delaware's area. In addition the use of non-tidal streams is also managed by the CMP because of their proximity to Coastal Waters.

The most significant use of coastal waters based upon the number of people involved, the distribution of activities, and the management effort expended to encourage and control coastal water usage is recreation. Program document sections 5.A.2. (Beaches), 5.C.5. (State-owned Coastal Recreation and Conservation Lands), and 5.D.5. (Recreation), as well as Working Paper No. 7 (The National Interest in Resources and Facilities of the Delaware Coastal Zone) and Working Paper No. 8 (Beach Erosion Control and Shoreline Access Planning), detail the significance of Delaware recreational activities dependent upon coastal water. Here it is sufficient to note that millions of people spend a great deal of time and hundreds of millions of dollars enjoying coastal swimming, fishing, boating, and surfing in Delaware each year. The State's coastal waters provide a nationally significant recreational resource and constitute an important economic asset.

Coastal waters also support the fishery. Section 5.C.3. of this report and Working Paper Number 7 elaborate on the significance of coastal waters, but a few highlights merit mention. The mixing of fresh and salt waters and the nutrients from marsh vegetation and sediments from land create a productive habitat for fish. The

National Marine Fisheries Service has estimated that "approximately two-thirds of our commercial (fishery) species are dependent upon estuarine waters that are under State control." Delaware coastal waters comprise part of the Delaware Bay Subbasin, one of the more productive fisheries in North America. Delaware coastal waters support approximately 138 species of fish and provide spawning and nursery grounds for more than 60 of these species. Many shellfish are also found in Delaware coastal waters, including oysters in upper Delaware Bay, clams in Delaware Bay and the Little Bays of southeastern Sussex County, and blue crabs in tidal streams. About 3.5 million pounds of blue crabs, worth approximately $1 million, were landed in Delaware in 1976.

In 1977, approximately 239,467,000 pounds of finfish and shellfish were harvested in the Mid-Atlantic region by domestic and foreign operators. The domestic catch had a dockside value of $69,797,000 excluding processing, marketing, transportation, and related industries. Also in 1977, approximately 4,000,000 pounds of fish were harvested from the Delaware Bay with a dockside value of approximately $2,280,000 and a total economic value in excess of $16,000,000.

Maritime commerce in the Delaware River and Bay is substantial. In 1976 there were over 94,000 trips between Philadelphia and the Ocean. These ships moved more than 110 million tons of goods, including 62 million tons of crude oil and over 33 million tons of other petroleum products. Further, 429 oil tankers and 1,055 oil barges were involved in lightering operations in the lower Bay off the southeastern Kent County coast in 1975. Finally, the Chesapeake and Delaware Canal, which connects the Chesapeake Bay to the Delaware River, is a major east coast shipping artery. In 1976 9,595 ships with 11,257,000 tons of cargo used the canal. Program document sections 5.B.4. (Port of Wilmington) and 5.D.8 (Transportation Facilities) furnish a complete discussion of the significance of maritime commerce. Section 5.D.6. (National Defense) likewise discusses the importance of coastal waters to the national security.

Municipalities and industries use coastal waters for waste disposal The generally large volume of coastal waters, as well as their typically good flushing characteristics, enable the resource to assimilate a large quantity of waste including sewage, dredge spoils, pesticides, and so on. The hundreds of permits issued for point source wastewater discharges in Delaware pursuant to the National Pollutant Discharge Elimination System (NPDES) begun in 1972 are evidence of the significance of coastal waters as a waste receptacle. Moreover, coastal waters are frequently useful for cooling or other industrial processes. An important siting criterion for electric power plants, for example, is nearby access to a large quantity of water for cooling. In Delaware the necessary quantity is invariably found in coastal locations.

Coastal waters are also significant because of the possible impact on public health. Segments of some creeks and rivers are used for public water supply and recreation. In Delaware, the Christina River, White Clay Creek, and Brandywine River all serve such purposes.

The extent of recreational use of Delaware's coastal waters indicates still another significant feature of this resource, namely its aesthetics. Indeed, the natural beauty of Delaware's coastal waters was noted more often by early explorers and settlers than its utilitarian values.

Finally, the significance of coastal waters is underscored in several other sections of the document, in particular 5.A.1. (Wetlands); 5.A.2. (Beaches); 5.A.4. (Underwater Lands and the Coastal Strip); 5.B.3. (Flood Hazard Areas); 5.D.3. (Energy Facilities); and 5.D.9. (Water Supply). To avoid repetition the interested reader is referred to those sections for further discussion of the importance of coastal waters.

PROBLEMS OF COASTAL WATERS
USE AND MANAGEMENT

The same elements that make coastal waters significant create problems with their use and management. Such problems are the inevitable consequences of conflicting uses competing for the same resource. Swimming, surfing, boating, sport fishing, commercial fishing, maritime transportation, national defense, public water supply , dredge spoil disposal, sewage disposal, industrial processing, and aesthetic enjoyment are coastal water uses which cannot always be accommodated in the same area. Some of the conflicts result from the incompatible use of space. For example, the same area cannot usually be used for both swimming and fishing, or for maritime commerce and offshore oil exploration. For the most part, however, the conflicts result because, on the one hand, of the need for very good water quality and, on the other hand, because of the degradation of water quality caused by certain uses of coastal waters.

Thus, most of the problems identified by the Coastal Management Program concern water quality. Swimmers cannot enjoy or even remain healthy in waters contaminated with sewage or gasoline spills from boats. Other recreational uses of coastal waters, such as water-skiing, are threatened by industrial or municipal waste disposal. Oil spills occurring during oil transportation, storing, or handling can be especially harmful to nearly all aquatic organisms, including valuable sport and commercial fish and shellfish. Phenols in the water taint the flesh of fish and frequently make them unacceptable for consumption, a problem noticeable in the Delaware River north of Delaware City. Even minute levels of waterborne or bottom sediment toxins can become concentrated in the tissues

of marine organisms raising contaminant levels above acceptable standards even where the quality of the water remains within acceptable parameters. They also can seriously damage beaches and the tourist industry. Dredge spoil disposal, necessitated by maritime commerce, can increase water turbidity; thereby reducing marine plant photosynthesis and the populations of organisms dependent on such plants. This activity may also introduce toxic chemicals into ground or surface waters, as well as bury benthic marine organisms. Failing septic systems or landfill leachate can contaminate drinking water and cause a variety of illnesses including dysentery, typhoid, cholera, and hepatitis. Inadequate erosion controls, common in many land clearing and construction activities, as well as some agricultural practices, aggravate pollution of coastal waters. Stormwater runoff carries sediment, oils, greases, chemicals, insecticides, fertilizers, and other materials harmful to aquatic life. Finally, high capacity water wells draw down the water table, and may permit salt water intrusion into groundwater aquifers utilized for domestic purposes. While not all of the above are significant in Delaware, both the Nation and the State have made progress in improving the water quality of our streams and other water bodies. Nonetheless, during the course of program development, the CMP has had several difficult management decisions to make regarding uses which require very good water quality and those which degrade water quality. The Program recognizes that there are three methods to deal with pollution problems: (1) prohibit the polluting activity; (2) permit the polluting activity; and (3) permit the polluting activity, but require techniques which protect water quality--such as waste water treatment and erosion control practices.

The basic coastal waters management problem is to formulate policies which combine these methods in a way which maximizes benefits from diverse uses. In particular, recreational interests, economic development interests, and--because of non-point source pollution problems--agricultural interests must be balanced and accommodated.

Specific issues which this balancing and accommodation raise include the following: ·(1) when will waste water treatment be rquired:; (2) what level of treatment will be required, i.e., when does the cost of treatment outweigh the benefits realized by such treatement; (3) when will erosion control practices be encouraged or requried for land disturbing activities; (4) does the particularly hazardous nature of oil warrant special safeguards;

(5) are special standards also needed to protect human health from contaminated drinking water, radioactive wastes, and so on; (6) should coastal waters with particularly good quality be preserved in that condition; (7) what minimal water quality standards are acceptable; (8) does the national security merit special consideration in the management of coastal waters; (9) is a mechanism needed to grant exceptions to the coastal waters management rules in special cases; (10) are new regulatory mechanisms necessary, and, if so, is a grace period appropriate; and (11) what role should local zoning authorities play in the coastal waters management scheme?

The policies below and the accompanying discussion explain how these issues are resolved and why certain approaches prevail over others.

GENERAL CMP POLICIES FOR
COASTAL WATERS MANAGEMENT

1. THE DEVELOPMENT AND UTILIZATION OF THE LAND AND WATER RESOURCES OF THE STATE SHALL BE REGULATED TO ENSURE THAT WATER RESOURCES ARE EMPLOYED FOR BENEFICIAL USES AND NOT WASTED, TO PROTECT BENEFICIAL USES OF WATER RESOURCES, AND TO ASSURE ADEQUATE WATER RESOURCES FOR THE FUTURE.

This policy is the cornerstone of the State's water quality management program as implemented by the Department of Natural Resources and Environmental Control. DNREC has the authority to establish and periodically amend standards and to issue or deny permits for uses affecting coastal waters pursuant to this policy.

2. THE WATER RESOURCES OF THE STATE SHALL BE PROTECTED FROM POLLUTION WHICH MAY THREATEN THE SAFETY AND HEALTH OF THE GENERAL PUBLIC.

3. THE COASTAL WATER RESOURCES OF THE STATE SHALL BE PROTECTED AND CONSERVED TO ASSURE CONTINUED AVAILABILITY FOR PUBLIC RECREATIONAL PURPOSES AND FOR THE CONSERVATION OF AQUATIC LIFE AND WILDLIFE.

This policy reaffirms the State's commitment to provide the residents of the State, the Nation, and the Washington-New York Megalopolis, coastal recreational opportunities which are in relatively scarce supply in this region of the country. Working Paper Number 7 explains in detail the rationale for this management decision. The protection of fish and wildlife acknowledges not only the recreational value inherent in such protection, but also the importance of Delaware's coastal waters to the commercial fishery.

4. ALTHOUGH THE QUALITY OF COASTAL WATERS SHALL BE PRESERVED IN A MANNER CONSISTENT WITH PUBLIC HEALTH AND PUBLIC ENJOYMENT THEREOF--AS WELL AS THE PROPAGATION OF FISH AND WILDIFE--IT SHALL ALSO BE MAINTAINED IN A MANNER REASONABLY CONSISTENT WITH INDUSTRIAL AND ECONOMIC DEVELOPMENT IN THE STATE.

This policy recognizes that the cost of some water pollution controls cannot always be justified. It also lays the foundation for the specific policies which follow, and which resolve what may appear to be a conflict between general policies.

SPECIFIC CMP POLICIES FOR COASTAL WATERS MANAGEMENT

A. Coastal Water Uses and Water Quality Standards

5. THE QUALITY OF STATE WATERS SHALL BE MAINTAINED AT VARIOUS LEVELS TO SUPPORT PRE-DESIGNATED USES FOR DIFFERENT SEGMENTS OF THESE WATERS. SUCH USES SHALL INCLUDE PUBLIC WATER SUPPLY; INDUSTRIAL WATER SUPPLY; USES INVOLVING PROLONGED INTIMATE BODY CONTACT WITH WATER IN WHICH THERE IS A SIGNIFICANT CHANCE OF INGESTION, SUCH AS SWIMMING OR WATER-SKIING (PRIMARY CONTACT RECREATION); USES INVOLVING WATER AS A PLEASURABLE SETTING FOR ACTIVITIES IN WHICH THERE IS AN INSIGNIFICANT CHANCE OF INGESTION, SUCH AS WADING, HIKING, PICNICKING, FISHING, OR BOATING (SECONDARY CONTACT RECREATION); MAINTENANCE, PROTECTION AND PROPAGATION OF FISH, SHELLFISH AND AQUATIC LIFE AND WILDLIFE PRESERVATION; AGRICULTURAL WATER SUPPLY; NAVIGATION; DRAINAGE; AND PASSAGE OF ANADROMOUS FISH.

6. TO ENSURE THAT THE WATER QUALITY IN THE VARIOUS WATER SEGMENTS CAN SUPPORT THE DESIGNATED USES, SPECIFIED WATER QUALITY STANDARDS (CRITERIA) FOR DIFFERENT POLLUTION INDICATORS SHALL BE MAINTAINED IN THE DIFFERENT WATER SEGMENTS.

The information relied upon by the CMP is the product of intensive research led by the U.S. Environmental Protection Agency and the Delaware Department of Natural Resources and Environmental Control pursuant to the Federal Water Pollution Control Act (1972) and the Delaware Environmental Protection Act, respectively. The State must review and, as appropriate, adopt changes to water quality standards for streams at least once every three years in accordance with federal law. The 1972 Act and the Clean Water Act of 1977 also provide for protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and for the recreational use of waters.

7. SHORT TRANSITION ZONES SHALL EXIST BETWEEN ADJACENT ZONES OF VARYING WATER QUALITY.

This policy recognizes that nature pays man's artificially designated boundaries no heed, and that the mixing properties of water cause gradual rather than drastic changes in the stream segments.

8. EXCEPT BY SPECIAL PERMISSION, HEAT DISSIPATION AREAS SHALL NOT BE LONGER THAN 3,500 FEET, OR 20 TIMES THE AVERAGE WIDTH OF THE STREAM, WHICHEVER IS LESS. THE DETERMINATION OF MIXING ZONES IN ESTUARINE WATERS SHALL TAKE INTO SPECIAL CONSIDERATION THE EXTENT AND NATURE OF SUCH WATER SO AS TO MEET THE INTENT AND PURPOSE OF THE WATER QUALITY STANDARDS. EXCEPT FOR THE DELAWARE RIVER AND BAY OR WHERE SPECIAL PERMISSION IS GRANTED, AT LEAST 75% OF THE STREAM WIDTH SHALL REMAIN FREE AS A PASSAGE ZONE FOR AQUATIC BIOTA.

9. WATER QUALITY STANDARDS FOR CERTAIN PORTIONS OF STREAMS MAY BE UNATTAINABLE BECAUSE OF NATURALLY OCCURRING PHENOMENA. IN SUCH INSTANCES, STANDARDS WILL BE EVALUATED AND MODIFIED AS APPROPRIATE ON A CASE BY CASE BASIS.

10. AT A MINIMUM, COASTAL WATERS SHALL NOT CONTAIN SUBSTANCES ATTRIBUTABLE TO MUNICIPAL, INDUSTRIAL, AGRICULTURAL OR OTHER DISCHARGES IN CONCENTRATIONS OR AMOUNTS SUFFICIENT TO BE ADVERSE OR HARMFUL TO WATER USES TO BE PROTECTED, OR TO HUMAN, ANIMAL, AND PLANT LIFE. SUCH WATERS SHALL BE FREE FROM FLOATING SOLIDS, SLUDGE DEPOSITS, DEBRIS, OIL AND SCUM.

11. COASTAL WATERS WHOSE EXISTING QUALITY IS BETTER THAN THE ESTABLISHED STANDARDS SHALL BE MAINTAINED AT SUCH HIGH QUALITY UNLESS IT HAS BEEN AFFIRMATIVELY DEMONSTRATED TO THE STATE THAT A CHANGE IS JUSTIFIABLE AS A RESULT OF NECESSARY ECONOMIC OR SOCIAL DEVELOPMENT, AND SHALL NOT PRECLUDE USES PRESENTLY POSSIBLE IN SUCH WATERS. ANY INDUSTRIAL, PUBLIC, OR PRIVATE PROJECT OR DEVELOPMENT WHICH WOULD CONSTITUTE A NEW SOURCE OF POLLUTION OR AN INCREASED SOURCE OF POLLUTION TO HIGH QUALITY WATERS SHALL BE REQUIRED TO PROVIDE THE BEST PRACTICABLE MEANS OF WASTE TREATMENT TO MAINTAIN WATER QUALITY. IN IMPLEMENTING THE POLICY, THE ADMINISTRATOR OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY SHALL BE KEPT ADVISED AND SHALL BE PROVIDED WITH SUCH INFORMATION AS HE SHALL NEED TO DISCHARGE HIS RESPONSIBILTIES UNDER THE FEDERAL WATER POLLUTION CONTROL ACT OF 1972, AS AMENDED.

B. Water Quality Standards and Pollutant Discharge Control

To maintain and enforce water quality standards, the flow and content of pollutants which may empty into coastal waters must be regulated. The CMP accomplishes such regulation, in part, by controlling the discharges of various coastal waters users who must utilize the resource for waste reception.

12. DISCHARGES INTO COASTAL WATERS SHALL NOT CONTAIN DEBRIS, SCUM, FLOATING MATERIALS, OR SUBSTANCES THAT SETTLE TO FORM SLUDGE DEPOSITS. POLLUTANTS IN DISCHARGES SHALL BE REDUCED TO THE EXTENT REQUIRED TO ACHIEVE AND MAINTAIN STREAM QUALITY CRITERIA.

13. THE DISCHARGE OF OIL FROM A VESSEL, TRUCK, PIPELINE, STORAGE, TANK OR TANK CAR WHICH CAUSES OR POSES A THREAT OF MAKING A FILM ON, EMULSION IN OR SLUDGE BENEATH THE WATERS OF THE STATE OR ITS SHORELINE SHALL BE PROHIBITED.

The strict prohibition of oil discharges recognizes the danger such discharges present. Working Paper Number 7 discusses such dangers, particularly in the deepwater ports subsection. Program Docuemnt Section 5.A.4. (Coastal Strip and Submerged Lands) establishes additional policies which address oil pollution problems.

14. DISCHARGES OF LIQUID WASTE INTO THE DELAWARE RIVER AND BAY, OR THE ATLANTIC OCEAN SHALL BE PROHIBITED UNLESS THEY HAVE BEEN DISINFECTED AND HAVE RECEIVED SECONDARY TREATMENT OR ARE EXEMPTED UNDER SECTION 301(h) OF THE CLEAN AIR ACT AMENDMENTS OF 1977. SECONDARY TREATMENT SHALL MEAN TREATMENT WHICH YIELDS A DISCHARGE NOT TO EXCEED 30 MG/L-5 DAY BIOLOGICAL OXYGEN DEMAND, 30 MG/L SUSPENDED SOLIDS, AND 200 COLONIES/100 ML FECAL COLIFORM AS A THIRTY-DAY AVERAGE.

15. DISCHARGES OF LIQUID WASTE INTO TIDAL STREAMS, THE LITTLE ASSAWOMAN BAY, INDIAN RIVER BAY, REHOBOTH BAY, OR ANY OF THEIR TRIBUTARIES, SHALL BE PROHIBITED UNLESS THEY HAVE BEEN DIS-INFECTED, HAVE RECEIVED SECONDARY TREATMENT, AND HAVE BEEN MECHANICALLY STRAINED TO REMOVE UNDISSOLVED MATTER.

16. INDUSTRIAL WASTE EFFLUENT LIMITATIONS AND TREATMENT REQUIREMENTS SHALL BE BASED UPON CRITERIA CONTAINED IN THE WATER QUALITY STANDARDS FOR STREAM SEGMENTS AND UPON THE PRACTICABLE LEVEL OF POLLUTANT REMOVAL TECHNOLOGY.

17. WHERE CONFLICTS DEVELOP BETWEEN COASTAL WATER USES, STREAM CRITERIA, OR DISCHARGE CRITERIA, WATER USES SHALL BE PARAMOUNT IN DETERMINING THE REQUIRED STREAM CRITERIA, WHICH IN TURN SHALL BE THE BASIS OF SPECIFIC DICHARGE LIMITS.

5.A.3.

This policy makes it clear that the underlying objective of the management strategy is to safeguard coastal waters for pre-designated uses. The water quality criteria for streams and the discharge criteria for waste water are only tools for achieving that objective. Of course, the provisions of the Clean Water Act of 1977 and the Federal Pollution Control Act of 1972 must be met.

C. Point-Source Permits

Except where discharges are absolutely prohibited--oil discharges, for example--the permit system is the mechanism used to control the discharge of point-source pollutants into coastal waters.

18. NO PERSON OR ENTITY SHALL, WITHOUT A PERMIT, UNDERTAKE ANY ACTIVITY IN A WAY WHICH MAY CAUSE OR CONTRIBUTE TO THE DISCHARGE OF DREDGED SPOIL, SOLID WASTE, INCENERATOR RESIDUE, SEWAGE, GARBAGE, CHEMICAL WASTES, BIOLOGICAL MATERIALS, RADIOACTIVE MATERIALS, HEAT, WRECKED OR DISCARDED EQUIPMENT, MUNITIONS, ROCK, SAND, CELLAR DIRT, OR INDUSTRIAL, MUNICIPAL, OR AGRICULTURAL WASTE INTO ANY SURFACE OR GROUNDWATER WITHIN THE STATE.

Thus, the CMP incorporates the NPDES permit system. The on-going Federal-State Program has several attractive features. One, the system is in place and the implementing procedures are well established. Two, the water quality criteria used by the Program, and which serve as a basis for the permit decisions, have been tested for their capacity to support the uses the CMP is interested in promoting. Three, the utilization of a system in operation throughout the Nation lends some assurance that industry's costs for pollution controls are reasonable and that the State can compete with other states for new industry.

19. REGULATORY VARIANCES FOR THE ACTIVITIES IDENTIFIED IN THE PRECEDING POLICY STATEMENT MAY BE GRANTED PURSUANT TO 7 DELAWARE CODE, SECTION 6011 IF ALL OF THE FOLLOWING CONDITIONS EXIST IN THE OPINION OF THE SECRETARY OF THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL: (1) GOOD FAITH EFFORTS HAVE BEEN MADE TO COMPLY WITH THESE POLICIES; (2) THE COST OF COMPLIANCE IS DISPROPORTIONATELY HIGH WITH RESPECT TO THE BENEFITS WHICH WOULD BE BESTOWED BY COMPLIANCE, OR THE NECESSARY TECHNOLOGY IS UNAVAILABLE; (3) AVAILABLE ALTERNATIVE OPERATING PROCEDURES OR INTERIM CONTROL MEASURES ARE BEING OR WILL BE USED TO REDUCE ADVERSE IMPACTS; AND (4) THE ACTIVITIES ARE NECESSARY TO THE NATIONAL SECURITY OR TO THE LIVES, HEALTH, OR WELFARE OF THE OCCUPANTS OF DELAWARE.

20. NO PERMIT FOR THE ACTIVITIES IDENTIFIED ABOVE SHALL BE GRANTED UNLESS THE ACTIVITIES ARE CONSISTENT WITH COUNTY AND MUNICIPAL ZONING REGULATIONS.

This policy assists local government, which sometimes has less enforcement capability than the State, to uphold local ordinances.

D. Other Permits and Licenses

To minimize the potential for human error in operations which may adversely affect coastal waters, the CMP requires various permits and licenses as follows.

21. NO PERSON OR ENTITY SHALL COMMENCE CONSTRUCTION OR OPERATION OF ANY OF THE FOLLOWING WITHOUT FIRST HAVING OBTAINED A PERMIT THEREFOR: (1) ANY SEPTIC TANK SYSTEM OR ANY AEROBIC HOME TREATMENT PLANT SYSTEM; (2) ANY LIQUID WASTE TREATMENT SYSTEM; (3) ANY FACILITY USED FOR THE STORAGE OF 40,000 OR MORE GALLONS OF ANY HAZARDOUS MATERIAL, PETROLEUM PRODUCT OR LIQUID WASTE IN BULK FORM; (4) ANY FACILITY USED FOR THE TRANSFER OF 20,000 GALLONS PER DAY OR MORE OF ANY HAZARDOUS MATERIAL, PETROLEUM PRODUCT, OR LIQUID WASTE TO OR FROM ANY CARRIER; AND (5) ANY SEWER OR PIPELINE WHICH CONVEYS LIQUID WASTE.

22. NO PERSON OR ENTITY SHALL CONSTRUCT, REPAIR, INSTALL OR REPLACE ANY PART OF A SEPTIC TANK SYSTEM EXCEPT BY OR UNDER THE SUPERVISION OF A LICENSED SEPTIC TANK INSTALLER.

23. NO PERSON OR ENTITY SHALL OPERATE ANY LIQUID WASTE TREATMENT SYSTEM WITHOUT A LICENSED LIQUID WASTE TREATMENT PLANT OPERATOR.

24. NO PERSON OR ENTITY SHALL DRILL, BORE, CORE, DRIVE, DIG, CONSTRUCT, OR INSTALL PUMPING EQUIPMENT FOR WATER WELLS EXCEPT BY, OR UNDER THE SUPERVISION OF, A LICENSED WATER WELL CONTRACTOR.

25. NO PERMITS OR LICENSES SHALL BE ISSUED FOR THE ACTIVITIES IDENTIFIED IN THE FOUR PRECEDING POLICY STATEMENTS UNLESS THE SECRETARY OF THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL FINDS THAT THE APPLICANT IS PREPARED AND WILLING TO CONDUCT SUCH ACTIVITIES IN A MANNER WHICH IS CONSISTENT WITH THE CMP POLICIES.

In addition to State regulation of the aforementioned activities, the CMP relies on many local controls not recited herein due to space limitations.

E. Health Standards

Because human health is our most precious resource, special measures are taken to protect it.

26. NO PERMITS SHALL BE ISSUED FOR THE DISCHARGE OF ANY RADIOLOGICAL, CHEMICAL OR BIOLOGICAL WARFARE AGENTS OR HIGH-LEVEL RADIOACTIVE WASTES DIRECTLY OR INDIRECTLY INTO THE SURFACE WATERS OR GROUNDWATERS OF THE STATE.

27. ALL WASTE WATER DISCHARGES, EXCLUSIVE OF STORM WATER BYPASS, WHICH CONTAIN HUMAN EXCRETA OR DISEASE PRODUCING ORGANISMS, SHALL BE DISINFECTED TO THE EXTENT NECESSARY TO PRODUCE AN EFFLUENT WHICH DOES NOT CONTAIN FECAL COLIFORM IN EXCESS OF A LOG MEAN VALUE OF 200 COLONIES/100 ML.

The standard established, of course, meets the accepted level of safe treatment.

28. THE POTENTIAL FOR WATER POLLUTION SHALL BE MINIMIZED AT SANITARY LANDFILL SITES AND ALL SOILD WASTE DISPOSAL OPERATIONS SHALL BE CONDUCTED IN CONFORMANCE WITH STATE REGULATIONS PERTAINING TO THE SAME.

The details of the regulations currently in force, as well as local controls are too lengthy for inclusion. The interested reader is referred to: the State regulations entitled "Delaware Solid Waste Disposal Regulation," effective August 1974 and incorporated in the CMP by reference; Title 7, Chapter 64 of the Delaware Code, which establishes the Delaware Solid Waste Authority; and Title 16, Chapter 18 of the Code which requires the three counties to prepare and administer a comprehensive plan for the collection and disposal of solid waste.

29. NO PERSON OR ENTITY SHALL DISCHARGE ANY SUBSTANCE INTO ANY STREAM OF THE STATE FROM WHICH INHABITANTS OF THE STATE ARE SUPPLIED DRINKING WATER, UNLESS SUCH DISCHARGE IS NOT NOXIOUS TO THE HEALTH OR DISAGREEABLE TO THE SENSES OF SMELL OR TASTE.

30. SUPPLIERS OF WATER USED FOR POTABLE OR DOMESTIC PURPOSES SHALL ADEQUATELY PROTECT SUCH WATER BY NATURAL MEANS OR BY TREATMENT IN ACCORDANCE WITH REGULATIONS ADOPTED BY THE STATE BOARD OF HEALTH.

Again, these regulations are too long to recite but are incorporated in the CMP by reference. The table in the AUTHORITIES subsection of COASTAL WATERS cites the relevant regulations for Policy Number 30. Copies of the regulations can be obtained from the State Board of Health.

5.A.3.

F. Non-Point Sources of Coastal Waters Pollution

Non-point sources of water pollution are typically more difficult to control than the more limited and usually visible point-sources. Nonetheless, the non-point sources have been responsible for much of the State's water quality problem. Past methods for addressing the problem were pretty much limited to identifying the problems, proposing solutions, and soliciting voluntary compliance with various programs. The CMP, after a great deal of public input including several discussions with other states experiencing similar difficulties, embarked on a new course. It drafted and promoted passage of legislation which requires the observance of erosion control practices for the activity responsible for most non-point source water pollution--land disturbance. Directed primarily at large-scale construction projects, the Erosion and Sediment Control Act of 1978 marks a milestone in the State's efforts to protect its invaluable water resources.

Noteworthy, however, is the acknowledgement by the CMP that the Erosion and Sediment Control Act is not a panacea for all non-point source pollution problems. It is anticipated that the State and local waste treatment management planning programs, discussed in Working Paper No. 7, will eventually lead to more complete solutions as such solutions become practicable.

31. NO PERSON OR ENTITY SHALL, WITHOUT AN APPROVED EROSION AND SEDIMENT CONTROL PLAN, ALTER LAND IN ANY WAY WHICH MAY RESULT IN SOIL EROSION AND THE MOVEMENT OF SEDIMENT INTO WATERS WITHIN DELAWARE. APPROVED PLANS SHALL NOT BE REQUIRED, HOWEVER, FOR THE FOLLOWING ACTIVITIES:

A. MINOR LAND DISTURBING ACTIVITIES SUCH AS HOME GARDENING, INDIVIDUAL HOME LANDSCAPING, REPAIRS AND MAINTENANCE WORK;

B. AGRICULTURAL OR FORESTRY PRACTICES ON AGRICULTURAL OR FORESTRY LANDS OF LESS THAN SIX PERCENT SLOPE OR ON SUCH LANDS IN PARCELS OF LESS THAN ONE ACRE;

C. AGRICULTURAL OR FORESTRY PRACTICES ON LANDS WHICH ARE OPERATED IN CONFORMANCE WITH CONSERVATION STANDARDS ESTABLISHED BY THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL;

D. AGRICULTURAL OR FORESTRY PRACTICES ON LANDS WHERE THERE IS UNAVAILABLE TO THE OWNER, OPERATOR, OR OCCUPIER OF SUCH LANDS AT LEAST 50% COST-SHARING ASSISTANCE OR ADEQUATE TECHNICAL ASSISTANCE FOR THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES REQUIRED IN AN APPROVED PLAN;

E. AGRICULTURAL OR FORESTRY PRACTICES WHERE THE OWNER OR OPERATOR IS UNABLE TO PAY THE PRIVATE SHARE REQUIRED PURSUANT TO THE PRECEDING POLICY AND IS GRANTED A WAIVER BASED ON CONSIDERATION OF THE FOLLOWING FACTORS:

(1) THE NEED FOR RELIEF FROM THE REQUIREMENT;
(2) THE EXTENT TO WHICH SOIL CONSERVATION PRACTICES ARE OR HAVE BEEN APPLIED BY SUCH OWNER OR OPERATOR;
(3) THE EXPECTED DURATION OF THE EROSION AND SEDIMENTATION PROBLEMS;
(4) THE EXTENT OF THE LANDS IN QUESTION; AND
(5) THE WILLINGNESS OF THE OWNER OR OPERATOR TO FOLLOW SOIL CONSERVATION PRACTICES TO THE BEST OF HIS OR HER ABILITY;

F. AGRICULTURAL OR FORESTRY PRACTICES THAT IN THE OPINION OF THE SECRETARY OF THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL DO NOT (1) CREATE AN EROSION OR SEDIMENTATION PROBLEM AFFECTING STATE WATERS OR (2) OTHERWISE ADVERSELY AFFECT WATER, LAND, AIR OR OTHER COASTAL RESOURCES OF THE STATE;

G. AGRICULTURAL OR FORESTRY, PRACTICES COMPLETED WITHIN EIGHTEEN MONTHS OF July 12, 1978; OR

H. OTHER LAND ALTERATION ACTIVITIES COMPLETED WITHIN EIGHTEEN MONTHS OF July 12, 1978 ON LANDS OF LESS THAN TWENTY ACRES.

The exceptions noted above reflect several realities. First, and perhaps most important, the extent of erosion control practices which Delaware farmers can reasonably afford is limited. Thus, the mandatory provisions apply only to those farm lands causing the most serious problems, namely parcels of one or more acres with a slope of at least six percent. The many voluntary programs for agricultural erosion control practices provide additional help on other farm lands. In addition, the agricultural use of pesticides, liming materials, and fertilizers is regulated by the Delaware Department of Agriculture. The interested reader is referred to Title 3, Chapters 12, 13, and 19 of the Delaware Code.

Another important exception to the erosion control requirements is all agricultural practices, as well as construction activities on parcels of less than 20 acres, completed within 18 months of the effective date of the Act. The grace period allows the completion of projects planned prior to the Act without incurring unforeseen expenses. Construction projects on more than 20 acres of land are not exempted because they generally (1) impact waters severely and (2) are better able to absorb additional costs.

5.A.3.

32. NO EROSION AND SEDIMENT CONTROL PLAN SHALL BE APPROVED UNLESS IT MEETS CONSERVATION STANDARDS CONSISTENT WITH THE GENERAL CMP COASTAL WATERS POLICIES AND THE STATEWIDE COMPREHENSIVE EROSION AND SEDIMENT CONTROL PROGRAM DEVELOPED BY THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL.

33. LOCAL UNITS OF GOVERNMENT SHALL HAVE THE PRIMARY RESPONSIBILITY FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL PROGRAM UNLESS THEY RELINQUISH SUCH RESPONSIBILTIES TO THE STATE.

This policy gives local government one of its few direct CMP responsibilities. The extent of activities that come under the purview of the erosion control program, coupled with existing local monitoring of many of these activites, makes political subdivisions of the State the logical choice for implementing the program.

AUTHORITIES

The authorities for the preceding CMP policies are derived primarily from legislation and regulations adopted pursuant to legislation. Appendix E discusses legal authorites for the entire program.

The following table serves as a reference for those interested in correlating specific policies with specific authorities. By way of example, 7 Delaware Code 6001 refers to Title 7, Section 6001 of the Delaware Code. 16 Delaware Code Chapter 13 refers to Title 16, Chapter 13 of the Code.

AUTHORITIES TABLE THREE

Policy Number	Authority
1	7 Delaware Code 6001 (a)(2) and (3)
2	7 Delaware Code 6001 (a)(5) and 6001(c)(2)
3	7 Delaware Code 6001(a)(4)
4	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 1
5	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS
6	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS
7	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 3(a)
8	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 3(c)

5.A.3.

Policy Number	Authority
9	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 3(b)
10	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 2
11	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 1
12	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 4(a)
13	7 Delaware Code, 6203, and 6202(7)(5) and (9)
14	DNREC REGULATIONS, March 15, 1974, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, Sections 7.01 and 2.34
15	DNREC REGULATIONS, March 15, 1974, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, Sections 7.04, 7.03, 2.34 and 2.12
16	DNREC REGULATIONS, March 15, 1974, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, Section 8.01
17	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 1
18	7 Delaware Code 6002 and 6003(a)
19	7 Delaware Code 6011(b)
20	7 Delaware Code 6003(c)
21	DNREC REGULATIONS, March 15, 1974, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, Sections 2.05, 2.06 and 4.01
22	7 Delaware Code 6023(b)
23	7 Delaware Code 6023(c)
24	7 Delaware Code 6023(a)
25	7 Delaware Code 6023(f) Order Number 61
26	DNREC REGULATIONS, March 15, 1974, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, Section 3.04(a)
27	DNREC REGULATIONS, April 1975, WATER QUALITY STANDARDS FOR STREAMS, Section 4(c)
28	DNREC REGULATIONS, August 1974, SOLID WASTE DISPOSAL REGULATIONS, Section 6.02
29	16 Delaware Code, Chapter 13
30	STATE BOARD OF HEALTH REGULATIONS, May 14, 1971, STATE OF DELAWARE REGULATIONS GOVERNING DRINKING WATER STANDARDS, Section 22.301
31	7 Delaware Code 4002(a), 4006, 4007 and 4008(a)
32	7 Delaware Code 4001, 4005, 4008 and Executive Order Number 61
33	7 Delaware Code 4004, 4008, 4009, 4010, 4011, 4012 and 4015

5.A.3.

Selected References: Coastal Waters

1. Coastal Sussex Water Quality Management Program, Sussex County Engineers Office, Georgetown. (various documents)

2. Delaware Water Quality Inventory, 1975, Department of Natural Resources and Environmental Control, Dover, April 1975.

3. Guidelines for the Environmental Impact Assessment of Small Structures and Related Activities in Coastal Bodies of Water, MITRE Corporation, McLean, Virginia, August 1975.

4. Hydrology, Geology and Mineral Resources of the Coastal Zone of Delaware, Technical Report No. 3, Delaware Coastal Management Program, Dover, September 1976.

5. Summary Report and General Report, New Castle County Areawide Waste Treatment Management Program (208) (General Report contains 8 volumes dealing with water quality problems, fiscal issues, land use and development policies, management, etc.).

6. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware, Newark).

7. Water Pollution Control Program Final Grant Submission, Fiscal Year 1978, Department of Natural Resources and Environmental Control, Dover, September 1977.

UNDERWATER LANDS AND THE COASTAL STRIP

SIGNIFICANCE OF UNDERWATER LANDS AND THE COASTAL STRIP

Underwater Lands refers here to those lands in Delaware which lie below the high tide line. These include lands beneath the Atlantic Ocean to the three-mile limit, as well as lands beneath the Delaware and Bay on the Delaware side of the Delaware-New Jersey border. Underwater Lands overlap the Coastal Strip, which is the strip of land and water located between Delaware's seaward territorial limits and a landward boundary delimited by a series of roads and highways. The land portion of the Strip varies in width from a few hundred yards north of Wilmington to about 12 miles in the southeastern part of the State. It is mapped at the end of the Section. A statement of the Coastal Strip boundary appears in the Delaware Coastal Zone Act (see Appendix E). The Coastal Strip corresponds to the Act's definition of the "Coastal Zone." The CMP uses the former term to avoid confusion with the Coastal Zone boundary adopted by the program, which encompasses the entire State.

The three preceding sections describe the significance of some of Delaware's most valuable natural resources; namely wetlands, beaches, and coastal waters. Underwater Lands and the Coastal Strip are significant State resources, in part, because of their proximity to these other coastal resources. About eighty percent of Delaware's tidal wetlands, all of the beaches and summer resort areas, five of eight State Parks, six of nine State Wildlife Areas, two federal Wildlife Refuges nearly all of the fish and shellfish spawning and nursery areas, a substantial number of the State's historic and archeological sites, and over one-fourth of the significant natural areas identified by the Delaware Nature Education Society are located in the Coastal Strip. The use of land and water in the Coastal Strip may impact any or all of these resources and the uses -- recreation, tourism, fishing, etc. -- they support. Underwater Lands in the Delaware Bay and the Little Bays of southeastern Sussex County are particularly important to the fishery. In early 1978, for example, 13 lessees held a total of 7,960 acres of State subaqueous lands for oyster cultivation.

Underwater Lands and the Coastal Strip are also important because of the commerce they support. Piers, docks, boat slips, etc. are built on Underwater Lands. These lands are also dredged to keep shipping channels open. Section 5.B.4. details the significance of the Stae's largest port, the Port of Wilmington. Here it is sufficient to note that the Port's facilities -- located in the Coastal Strip -- contribute significantly to the Delaware Valley port complex, the second busiest Atlantic Coast port.

In fiscal year 1977 nearly 2.4 million tons of cargo, about one-half of it crude oil, were handled at the Port.

Much of the Coastal Strip is attractive from industry's viewpoint because of the nearby water supply--useful for industrial processes and for the transportation of supplies and products. Power plants, for example, typically need large quantitites of water for cooling processes, and may use barges to ship in coal supplies. The suitability of the Coastal Strip for power plants and other facilities is detailed in Working Paper No. 7--The National Interest in Resources and Facilities of the Delaware Coastal Zone--incorporated herein by reference. One measure of such suitability is that nearly one-fourth of the land in the portion of the Coastal Strip lying north of the Chesapeake and Delaware Canal is already occupied by industry. This industrial use, combined with the importance of the Coastal Strip to recreation, tourism, fishing, and commerce, probably accounts for the declaration by the General Assembly in the Coastal Zone Act that the Strip is ".. the most critical area for the future of the State in terms of the quality of life in the State."

As Working Paper No. 7 points out, Delaware Underwater Lands and the Coastal Strip are also important to the Nation. The recreational opportunities afforded by the management of these resources, for example, extend to hundreds of thousands of U.S. citizens residing outside Delaware. The national importance of the Underwater Lands and the Coastal Strip to commerce and the national defense is also described in Working Paper No. 7. Further, some of the Nation's energy problem is addressed in the Coastal Strip. The Getty Oil Refinery at Delaware City makes oil products for use outside the State. A natural shipping channel up to 70 feet deep lies about four miles off southeastern Kent County in lower Delaware Bay, and serves as an anchorage to oil tankers for lightering to barges and smaller tankers. There is year-round daily use of this anchorage. In 1975, 850,000 barrels of crude oil per day were shipped into the Delaware Valley, most of this being lightered in the lower Bay.

Moreover, if large quantities of oil or gas are discovered offshore near Delaware, it is possible a pipeline through the Underwater Lands and the Coastal Strip will be the most desirable means of transporting the mineral resources. Finally, preliminary evaluations of the hydrocarbon potential of Delaware's Underwater Lands have been promising. If oil or gas can be economically recovered from these lands, the State will be in a position to help the rest of the Nation meet its energy needs.

PROBLEMS OF UNDERWATER LANDS AND COASTAL STRIP UTILIZATION AND MANAGEMENT

It is evident that many potential uses of Underwater Lands and the Coastal Strip may be incompatible with each other. In particular, heavy industrial uses and recreational pursuits, as well as other uses which rely on maintenance of the natural environment, cannot be accommodated near each other. The possibility of human error or equipment failure in the operation of certain facilities, such as LNG terminals or deepwater ports, poses grave risks in or near areas used for high density recreation, and relied upon by commercially important fish. Moreover, such facilities and certain heavy industrial uses not only threaten the fragile coastal environment directly, but also typically generate pressure for additional development with negative impact of its own. Finally, many "lighter" manufacturing activities are better suited an inland locations where the ecological, aesthetic, and other impacts are less severe.

On the other hand, Underwater Lands or the Coastal Strip sometimes offer the only sites for certain important activities. If oil or gas is discovered under Delaware waters, for example, it may be impossible to develop the resources from land. Likewise, an oil pipeline from the Outer Continental Shelf oil and gas lease tracts must pass through State waters and the coastal strip if it is to reach refineries and gas plants. These cases present two questions: (1) will the CMP support the activities; and if so, (2) what precautions will be required to minimize environmental risks?

Problems of utilization and management of Underwater Lands and the Coastal Strip also raise the following specific issues: (1) what controls over the location, extent and type of industry should be exerted; (2) should specific uses with a high potential for environmental degradation be absolutely prohibited; (3) what exceptions, if any, are appropriate; (4) if a case-by-case approach is used, what factors should be considered in the decision to prohibit or permit industry; (5) if offshore industrial uses are allowed, how will navigation, national defense, and the environment be protected; and (6) how will the impact of offshore development on present uses and the economic stability of adjacent towns be managed.

The following subsections explain how these issues are resolved. The Policy subsections also briefly discuss the rationale for the CMP decisions.

5.A.4.

GENERAL CMP POLICIES FOR UNDERWATER LANDS AND COASTAL STRIP MANAGEMENT

1. THE NATURAL ENVIRONMENT OF THE COASTAL STRIP SHALL BE PROTECTED FOR RECREATION, TOURISM, FISHING, CRABBING, AND GATHERING OTHER MARINE LIFE USEFUL IN FOOD PRODUCTION.

This policy is a cornerstone of the CMP and recognizes that the quality of State wetlands, beaches, and coastal waters -- and the valuable uses these support -- depend on the protection of the surrounding environment. Delaware historically has protected the fragile coastal resources which have given the State its unique character and which have served the citizens of the State and the Nation so well. The CMP continues the State tradition of careful coastal resource protection.

2. THE NEED FOR PROTECTION OF THE NATURAL ENVIRONMENT IN THE COASTAL STRIP SHALL BE BALANCED WITH THE NEED FOR NEW INDUSTRY IN THE STATE'S COASTAL AREAS.

This policy simply acknowledges that in some cases industry may be permitted in the Coastal Strip, notwithstanding some environmental impact. The specific policy statements below provide insight into the nature of the balancing process, including considerations that are part of the State's permit review process as provided by the 1971 Coastal Zone Act.

3. THE LOCATION, EXTENT AND TYPE OF INDUSTRIAL DEVELOPMENT IN THE COASTAL STRIP THAT IS MOST LIKELY TO POLLUTE DELAWARE'S BAYS AND COASTAL AREAS SHALL BE CONTROLLED.

Again, the specific policies below furnish the details of how industry in the Coastal Strip is controlled.

4. THE DEVELOPMENT AND USE OF OFFSHORE OIL, GAS, AND OTHER MINERAL RESOURCES OF THE STATE SHALL BE MANAGED TO MAKE THE MAXIMUM CONTRIBUTION TO THE PUBLIC BENEFIT AND SO AS TO BALANCE THEIR UTILIZATION, CONSERVATION, AND PROTECTION.

It is impossible to know now, with a limited understanding of what resources lie in Delaware Underwater Lands, whether development of such resources is in the public interest. The policy statement requires that the decision to develop be made only if it maximizes the public benefit. Thus, if mineral resources are discovered, the benefits of development will be weighed against the benefits of not developing prior to any management decision.

SPECIFIC CMP POLICIES FOR UNDERWATER LANDS AND COASTAL STRIP MANAGEMENT

5. NEW HEAVY INDUSTRIAL USES SHALL BE PROHIBITED IN THE COASTAL STRIP. SUCH USES ARE ONES CHARACTERISTICALLY INVOLVING MORE THAN 20 ACRES, AND CHARACTERISTICALLY EMPLOYING SMOKESTACKS, TANKS, DISTILLATION OR REACTION COLUMNS, CHEMICAL PROCESSING EQUIPMENT OR WASTE-TREATMENT LAGOONS. HEAVY INDUSTRIAL USES SHALL NOT ONLY BE DEFINED BY THEIR PHYSICAL CHARACTERISTICS, HOWEVER, BUT ALSO BY THEIR POTENTIAL TO POLLUTE IN THE EVENT OF HUMAN ERROR OR EQUIPMENT FAILURE. EXAMPLES OF HEAVY INDUSTRY ARE OIL REFINERIES, BASIC STEEL MANUFACTURING PLANTS, BASIC CELLULOSIC PULP-PAPER MILLS, AND CHEMICAL PLANTS SUCH AS PETROCHEMICAL COMPLEXES. FOR PURPOSES OF THIS POLICY, PULBIC SEWAGE TREATMENT OR RECYCLING PLANTS SHALL NOT BE DEEMED HEAVY INDUSTRIAL USES.

Heavy industries, because of their physical and operational characteristics, have an unacceptably high potential for environmental pollution and aesthetic degradation of the landscape. Allowing such industries in the relatively small yet extremely valuable Coastal Strip would deny use of that area by manufacturing, commercial, and recreational uses compatible with the environment, and each other.

6. NEW MANUFACTURING USES OR THE EXPANSION OF EXISTING MANUFACTURING USES SHALL BE ALLOWED IN THE COASTAL STRIP BY PERMIT ONLY, ALTHOUGH IN NO CASE SHALL NEW MANUFACTURING USES BE ALLOWED IN WETLANDS OR WHERE INCONSISTENT WITH LOCAL ZONING REGULATIONS. MANUFACTURING USES ARE ONES WHICH MECHANICALLY OR CHEMICALLY TRANSFORM SUBSTANCES INTO NEW PRODUCTS, AND CHARACTERISTICALLY EMPLOY POWER-DRIVEN MACHINES AND MATERIALS HANDLING EQUIPMENT. MANUFACTURING USES TYPICALLY INCLUDE ESTABLISHMENTS ENGAGED IN ASSEMBLYING COMPONENTS OF MANUFACTURED PRODUCTS, PROVIDED THE NEW PRODUCTS ARE NOT FIXED IMPROVEMENTS.

Examples of manufacturing uses include garment factories; automobile assembly plants; and jewelry and leather goods manufacturing establishments.

Manufacturing uses may or may not be compatible with protection of the natural environment in the Coastal Strip, but because they are important to the State economy and present a less dangerous environmental threat than heavy industrial uses, they are not absolutely prohibited. Some new manufacturing uses may be suited for location in the Coastal Strip, while others are not. Thus a case-by-case consideration of manufacturing use proposals is appropriate. The next policy statement lists criteria which are used to judge the suitability of manufacturing uses.

5.A.4.

7. THE FOLLOWING FACTORS SHALL BE CONSIDERED IN PASSING ON REQUESTS FOR PERMISSION TO CONSTRUCT OR OPERATE A MANUFACTURING USE IN THE COASTAL STRIP:

(A) ENVIRONMENTAL IMPACT, INCLUDING BUT NOT LIMITED TO, PROBABLE AIR AND WATER POLLUTION LIKELY TO BE GENERATED BY THE PROPOSED USE UNDER NORMAL OPERATING CONDITIONS, AS WELL AS DURING MECHANICAL MALFUNCTION AND HUMAN ERROR; LIKELY DESTRUCTION OF WETLANDS AND FLORA AND FAUNA; IMPACT OF SITE PREPARATION ON DRAINAGE OF THE AREA IN QUESTION, ESPECIALLY AS IT RELATES TO FLOOD CONTROL; IMPACT OF SITE PREPARATION AND FACILITY OPERATIONS ON LAND EROSION; EFFECT OF SITE PREPARATION AND FACILITY OPERATIONS ON THE QUALITY AND QUANTITY OF SURFACE, AND SUBSURFACE WATER RESOURCES, SUCH AS THE USE OF WATER FOR PROCESSING, COOLING, EFFLUENT REMOVAL, AND OTHER PURPOSES; IN ADDITION, BUT NOT LIMITED TO, THE LIKELIHOOD OF GENERATION OF GLARE, HEAT, NOISE, VIBRATION, RADIATION, ELECTROMAGNETIC INTERFERENCE AND OBNOXIOUS ODORS.

(B) ECONOMIC EFFECT, INCLUDING THE NUMBER OF JOBS CREATED AND THE INCOME WHICH WILL BE GENERATED BY THE WAGES AND SALARIES OF THESE JOBS IN RELATION TO THE AMOUNT OF LAND REQUIRED, AND THE AMOUNT OF TAX REVENUES POTENTIALLY ACCRUING TO STATE AND LOCAL GOVERNMENT.

(C) AESTHETIC EFFECT, SUCH AS IMPACT ON SCENIC BEAUTY OF THE SURROUNDING AREA.

(D) NUMBER AND TYPE OF SUPPORTING FACILITIES REQUIRED AND THE IMPACT OF SUCH FACILITIES ON ALL FACTORS LISTED IN THIS SUBSECTION.

(E) EFFECT ON NEIGHBORING LAND USES INCLUDING, BUT NOT LIMITED TO, EFFECT ON PUBLIC ACCESS TO TIDAL WATERS, EFFECT ON RECREATIONAL AREAS, AND EFFECT ON ADJACENT RESIDENTIAL AND AGRICULTURAL AREAS.

(F) COUNTY AND MUNICIPAL COMPREHENSIVE PLANS FOR THE DEVELOPMENT AND/OR CONSERVATION OF THEIR AREAS OF JURISDICTION.

A substantial part of Delaware's Coastal Strip is poorly suited to manufacturing use due to tidal wetlands, highwater tables, and poorly drained soils. Moreover, a substantial part of the strip is well suited for profitable recreational uses. It is anticipated, therefore, that new manufacturing industries will in many cases be driven by economics to locate outside the Coastal Strip, most likely in areas which already have adequate transportation systems and other support services. However, when there are good reasons for a coastal location, the permit system has the necessary flexibility to allow utilization of such a site.

8. NEW OFFSHORE GAS, LIQUID, OR SOLID BULK PRODUCT TRANSFER FACILITIES SHALL BE PROHIBITED IN THE COASTAL STRIP. SUCH FACILITIES ARE DOCKS OR PORT FACILITIES, WHETHER ARTIFICIAL ISLANDS OR ATTACHED TO SHORE BY ANY MEANS, FOR THE TRANSFER OF BULK QUANTITIES OF ANY SUBSTANCE FROM VESSEL TO ONSHORE FACILITY OR VICE VERSA. HOWEVER, A DOCKING FACILITY OR PIER FOR A SINGLE INDUSTRIAL OR MANUFACTURING FACILITY AND DOCKING FACILITIES LOCATED IN THE CITY OF WILMINGTON FOR THE PORT OF WILMINGTON, SHALL NOT BE PROHOBITED.

This prohibition operates against deepwater oil terminals in the Delaware River and Bay, as well as facilities designed to receive waterborne shipments of liquefied natural gas. The former is banned primarily because of environmental problems associated with dredging requirements and potential oil spillage. The latter facility is forbidden because of safety hazards and other problems. The reasons for the prohibition of offshore bulk product transfer facilities are discussed in detail in Working Paper No. 7. The exceptions for a single industrial or manufacturing facility and the Port of Wilmington recognize, in the first instance, the need for a limited flow of supplies to support industrial operations, and, in the second case, the already sizeable development at the Port of Wilmington.

9. OFFSHORE PIPELINES WHICH TRANSFER BULK QUANTITIES OF GAS, OIL, OR OTHER LIQUIDS TO TERMINALS WITHIN THE COASTAL STRIP SHALL BE PROHIBITED. SUCH PIPELINES GENERALLY SHALL BE ALLOWED IF THEY TRANSIT THE COASTAL STRIP AND ENVIRONMENTAL SAFEGUARDS ARE OBSERVED. HOWEVER, IF SUCH PIPELINES REPRESENT A SIGNIFICANT DANGER OF POLLUTION TO THE COASTAL STRIP OR GENERATE PRESSURE FOR CONSTRUCTION OF INDUSTRIAL PLANTS IN THE COASTAL STRIP, THEY SHALL BE PROHIBITED.

This policy accommodates the national interest in transporting offshore oil and gas resources, if they are discovered and developed, to refinery and gas plant complexes. At the same time, it protects the Coastal Strip from pollution and discourages large-scale industrial development which might otherwise be generated by ready access to oil and gas. This policy does not discriminate against the location of industry in Delaware particularly outside the Coastal Strip which could be served by pipelines transitting the Strip.(See 5D3)

10. UNDERWATER LANDS OF THE STATE SHALL NOT BE SURVEYED GEOLOGICALLY, GEOPHYSICALLY, OR SEISMICALLY UNLESS AND UNTIL THE WATER QUALITY OF THE STATE WHICH MAY THEREBY BE AFFECTED IS ADEQUATELY ASSURED.

The policy is consistent with the general policies of Section 5.A.3. (Coastal Waters). It includes in the definition of "survey" such actions as deep drilling, digging of prospect pits, use of shot-hole explosives for refraction profiling, and any

related activitiy which could have effects on water quality. Most of the remaining policies are designed to provide for offshore oil and gas development in Delaware Waters, while maintaining strict control over potential environmental hazards. The CMP provides for offshore development because of potential benefits to the State economy and because of the compelling national interest in energy resource development.

11. NO OPERATIONS OR ACTIVITIES SHALL BE COMMENCED ON THE DRILLING, DEEPENING OR PLUGGING BACK OF ANY OFFSHORE OIL OR GAS WELLS LOCATED ON UNDERWATER LANDS OF DELAWARE WITHOUT THE PERMISSION OF THE STATE, AND UNLESS IN CONFORMANCE WITH THE RULES FOR SUCH OPERATIONS AND ACTIVITIES ADOPTED BY THE DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL.

The rules referred to above are too lengthy for inclusion but are based on other State's environmental regulations which apply to areas with on-going offshore development.

12. PERMISSION TO DEVELOP THE STATE'S UNDERWATER LANDS SHALL NOT BE GRANTED WITHOUT THE PRIOR APPROVAL OF THE U.S. DEPARTMENT OF THE DEFENSE, AND SHALL BE SUBJECT TO ANY RESTRICTION OR LIMITATION IMPOSED BY THE DEPARTMENT.

This policy conforms to §6139 of the Underwater Lands Act and reflects the special conditions associated with military operations in Delaware waters, particularly those in the vicinity of Cape Henlopen. This provision also recognizes the past use of portions of the Delaware River and Bay, and Atlantic Ocean nearshore areas for artillery and ordnance testing purposes. Approval of the Department of Defense is necessary to avoid interference by mineral development activities with national security or public safety considerations.

13. EASEMENTS FOR MINERAL EXPLORATION AND EXPLOITATION UNDERLYING THAT PART OF THE SURFACE OF THE ATLANTIC SHORE OWNED BY THE STATE BE PERMITTED AT SUCH TIMES AND PLACES AS NECESSARY TO PERMIT THE EXTRACTION AND TRANSPORTATION OF OIL, GAS, SULPHUR OR OTHER MINERALS FROM STATE, FEDERAL OR PRIVATE LANDS, BUT PERMANENT INTERFERENCE WITH THE SURFACE OF THE ATLANTIC SHORE SHALL BE PROHIBITED.

14. THE FOLLOWING FACTORS SHALL BE CONSIDERED PRIOR TO THE LEASING OF UNDERWATER LANDS FOR POSSIBLE MINERAL DEVELOPMENT.

    (A) THE HEALTH, SAFETY, OR WELFARE OF PERSONS RESIDING IN, OWNING REAL PROPERTY, OR WORKING IN THE NEIGHBORHOOD OF SUCH AREAS;

    (B) POTENTIAL INTERFERENCE WITH THE RESIDENTIAL OR RECREATION AREAS TO AN EXTENT THAT WOULD RENDER SUCH AREAS UNFIT FOR RESIDENTIAL OR RECREATION USES OR UNFIT FOR PARK PURPOSES;

(c) POTENTIAL INTERFERENCE WITH THE AESTHETIC AND SCENIC VALUES OF THE DELAWARE COAST;

(D) POTENTIAL WATER POLLUTION PROBLEMS;

(E) ENDANGERMENT TO MARINE LIFE OR WILDLIFE;

(F) POTENTIAL INTERFERENCE WITH COMMERCE OR NAVIGATION; AND

(G) PROTECTION OF LAND AREAS, FROM SPILLAGE OF OIL, GAS OR OTHER MINERALS OR OBJECTIONABLE SUSBSTANCES.

In addition to the above, the CMP encourages the following additional leasing considerations as well as those set forth in §6104, 6108, and 6119 of the Underwater Lands Act, although these may not apply in all cases: (1) the number and size of the facilities should be as small as possible; (2) sensitive environmental areas, such as important fishery habitat, should be avoided whenever possible; (3) the desirability and availability of alternative sites should be considered, as well as the probability of oil or gas recovery; (4) coordination should be pursued with New Jersey officials responsible for fishery management, the Mid-Atlantic Fisheries Resources Council, the National Marine Fisheries Service, and the U.S. Department of the Interior; and 5) mitigation measures or compensation for lost habitat should be provided as appropriate.

Both the mandatory and recommended policies serve the same CMP objective -- maximizing the public benefits of the Underwater Lands resource. In some cases, that objective will dictate development of mineral resources if they exist. In other circumstances the public interest may best be served by maintaining the resource in its natural condition. The CMP policies reflect the need for considerable flexibility to weigh the appropriate factors listed above, which bear on the public interest.

15. THE LESSEE OF DELAWARE'S UNDERWATER LANDS SHALL BE REQUIRED TO EXERCISE GREAT CARE TO AVOID IMPAIRMENT OF AND INTERFERENCE WITH THE ENJOYMENT AND USE OF SUCH LANDS, THE WATER ABOVE THEM, AND NEIGHBORING LAND AND WATER. SUCH USES INCLUDE BATHING, BOATING, FISHING, FISH AND WILDLIFE PRODUCTION, AND NAVIGATION. THE LESSEE SHALL ALSO EXERCISE GREAT CARE TO PREVENT OIL, TAR, RESIDUAL PRODUCTS OF OIL, OR REFUSE OF ANY KIND FROM ANY WELL OR WORKS TO BE DEPOSITED ON OR PASS INTO THE WATERS OF THE OCEAN, ANY BAY OR INLET THEREOF, OR ANY OTHER WATERS COVERING SUBMERGED LANDS.

5.A.4.

The policy recognizes that the risk of such development to other coastal resources and uses warrants special care. Thus, in the event exploitable quantities of offshore oil and gas are discovered beneath Delaware waters, the CMP ensures that development will proceed only with special caution.

AUTHORITIES

The Underwater Lands Act and the Coastal Zone Act provide the authority for the CMP policies. Regulations, case law and Attorney General Opinions have clarified certain sections of the law and are relied upon to enforce some of the specific CMP policies.

AUTHORITIES TABLE FOUR

Policy Number	Authority
1	7 Delaware Code 7001 and 6201.
2	7 Delaware Code 7001.
3	7 Delaware Code 7001; Kreshtool v. Delmarva Power & Light Co., Del. Super., 310 A.2d 649(1973).
4	DNREC REGULATIONS, September, 1971 OIL, GAS AND MINERAL EXPLORATION REGULATIONS, p.i.
5	7 Delaware Code 7002(e) and 7003; Kreshtool v. Delmarva Power & Light Co., Del. Super., 310 A.2d 649(1973).
6	7 Delaware Code 7002(d) and (e) and 7004(a).
7	7 Delaware Code 7004(b).
8	7 Delaware Code 7002(f) and 7003; Inf. Attorney General Opinion No. 65, October 22, 1974.

5.A.4.

Policy Number	Authority
9	7 Delaware Code 7001, 7002 and 7003; Inf. Attorney General Opinion No. 77-33, July 6, 1977.
10	7 Delaware Code 6103(a), 6104(c) and 6151.
11	DNREC REGULATIONS, September 1971, OIL, GAS AND MINERAL EXPLORATION REGULATIONS, Numbers I-V.
12	7 Delaware Code 6139 and 6151.
13	7 Delaware Code 6102(d), 6118, 6119(a) 6151.
14	7 Delaware Code 6104, 6108, 6119(a) & 6151.
15	7 Delaware Code 6119 and 6151.

Selected References: Underwater Lands and The Coastal Strip

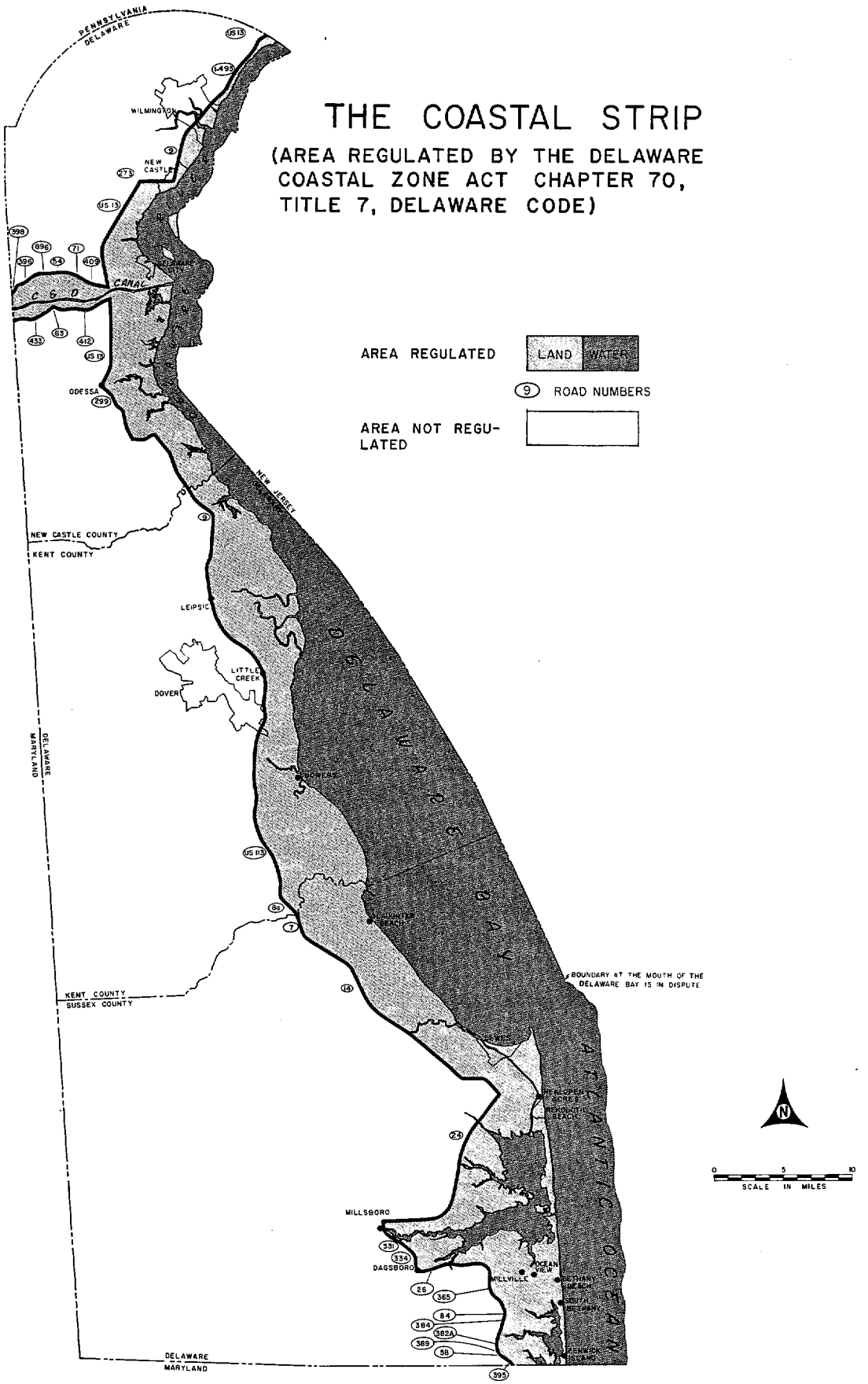
1. Coastal Zone Act Administration, June 28, 1971-June 30, 1977, Coastal Zone Industrial Control Board and Office of Management, Budget and Planning, Dover, November 1977.

2. Delaware's Changing Shoreline, Technical Report No. 1, Delaware Coastal Management Program, Dover, May 1976.

3. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware, Newark).

THE COASTAL STRIP

(AREA REGULATED BY THE DELAWARE COASTAL ZONE ACT CHAPTER 70, TITLE 7, DELAWARE CODE)



AREAS OF SPECIAL INTEREST

The Public Lands	5.B.1.
Natural Areas	5.B.2.
Flood Hazard Areas	5.B.3.
Port of Wilmington	5.B.4.

SECTION 5B

5.B. AREAS OF SPECIAL INTEREST

Introduction

Section 5.A. discusses those coastal resources deemed so important and vulnerable that comprehensive regulatory controls are necessary for their protection. Section 5.B. deals with other resources or areas which, in some ways, are as important as the resources subject to broad regulatory control. They are categorized differently, however, because the problems they present in the context of coastal management are comparitively narrow ones, and can be addressed effectively without the sweeping mandatory controls characteristic of the Section 5.A. resources.

5.B.1. THE "PUBLIC LANDS"

SIGNIFICANCE AND VALUE

The Delaware Coastal Management Program, in its first year of program development, recognized the significance of the crucial issues relating to certain lands along the coast. The lands involved are those properties along the Atlantic Coast between Cape Henlopen and Fenwick Island which have never been transferred from the public domain. They currently include the Cape Henlopen and Delaware Seashore State Parks and portions of the Assawoman Wildlife Area.

The lands, commonly called the "public lands" because a Public Lands Commission established in 1913 was the first State agent to manage them, are extremely valuable as vacation areas. Working Paper No. 7 and other sections of the document detail the significance of the recreational opportunities afforded by the "public lands". Here it is sufficient to note that during the first nine months in 1977 alone over three million people, a great many of them from out-of-state, enjoyed these lands.

PUBLIC LANDS MANAGEMENT ISSUES

The territory which is now Delaware was given to William Penn by the Duke of York (later King) of England. Penn and his heirs made many land grants from the territory prior to the American Revolution. Delaware made additional grants after the Colonies achieved Independence. The State Supreme Court has determined that Penn and his heirs owned the land as sovereigns, not as individuals. Therefore, any land not granted by the time the State gained its independence became State property.

Land was plentiful and precise boundaries were of little consequence. Some areas were considered of little value. In many cases, there was a dearth of geographical knowledge of the area conveyed. Land transfers were sometimes made without a writing. Deeds were not routinely recorded and deed descriptions, when they were recorded, used mortal markings, such as "the old white oak." Geological processes altered earlier boundaries.

In 1913, the General Assembly expressed its concern over the State public lands by establishing a Public Lands Commission to ascertain State boundaries. The Commission engaged Thomas B. Pepper to conduct a survey of the public lands from the lighthouse on Fenwick Island to the old lighthouse at Lewes, a stretch encompassing virtually all of Delaware's Ocean front. Mr. Pepper's survey included extensive historical research of the patent records in Delaware and Maryland, as well as physical measurement of the property. The survey was recorded in Georgetown in 1929.

In 1955, the State Highway Department caused the 1929 Pepper boundaries to be resurveyed and reconfirmed. The survey was supervised by Fred Ruyter, still employed by the Highway Department, who was assisted by Mr. Pepper himself. The Ruyter survey crews drove steel casings into the ground and implanted concrete markers on top of the casings in order to mark the boundaries.

In 1971, a Delaware Chancery Court ruled that the Pepper plot, as confirmed by Ruyter, constituted a true and accurate survey of the lands portrayed thereon to the extent that State land titles were disputed in the subject case which applied only to the lands between South Bethany and Fenwick Island.

Much of monumenting work accomplished in 1955 was destroyed by the great storm of 1962. Some monuments were removed, perhaps illegally.

The loss of the monuments, the lack of an effective monitoring program, and lingering title disputes inevitably led to encroachment. In one case, a surveyor, who laid out a building project for "an owner" that included several acres of State land, has said that he figured no one would notice and that his client might as well have it as anybody else. In other cases, State land is falsely claimed under bogus deeds. Unpaid taxes lead to a Sheriff's sale and the new "owner" takes under apparent color of title.

5.B.1.

Finally, in some cases when litigation has offered the promise of restitution of State coastal property, the General Assembly has legislatively relinquished State claims in order to protect private investments. This "solution", of course, would be unnecessary if protection of State coastal lands precluded private development of State lands.

In order to address these issues, a comprehensive survey was undertaken with Coastal Management Program support to establish the location of the public lands and monument them. That step completed, it is now necessary to prescribe policies to assure that these irreplaceable resources will be managed properly.

GENERAL CMP POLICY FOR
"PUBLIC LANDS" MANAGEMENT

1. DNREC SHALL SUPERVISE, CONTROL AND CARE FOR DELAWARE'S "PUBLIC LANDS."

DNREC is the logical choice for this responsibility because of its other involvement with the lands.

SPECIFIC CMP POLICIES FOR
"PUBLIC LANDS" MANAGEMENT

2. THE STATE SHALL PURSUE ALL NECESSARY AND APPROPRIATE REMEDIES TO ADDRESS ENCROACHMENTS UPON STATE "PUBLIC LANDS" AND TO PROTECT THEIR INTEGRITY FROM FURTHER CLAIM.

3. ALL PRIVATE DEVELOPMENT ON "PUBLIC LANDS," EXCEPT THAT AUTHORIZED BY DNREC FOR PUBLIC USE, SHALL BE PROHIBITED.

4. THE "PUBLIC LANDS" SHALL REMAIN APPROPRIATELY MARKED WITH PERMANENT MONUMENTS AND THE LOCATION AND COORDINATES OF EACH MONUMENT SHALL BE TIED TO THE STATE PLANE COORDINATE SYSTEM AND RECORDED WITH THE RECORDER OF DEEDS FOR SUSSEX COUNTY. DETAILED DRAWINGS, SURVEY WORK SHEETS AND FIELD NOTES, PERIMETER DESCRIPTIONS, AND OTHER PERTINENT PROPERTY RECORDS SHALL BE LIKEWISE RECORDED.

5. DNREC SHALL MANAGE THESE LANDS FOR PUBLIC RECREATION PURPOSES AND FOR THE CONSERVATION AND PRESERVATION OF THEIR NATURAL RESOURCES AND BEAUTY. A MANAGEMENT PRIORITY SHALL BE THE MAINTENANCE OF PUBLIC ACCESS TO THE BEACH AND OCEAN WHERE SUCH ACCESS CAN BE ACCOMMODATED WITHOUT SERIOUS DAMAGE TO THE PRIMARY RESOURCES. THE DEPARTMENT MAY LEASE CERTAIN PORTIONS FOR HIGHWAY AND UTILITY PURPOSES AS IT DEEMS ADVISABLE AND FOR THE PUBLIC GOOD. MANAGEMENT OF THESE LANDS SHALL BE CONSISTENT WITH THE STATE COMPREHENSIVE OUTDOOR RECREATION PLAN (SCORP) AND IN ACCORDANCE WITH SOUND MASTER PLANNING ACTIVITIES.

5.B.1.

PRIORITY OF USES

The priority of uses for these areas has been established in the master plans for the State Parks of which they are a part, and to some extent, in other sections of this document. The master plans, particularly the one for Delaware Seashore State Park, point out that public recreation activities are to be conducted in accordance with the natural capabilities of the landforms involved. The following are the priorities for these especially valuable lands:

1. Beach (ocean edge to foot of the dune) - these areas shall be used for intense recreation activity, such as swimming, sunning, and sport fishing. They shall not be the locations of permanent structures or other facilities which could be damaged by normal erosion and storm events (aids to navigation approved by the U.S. Coast Guard and the State are exceptions). Concentration of intense use is of the highest priority in order to maintain appropriate user services in an efficient and effective manner.

2. Dunes - these areas should be preserved by restricting human activity on them. The highest priority use shall be as storm buffers with appropriate efforts undertaken to maintain them with beach grass and sand fences. Access across the dunes shall be limited to wooden walkways.

3. Back dune and bay marsh (landward toe of the dune westerly to the bay) - primary uses of these areas are passive recreation and limited water contact activities. Access areas, sanitary facilities and limited recreational services are permissible, provided disturbances to the natural features are minimized.

Lowest priority uses are the location of highways, utilities, and other services unless they are part of the overall park development plan.

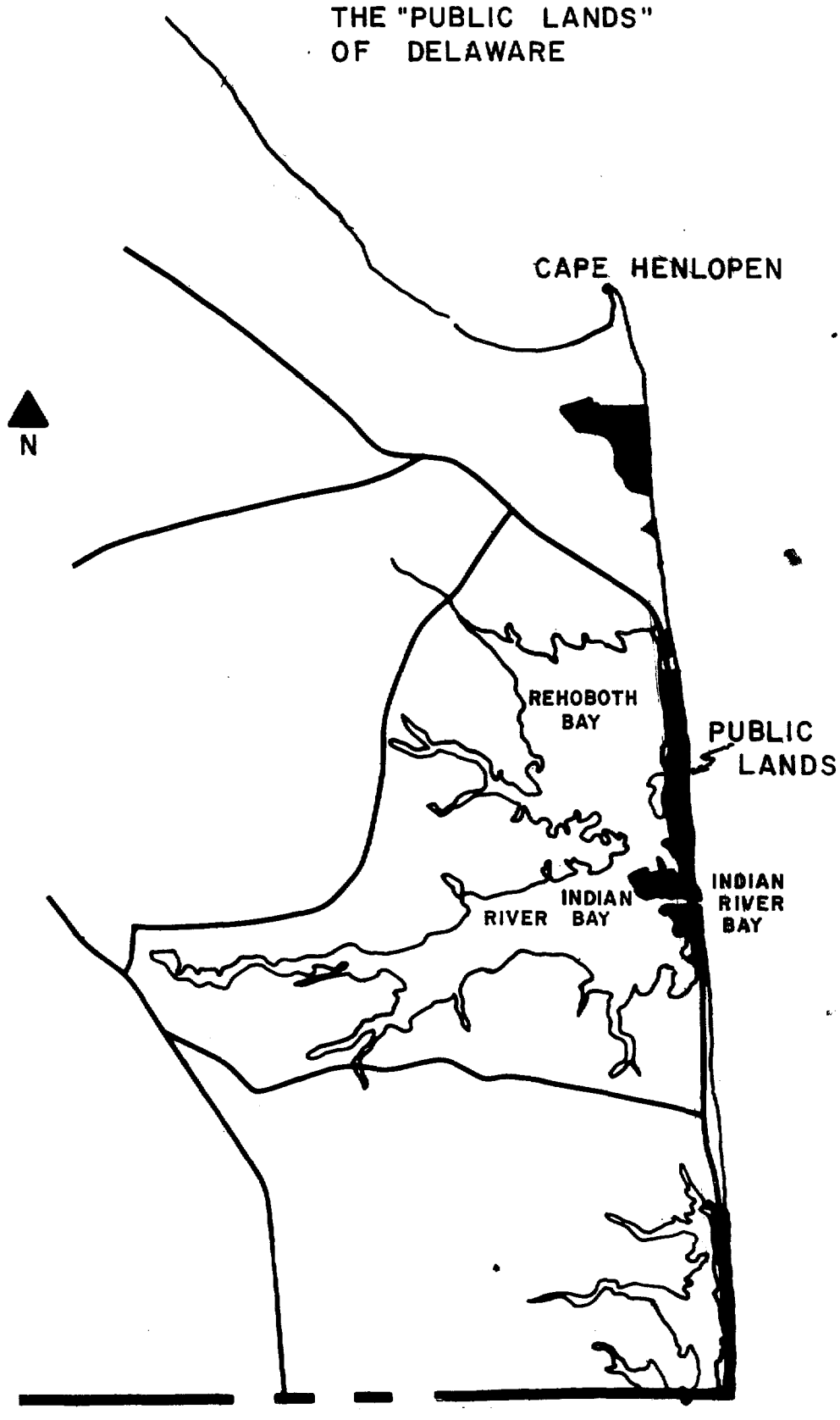
AUTHORITIES

The authority for management of these resouce areas is vested primarily in DNREC pursuant to Title 7, Chapters 45 and 47 of the Delaware Code. Section 4504 provides that "The public lands of this State, . . . shall be under the supervision and control of the Department of Natural Resources and Environmental Control . . . " Section 4701(c) provides that DNREC "shall plan, develop, and maintain all areas entrusted to its administration as to preserve in every reasonable degree the scenic historic, scientific, prehistoric and wildlife values of such areas."

5.B.1.

Additional authority appears in the State Wetlands Act, Beach Preservation Act, and Executive Order No. 61, discussed elsewhere in the document and appendices.

THE "PUBLIC LANDS"
OF DELAWARE



NATURAL AREAS

SIGNIFICANCE AND VALUE

Natural areas are sometimes described as places passed by man in his struggle to tame the land for his livelihood and recreation. This "escape" can be attributed to a variety of circumstances, but often the land is too steep, too rocky, or too wet for farming or building.

In America, early settlers were faced with a fundamental issue--survival. Thus, the land became subservient to man's need for survival in the wilderness. Once the land was conquered for this basic purpose, subsequent progress led to an ever increasing exchange and use of land.

Natural areas are usually of esthetic value--places of beauty. They may include the habitat for rare or endangered plants and animals, or they may be cherished by geologists or archaeologists as irreplaceable evidence of Earth's development and past civilizations.

Such areas are irreplaceable as laboratories for scientific research; as reservoirs of natural materials (not all the uses of which are known); as habitats for plant and animal species and biotic communities whose diversity enriches the meaning and enjoyment of human life; as living museums where people may observe natural biotic and environmental systems of the earth and the interdependence of all forms of life; and as reminders of the vital dependence of the health of the human community upon the health of the natural communities of which it is an inseparable part. Thus, if these areas are maintained in their natural state, Delawareans will retain the opportunity to maintain close contact with such living communities and environmental systems of the earth and to benefit from the scientific, educational, esthetic, recreational, and cultural values possessed by such areas.

The significance and value of Delaware natural areas has received increased attention recently. New Castle County, in recognition of the value of natural areas, sponsored the first natural area study (New Castle County Natural Areas Study) in 1975. Since the completion of that study the County Council has adopted a resolution calling for the preservation of natural areas. Also various County agencies are developing ordinances to preserve remaining natural areas and are working with landowners to try to preserve natural areas through various

means. For its part, during program development, the CMP supported the completion of the Delaware Natural Areas Study performed by the Delaware Nature Education Society and encouraged legislative efforts, as well as other actions, to protect these areas.

NATURAL AREAS MANAGEMENT ISSUES

Natural areas are frequently lost as a result of public and private actions. These losses may be the result of inadequate information, economic pressures on surrounding lands, carelessness, or indifference. In some cases these areas are lost to highway and utility construction, often because other locations are more extensively developed and, hence, more costly.

Private ownership of many of these areas complicates their management, particularly where public ownership is neither desirable nor feasible. Owners must be assured of their individual property rights, yet the public has an interest in seeing that a valuable site is not significantly altered or destroyed.

Public access to a site must be handled carefully since these fragile areas can often be damaged by overuse and misuse. Thus, management decisions must reflect a balance between preservation in the purest sense and the public's ability to enjoy the site's educational, recreational, and scenic values.

Finally, there may, on rare occasions, be imperative and unavoidable public necessities for using such areas in a manner inconsistent with maintaining them in their natural state. Thus, a mechanism is needed which will allow such uses, but only after extremely careful deliberation.

GENERAL CMP POLICY
FOR NATURAL AREAS MANAGEMENT

1. THE STATE, ACTING THROUGH DNREC, SHALL ACQUIRE AND HOLD IN TRUST FOR THE BENEFIT OF THE PEOPLE AN ADEQUATE SYSTEM OF NATURE PRESERVES FOR THE FOLLOWING USES AND PURPOSES:

   A. FOR SCIENTIFIC RESEARCH IN SUCH FIELDS AS ECOLOGY TAXONOMY, GENETICS, FORESTRY, PHARMACOLOGY, AGRICULTURE, SOIL SCIENCE, GEOLOGY, CONSERVATION, ARCHAEOLOGY, AND OTHER SUBJECTS;

   B. FOR THE TEACHING OF BIOLOGY, NATURAL HISTORY, ECOLOGY, GEOLOGY, CONSERVATION, AND OTHER SUBJECTS;

C. AS HABITATS FOR PLANT AND ANIMAL SPECIES AND COMMUNITIES AND OTHER NATURAL OBJECTS;

D. AS RESERVOIRS OF NATURAL MATERIALS;

E. AS PLACES OF NATURAL INTEREST AND BEAUTY;

F. AS LIVING ILLUSTRATIONS OF OUR NATURAL HERITAGE WHEREIN ONE MAY OBSERVE AND EXPERIENCE NATURAL BIOTIC AND ENVIRONMENTAL SYSTEMS OF THE EARTH AND THEIR PROCESSES;

G. TO PROMOTE UNDERSTANDING AND APPRECIATION OF THE SCIENTIFIC, EDUCATIONAL, ESTHETIC, RECREATIONAL AND CULTURAL VALUES OF SUCH AREAS BY THE PEOPLE OF THE STATE OF DELAWARE;

H. FOR THE PRESERVATION AND PROTECTION OF NATURAL AREAS AGAINST MODIFICATION OR ENCROACHMENT RESULTING FROM OCCUPATION, DEVELOPMENT, OR OTHER USE WHICH WOULD DESTROY THEIR NATURAL OR ESTHETIC CONDITIONS.

This policy obviously encourages the maintenance of certain areas in their natural state. The specific policy statements and commentary below provide the mechanics which will implement the general CMP policy.

The key word in the general policy statement is "adequate." The CMP leaves it to DNREC to determine what constitutes an adequate system of nature preserves. Unlike most of the management policies of the Section 5.A. resources, then, DNREC has discretion in implementing the natural areas policies. There are at least two reasons for such discretion. One, the financial burden for acquiring, managing, and preserving lands in their natural state falls primarily on the State. The State's ability to fund a natural areas preservation system will vary considerably over time and according to unpredictable events. Unfortunately there may be times when the State simply cannot afford acquisition of any interest because of more pressing priorities. In those cases, the amount and quality of land and water held in its natural state may be deemed "adequate" at that time <u>given the current fiscal situation</u>. At other times acquisition will be appropriate. Thus, the policy statement gives DNREC needed administrative flexibility which a more narrowly defined and mandatory acquisition program could not provide. The CMP relies upon this discretionary acquisition program, in part of course, because DNREC is charged with the responsibility for resource protection and will therefore be inclined to use its discretion in a manner which maximizes natural areas preservation.

In carrying out its responsibilites the Department is assisted by the Delaware Natural Areas Advisory Council comprised of citizens with a demonstrated involvement in natural areas preservation.

The second reason for choosing a less rigid natural areas acquisition program is that these areas are receiving substantial attention under other programs. New Castle County, for example, has given natural areas special consideration in its update of the County Plan, through a specific policy resolution of the County Council, and within the context of its water quality management (208) program. Similar consideration has been afforded natural areas in the Coastal Sussex Water Quality (208) Program. Also, of course, the mandatory resource protection programs described in Section 5.A. protect much of the valuable land and water resources, such as wetlands.

The natural areas registration and dedication processes set forth in this section shall be the principal means employed by the CMP to satisfy the "Areas for Preservation or Restoration" designation criteria set forth in 15 CFR Part 923.21-24 (CMP Approval Requirements - See Appendix B).

SPECIFIC CMP POLICIES
FOR NATURAL AREAS MANAGEMENT

A. Selection of Natural Areas for Acquisition and Preservation

2. DNREC SHALL DEVELOP CRITERIA AND POLCIIES FOR SELECTING NATURAL AREAS FOR ACQUISITION AND PRESERVATION. AT A MINIMUM, SUCH CRITERIA AND POLICIES SHALL CONSIDER THE USES AND PURPOSES LISTED IN POLICY STATEMENT NUMBER ONE, AS WELL AS AREAS OF UNUSUAL NATURAL SIGNIFICANCE. UNTIL SUCH CRITERIA AND POLICIES ARE DEVELOPED, DNREC SHALL, IN ITS SELECTION OF NATURAL AREAS FOR ACQUISITION AND PRESERVATION, CONSIDER POLICY STATEMENT NUMBER ONE AND THE UNUSUAL NATURAL SIGNIFICANCE OF AREAS WHICH MAY BE SELECTED.

This policy promotes an acquisition program which is consistent with the general CMP policy on natural areas preservation. It will also indicate to the general public and governmental agencies what properties are most likely to be selected for acquisition and preservation. The next two policy statements also serve this purpose.

3. DNREC SHALL ESTABLISH AND MAINTAIN A REGISTRY OF NATURAL AREAS OF UNUSUAL SIGNIFICANCE TO ENSURE THAT SUCH AREAS ARE CONSIDERED FOR POSSIBLE DEDICATION. DNREC IS ALSO ENCOURAGED TO ESTABLISH AND MAINTAIN REGISTRIES OF OTHER NATURAL AREAS FOR THE SAME PURPOSE, AND TO DEVELOP CRITERIA FOR THE SELECTION OF NATURAL AREAS FOR REGISTRATION.

5.B.2.

This policy establishes a mechanism which ensures that natural areas of unusual significance will be considered for acquisition. It does not, however, necessarily give areas of unusual natural significance priority for acquisition over other natural areas because preservation of the latter areas may occasionally serve the broad purposes of the general CMP policy better than the former areas.

4. DNREC SHALL MAKE WHATEVER SURVEYS IT DEEMS NECESSARY TO ACCOMPLISH THE PURPOSES OF THE NATURAL AREAS PROGRAM.

It is anticipated that the natural areas surveys completed by New Castle County and the CMP will be utilized by DNREC to select areas for the registries and possible acquisition, thereby obviating the need for additional surveys. The policy statement gives DNREC discretion to conduct another survey or surveys if they are necessary.

B. Acquisition of Natural Areas Selected for Preservation

5. DNREC MAY ACQUIRE, FOR AND ON BEHALF OF THE STATE OF DELAWARE, NATURAL AREAS BY GIFT, DEVISE, PURCHASE, EXCHANGE, OR ANY OTHER METHOD OF ACQUIRING REAL PROPERTY OR ANY ESTATE, INTEREST, OR RIGHT THEREIN PROVIDED THAT ANY INTEREST OWNED BY THE STATE OR BY ANY SUBDIVISION THEREOF MAY BE ACQUIRED ONLY BY VOLUNTARY ACT OF THE AGENCY HAVING JURISDICTION THEREOF. THE DEPARTMENT MAY ACQUIRE THE FEE SIMPLE INTEREST IN NATURAL AREAS OR ANY ONE OR MORE LESSER ESTATES, INTERESTS, AND RIGHTS THEREIN, INCLUDING A LEASEHOLD ESTATE, AND EASEMENT EITHER GRANTING THE STATE SPECIFIED RIGHTS OF USE OR DENYING TO THE GRANTOR SPECIFIED RIGHTS OF USE OR BOTH, A LICENSE, A COVENANT, AND OTHER CONTRACTUAL RIGHTS.

Again DNREC has considerable discretion, this time with respect to how it acquires area properties. Rather, the success of the natural areas acquisition program will depend substantially on voluntary participation. The next few policies are aimed at encouraging such participation.

6. DNREC SHALL PUBLISH AND DISSEMINATE INFORMATION PERTAINING TO NATURAL AREAS WITHIN THE STATE AS IT DEEMS NECESSARY TO EFFECTUATE THE PURPOSES OF THESE POLICIES.

7. DNREC MAY AS IT DEEMS NECESSARY TO EFFECTUATE THE PURPOSES OF THESE POLICIES, ENCOURAGE AND RECOMMEND TO PRIVATE, PUBLIC AND GOVERNMENTAL ENTITIES THAT THEY DEDICATE NATURAL AREAS TO DNREC FOR PRESERVATION PURPOSES.

8. ALL UNITS, DEPARTMENTS, AGENCIES, AND INSTRUMENTALITIES OF THE STATE, INCLUDING COUNTIES, MUNICIPALITIES, SCHOOLS, COLLEGES AND UNIVERSITIES, ARE EMPOWERED AND URGED TO TRANSFER SUITABLE AREAS OR PORTIONS OF AREAS WITHIN THEIR JURISDICTION TO DNREC FOR PRESERVATION PURPOSES.

9. DNREC MAY ACCEPT TRANSFERS OF REAL PROPERTY FOR PRESERVATION PURPOSES WITH THE EXPRESS UNDERSTANDING THAT THE GRANTORS MAY, UNDER SPECIFIED CONDITIONS, RESCIND SUCH TRANSFERS.

This policy of course, does not <u>require</u> that transfers be made with conditions for rescission. It merely permits such transfers so that DNREC may accept, probably by gift, properties that owners might otherwise be reluctant to transfer.

10. DNREC SHALL ADOPT ADDITIONAL POLICIES FOR THE ACQUISITION OF NATURAL AREAS AS IT DEEMS NECESSARY TO EFFECTUATE THE PURPOSES OF THESE CMP POLICIES.

C. Preservation of Areas Selected for Acquisiton

11. NATURAL AREAS ACQUIRED PURSUANT TO THESE POLICIES SHALL BE ESTABLISHED AS NATURE PRESERVES. PROPERTY SHALL NOT BE ACQUIRED FOR THE ESTABLISHMENT OF NATURE PRESERVES UNLESS THE TERMS OF ACQUISITION RESTRICT THE USE OF THE ACQUIRED AREA IN A MANNER WHICH ADEQUATELY PROVIDES FOR ITS PRESERVATION AND PROTECTION AGAINST MODIFICATION OR ENCROACHMENT.

This policy, coupled with the next one, guarantees that the property acquired for nature preserves will be protected. Exceptions appear in Policy Numbers 9 and 13.

12. DNREC SHALL ENFORCE THE TERMS OF ACQUISITION OF PROPERTY ACQUIRED FOR NATURE PRESERVES.

13. NATURE PRESERVES SHALL NOT BE TAKEN FOR ANY USE INCONSISTENT WITH PRESERVATION EXCEPT FOR ANOTHER PUBLIC USE AFTER: (1) A PUBLIC HEARING; (2) A FINDING BY DNREC THAT AN IMPERATIVE AND UNAVOIDABLE PUBLIC NECESSITY FOR SUCH OTHER PUBLIC USE EXISTS; (3) APPROVAL OF THE GOVERNOR AFTER CONSULTATION WITH THE DELAWARE NATURAL AREAS ADVISORY COUNCIL; <u>AND</u> (4) A LEGISLATIVE ACT, NOT LESS THAN SIX MONTHS FROM THE DATE OF THE GOVERNOR'S APPROVAL AUTHORIZING SUCH TAKING. THIS POLICY SHALL NOT APPLY, HOWEVER, TO NATURAL AREAS DEDICATED AS NATURE PRESERVES IF THE TERMS OF SUCH DEDICATION PROVIDE OTHERWISE.

5.B.2.

This policy makes transfers of nature preserves possible but difficult. Thus, such transfers can be made under unusual circumstances, but only after careful deliberation. The policy promotes preservation and encourages transfers by private owners who are inclined to dedicate natural areas for preservation but are fearful that the State might use the property for another purpose.

14. DNREC SHALL FORMULATE ADDITIONAL POLICIES AND RULES FOR THE USE, MANAGEMENT, AND PROTECTION OF NATURE PRESERVES AS IT DEEMS NECESSARY TO EFFECTUATE THE PURPOSES OF THESE CMP POLICIES. AT A MINIMUM, SUCH POLICIES AND RULES SHALL PROVIDE THAT THE EXTENT AND TYPE OF VISITATION AND USE TO BE PERMITTED SHALL BE CONSISTENT WITH THE OBJECTIVES OF POLICY STATEMENT NUMBER ONE.

This policy allocates DNREC rule-making authority to manage the nature preserves. Again the CMP is concerned not with the particulars of the management scheme, but rather that the broader preservation objectives are assured.

D. Consideration of Natural Areas Selected for Registration

15. DNREC IS EMPOWERED AND URGED TO FOSTER AND AID IN THE ESTABLISHMENT, RESTORATION, AND PRESERVATION OF NATURAL CONDITIONS WITHIN THE STATE ELSEWHERE THAN IN NATURE PRESERVES, INCLUDING AREAS ON THE REGISTRIES ESTABLISHED PURSUANT TO POLICY NUMBER THREE.

Areas placed on the register but not included in a nature preserve also may merit special consideration prior to any modification or encroachment. Indeed, one of the primary purposes of establishing and maintaining the registries pursuant to Policy Number Three is to raise public awareness with respect to important natural areas in the State. It is hoped that local units of government and private individuals will then consider carefully the alternatives to developing such areas.

16. THE DELAWARE OFFICE OF MANAGEMENT, BUDGET, AND PLANNING SHALL CONSIDER AREAS REGISTERED PURSUANT TO POLICY NUMBER THREE DURING THE PREPARATION OR AMENDMENT OF THE STATEWIDE PLAN DESIGNATING CRITICAL AREAS PURSUANT TO TITLE 29, CHAPTER 92 OF THE DELAWARE CODE.

5.B.2.

Actions affecting areas which are designated Critical Areas pursuant to Title 29, Chapter 92 of the Delaware Code are subject to the coordination and review processes in that Chapter. Other sections of the document, most notably Section 5.E. and Appendices E. and F., describe those processes in detail. Here it is sufficient to note that once natural areas are designated Critical Areas, decisions by local or State government to allow their alteration are subject to public review, with opportunities for hearings, written comments, and review by the State Planning Council.

In addition to the Title 29, Chapter 92 review mechanism, careful consideration will precede the alteration of important natural areas which are not protected as nature preserves by virtue of other State and local plans and programs too numerous for mention herein. Among these are the A-95 State review process and the Delaware Statewide Comprehensive Outdoor Recreation Plan.

AUTHORITIES

Title 7, Chapter 73 of the Delaware Code, an outgrowth of the CMP, provides most of the authority for the policies. In addition, the Executive Order which requires State agencies to implement the policies (within legislatively authorized limits) and Title 29, Chapter 92 of the Delaware Code are relied upon for enforcement purposes. Authorities Table Five cites the specific authority for each policy.

AUTHORITIES TABLE FIVE

Policy Number	Authority
1	7 Delaware Code 7303, 7302(f) and 7306
2	7 Delaware Code 7307(a) and 7305(a)(3) & (4)
3	7 Delaware Code 7303, 7307(b) &(f) and 7305(e)(2)
4	7 Delaware Code 7307(f)
5	7 Delaware Code 7306(a)
6	7 Delaware Code 7307(g) & (h)
7	7 Delaware Code 7307(e)
8	7 Delaware Code 7311
9	7 Delaware Code 7306(d)
10	7 Delaware Code 7307(a)
11	7 Delaware Code 7306(a) & (c)
12	7 Delaware Code 7310, 7305(e)(4), 7307(d) & (h) and 7308

5.B.2.

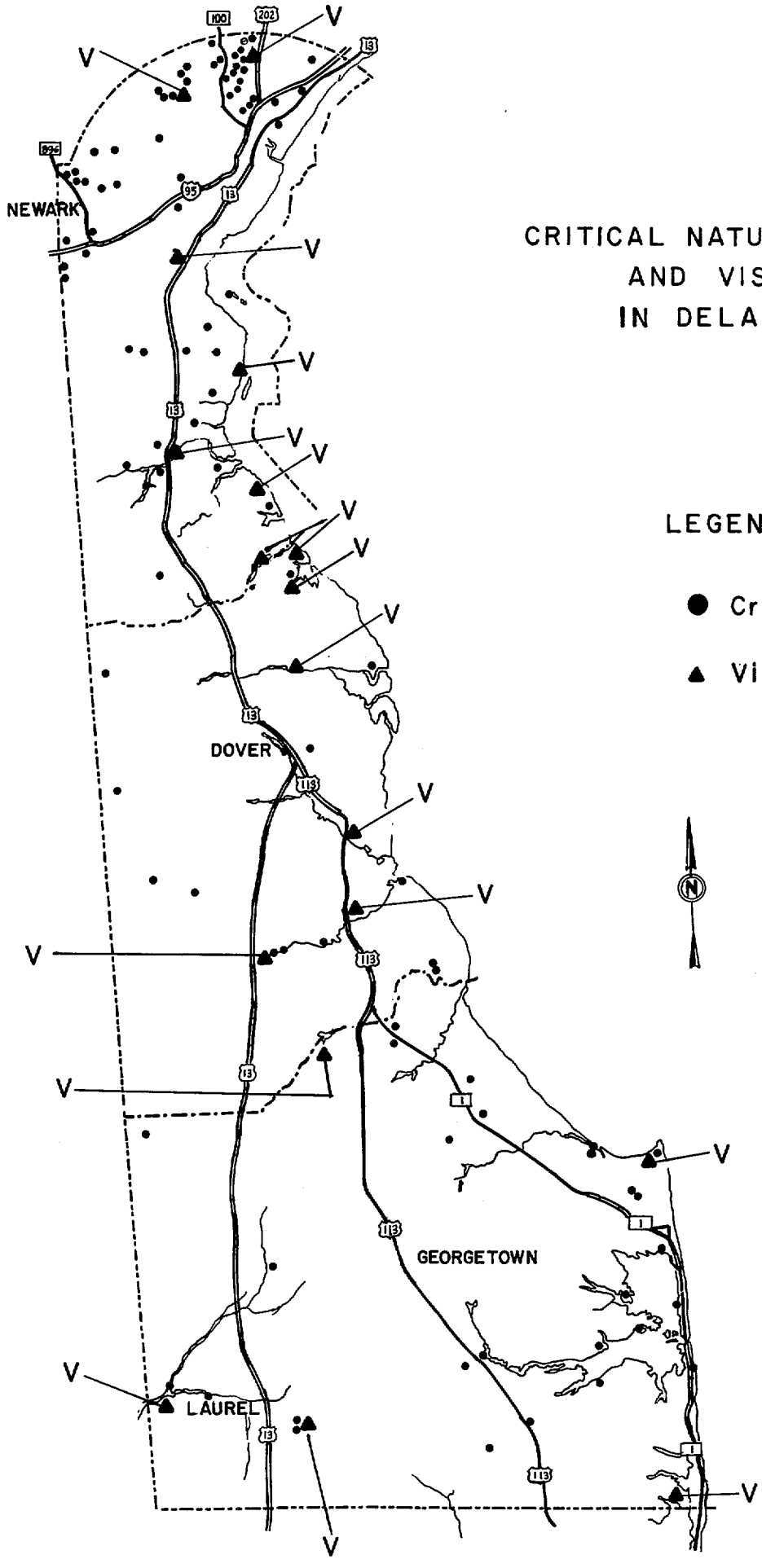
13	7 Delaware Code 7308 and 7309
14	7 Delaware Code 7307(a), 7308, 7305(e)(4), and 7303
15	7 Delaware Code 7307(h)
16	Executive Order Number 61; 29 Delaware Code 9201, 9292(d), and 9212

Selected References: Natural Areas

1. Critical Areas, A Guidebook for Development of State Programs, U. S. Department of the Interior, Office of Land Use and Water Planning and U. S. Geological Survey/RALI Program, Washington, DC 1975.

2. Delaware Comprehensive Outdoor Recreation Plan, (SCORP) 1978, Department of Natural Resources and Environmental Control, Dover.

3. Delaware's Outstanding Natural Areas and Their Preservation, by Lorraine Flemming, Delaware Nature Education Society, Hockessin, Delaware, 1978 (portions initially published by DNES as: New Castle County Natiural Areas Study, 1975, and Critical Natural Areas, Kent and Sussex Counties 1976).



CRITICAL NATURAL AREAS AND VISTAS IN DELAWARE

LEGEND

● Critical Natural Areas

▲ Vistas

FLOOD HAZARD AREAS

SIGNIFICANCE AND VALUE

For purposes of the CMP, flood hazard areas are significant primarily because of the damage that may result from development in these locations. Such damages affect not only those whose property is involved, but also the taxpayer through expenditures by all levels of government for disaster relief, reconstruction aid, flood control works and related efforts. In addition to the loss of life and property, floods result in other health and safety hazards, disruption of governmental services impairment of the tax base, and loss of agricultural production.

Hazards due to flooding are generated by any one or a combination of natural phenomena and affect various geographic areas of the State in different ways. These phenomena are:

1. Overland Runoff - Runoff from heavy precipitation is the primary cause of flood problems in large drainage basins with steep gradients. The area chiefly affected by this flood mode in the Delaware region is the Christina River basin where the relatively steep sloped land allows rainfall to run off easily and accumulate in watercourses more rapidly than in relatively flat drainage systems. In the Christina River basin, then, flood waters are usually confined to relatively narrow floodplains, which are subject to velocity waters and flashfloods. Continued development often changes the runoff characteristics of such areas and increases the flood hazard and frequency downstream unless storm water management controls are provided. In Delaware's Coastal Plain province on the other hand, runoff is much less significant because of the very flat topography of individual drainage systems.

2. Tidal Surge - Increased water elevation resulting from reduced atmospheric pressure and wind-driven tides is the most prevalent type of flooding in Delaware and is a characteristic of hurricanes and northeasters. In the Coastal Plain the low-lying, flat topography that attenuates the effects of runoff, permits tidal surges to inundate large areas of land. The majority of Delaware's floodprone areas are susceptible to this type of flooding, except for some areas along the shores of the Little Bays and the back side of the Atlantic barriers. These floodplains are presently sparsely developed. Development pressures in some of these floodplains, however, are significant and increasing damages may be expected from tidal flooding in the future.

3. Coastal Overwash - This phenomenon is the most significant form of flooding along the beachfronts of Delaware Bay and the Atlantic Ocean and is characterized by severe beach erosion and the breach of dunes or other protective structures by wind-driven waves. This type of flooding is responsible for the majority of the State's flood losses.

The hazards of floodplain occupancy were never more poignantly underscored than during the Great Storm of 1962. To date, the destruction in Delaware caused by the March 1962 storm has never been exceeded, although a winter storm in December 1974 came close to doing so. The 1962 storm caused an estimated $16-22 million in damages (at 1962 price levels) and the death of seven Delawareans. Strong sustained northeast winds raised the record high tides to 7.9 feet above mean sea level at Lewes. Waves of 20 to 30 feet battered coast, destroying or flooding residential, commercial and public property; eroding beaches; undermining highways; flattening coastal dunes; and inundating thousands of acres of cropland. Along the barrier beaches 3,183 structures were flooded, and of those, 1,409 were damaged structurally.

The national interest in flood hazard areas was articulated by the President. In a statement accompanying Executive Order 11988, the President stated the following:

> "The floodplains which adjoin the Nation's inland and coastal waters have long been recognized as having special values to our citizens. They have provided us with wildlife habitat, agricultural and forest products, stable ecosystems, and park and recreation areas. However, unwise use and development of our riverine, coastal, and other floodplains not only destroy many of the special qualities of these areas but pose a severe threat to human life, health and property.
>
> Since the adoption of a national flood control policy in 1936, the Federal Government has invested about $10 billion in flood protection works. Despite substantial efforts by the Federal Government to reduce flood hazards and protect floodplains, annual losses from floods and adverse alteration of floodplains continue to increase.

> The problem arises mainly from unwise land use practices. The Federal Government can be responsible for or can influence these practices in the construction of projects, in the management of its own properties, in the provision of financial or technical assistance including support of financial institutions, and in the uses for which its agencies issue licenses or permits. In addition to minimizing the danger to human and nonhuman communities living in floodplains, active floodplain management represents sound business practice by reducing the risk of flood damage to properties benefiting from Federal assistance.
>
> Because unwise floodplain development can lead to the loss of human and other natural resources, it is simply a bad Federal investment and should be avoided. In order to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. I have issued an Executive Order on floodplain management."

The Congress, who has also acknowledged these problems, passed the Flood Insurance Act of 1968, and the Flood Disaster Protection Act of 1973. These statutes established the Federal Flood Insurance Program, a program intended as a substitute and eventual replacement for Federal disaster relief for floods. To accomplish this, property owners are encouraged to purchase subsidized flood insurance; new structures are required to meet minimum construction standards for floodplain occupancy and carry flood insurance at actuarial rates; and local governments are encouraged to adopt and administer floodplain regulations. Failure of any individual or government to participate makes it ineligible for Federal disaster relief or Federal grants, loans or other aid in flood-prone areas.

Flood hazard areas are, of course, significant for reasons other than their effect on development. In their natural or near natural state they can be esthetically pleasing. Of the thirty-nine natural vistas identified by the Delaware Nature Education Society for the Coastal Management Program, all but one involved a water body and its adjacent floodplain. In addition, flood hazard areas provide important wildlife habitat because of their interrelationships with river, estuarine, marine and wetland environments. Moreover, these areas are of value for recreation, particularly for those activities involving water access, wildlife observation, hiking, and other passive forms of recreation. Most of Delaware's parks and wildlife areas are located around floodplain environments because of those values. Unfortunately, however, these amenities also make floodplains attractive for residential development, particularly near coastal resort areas.

Flood hazard areas and the problems associated with flooding are crucial to agriculture. Severe crop damage, loss of livestock and poultry, and damage to equipment and buildings can result from flooding, and one recent report by the Water Resource Council suggests that in some areas the loss to agriculture may be half of the total losses resulting from flooding. State and Federal (U.S. Soil Conservation Service) watershed and flood protection projects are designed to reduce damages to agriculture as well as to urban uses within the project areas.

Finally, flood hazard areas are important to industry, public utilities and municipalities for water access and port development, access to water supplies, waste discharges, sewer line rights-of-way and other related needs.

FLOOD HAZARD AREAS MANAGEMENT ISSUES

Two interrelated causes of flood damages are (1) the location of buildings and other floodplain obstructions and (2) the construction techniques used for structures located in floodprone areas.

The location of buildings in areas subject to high velocity waters creates several problems. In river floodplains buildings, fill or other obstructions, if not destroyed from the force of flowing water, can obstruct flood flows and increase flood elevations upstream or water velocity downstream. Floating debris from damaged structures or from the storage of floatable materials can cause additional damage as these materials are swept downstream. In areas susceptible to coastal overwash, building location is of particular importance.

The closer a structure is to the shoreline, the more likely it is to be damaged or destroyed. Moreover, the probability of damage increases geometrically as one moves closer to the shoreline.

Location is less significant in areas susceptible to standing as opposed to velocity waters. The former areas are located on the riverine floodplain fringes, some back barrier locations and estuarine locations subject to low velocity tidal surge. The problems here are associated with inadequate structural elevation, the use of improper construction materials, improper or non-existent flood proofing of electrical and mechanical equipment and public utilities, such as sewer and water treatment and transmission facilities.

The primary management issues for flood hazard areas involve who should take control of such areas and how they should be managed, developed or conserved so as to (1) minimize or eliminate the potential damage to structures and public facilities; (2) minimize public subsidies for floodplain development and rebuilding after storm damage; and (3) permit reasonable use of private property.

The use of certain flood hazard areas for wildlife, recreation and esthetic purposes presents additional management issues. The federal government, for example, manages large floodprone holdings in Delaware for wildlife preservation and recreational pursuits. The State owns 12,000 acres of land dedicated to wildlife management and 7,200 acres of parkland which are related to water features and contain large amounts of floodprone land. Local governments in New Castle County own numerous stream valley parks. The County also encourages developers to dedicate floodplains for recreation purposes as part of the subdivision process. Other units of government have designated such areas as part of comprehensive planning efforts and many exercise some control over development in such areas.

CMP policies which address the management of flood hazard areas to promote wildlife, recreation, and aesthetic objectives are scattered throughout the document. The most relevant policies can be located in Sections 5.A.1., 5.B.2., 5.C.5., and 5.D.5. The remainder of this section addresses storm damage problems associated with flood hazard areas.

GENERAL CMP POLICY FOR
FLOOD HAZARD AREAS MANAGEMENT

1. THE PRIMARY RESPONSIBILITY FOR FLOODPLAIN MANAGEMENT IN DELAWARE SHALL REST WITH THE LOCAL UNITS OF GOVERNMENT IN THE STATE.

5.B.3.

The Federal Flood Insurance Program, administered by the Federal Insurance Administration, offers incentives for local communities to impose construction standards for facilities or otherwise regulate floodplain development. Under the program, owners of property located in designated floodprone areas may purchase federally subsidized floodloss insurance at affordable rates, if affected communities prudently regulate development in flood hazard areas. The legal tools available to local government for floodplain management include: zoning ordinances, which prohibit certain uses in designated floodways; subdivision regulations and flood hazard maps and studies which map the floodplain, prohibit fill in channels and floodways that would restrict flow, and require that subdivision roads be above the elevation of a selected flood level; and building codes, which require proper anchorage, establish minimum basement and first floor elevations, restrict the use of materials which deteriorate rapidly in water, prohibit equipment or materials which are hazardous when submerged and require structural strength.

As of September 30, 1978, the FIA had identified 43 Delaware communities with flood prone areas; 41 of these were in the flood program, one (Millville) was not in the program and another (Arden) was awaiting delineation of flood prone areas. Of the remaining 41 communities, 16 were in the regular program and no Delaware community had been suspended.

At this time, comprehensive State management of floodplains is inappropriate because it would be duplicative, unnecessary, and disruptive. However, as the policies below indicate, if local floodplain management efforts prove unsatisfactory during program implementation, the CMP policy will be amended to give the State more control of flood hazard areas management.

The decision to delegate primary responsibility for flood hazard areas management to local government is also based on the fact that the State exerts substantial influence on such management through the encouragement policies which follow and regulatory controls. Although flood hazard areas are not regulated by the State per se, there are several statutes which encourage flood hazard reduction. These statutes and their implementing regulations are discussed in detail elsewhere in the document and include the Beach Preservation Act, the Wetlands Act, the Natural Areas Act, and the Coastal Zone Act.

SPECIFIC CMP POLICIES FOR
FLOOD HAZARD AREAS MANAGEMENT

2. LOCAL UNITS OF GOVERNMENT IN THE STATE ARE AUTHORIZED--PURSUANT TO LOCAL ZONING POWERS, SUBDIVISION REGULATIONS, BUILDING CODES, AND ANY OTHER APPLICABLE POWER VESTED IN SUCH UNITS OF GOVERNMENT--TO MANAGE FLOOD HAZARD AREAS IN A MANNER WHICH IS CONSISTENT WITH THE FEDERAL FLOOD INSURANCE PROGRAM.

The CMP relies on the experience and expertise of the Federal Insurance Administration to provide standards for local implementation which will result in sound flood hazard areas management, and which thereby address many of the management issues identified above.

3. THE DESIGNATED LEAD STATE AGENCY FOR CMP IMPLEMENTATION SHALL ENCOURAGE LOCAL UNITS OF GOVERNMENT IN THE STATE TO PARTICIPATE IN THE FEDERAL FLOOD INSURANCE PROGRAM.

The federal incentives for participation have already been mentioned. State efforts to promote participation are multi-faceted. The CMP has already sponsored a study entitled Coastal Storm Damage 1923-1974, which has helped expand public awareness of the problems associated with coastal storm phenomena. CMP newsletters, workshops and other public information devices have also been utilized for this purpose during program development. In addition, the Delaware Office of Management, Budget, and Planning (OMBP), the agency responsible for CMP development, has encouraged and assisted local communities to apply for federal funding to develop floodplain management programs. Moreover, local governments which implement these CMP policies are eligible for funds under Section 306 of the Federal Coastal Zone Management Act. Finally, participation in the program may afford certain communities the unique opportunity to influence federal actions under Section 307 of the Act, which is discussed in Appendix F. Thus, the lead agency has several means by which it can encourage local participation in the federal program.

Policy Number Three is purposely phrased in generalities rather than specifics. The level of encouragement which will be required is open-ended because the future need for encouragement is uncertain. At present, participation is so outstanding that it is hoped that not much encouragement will be necessary.

4. THE OFFICE OF MANAGEMENT, BUDGET, AND PLANNING (OMBP) SHALL MONITOR AND ANNUALLY REVIEW LOCAL FLOODPLAIN MANAGEMENT PROGRAMS ADOPTED PURSUANT TO THE FEDERAL FLOOD INSURANCE PROGRAM TO DETERMINE IF THEY ARE BEING ADMINISTERED PROPERLY AND ARE ACHIEVING FLOOD DAMAGE REDUCTION OBJECTIVES. THE STATE SHALL ALSO PERIODICALLY REVIEW THE FEDERAL FLOODPLAIN STANDARDS AS THEY APPLY TO DELAWARE TO DETERMINE IF THEY ARE ADEQUATE TO MITIGATE DAMAGE IN THE STATE'S FLOODPLAINS AND TO DETERMINE WHETHER FEDERAL AGENCIES ARE COMPLYING WITH THE SPIRIT AND INTENT OF PRESIDENTIAL EXECUTIVE ORDER NUMBER 11988. IN THE EVENT THAT ANY OF THE ABOVE DETERMINATIONS INDICATE THE NEED FOR REMEDIAL ACTION, THE AFOREMENTIONED AGENCY SHALL TAKE WHATEVER MEASURES IT DEEMS APPROPRIATE TO CORRECT THE SITUATION.

This policy gives the OMBP an oversight role. Appropriate remedial measures may, but do not necessarily, include (1) recommendations to local governments for improving administration; (2) modifications of CMP "pass-through" funding; (3) recommendations to the Governor or General Assembly for improving flood hazard area management; or (4) application of the Section 307 (federal consistency) provisions of the federal Coastal Zone Management Act. Review of the effectiveness of local floodplain management programs will be included in annual CMP evaluations. The review will assess flood loss experience, local progress in satisfying the F.I.A. requirements, the number and scope of permits and variances granted for construction in floodplains, and such other factors as seem relevant to determine the effectiveness of the local programs.

5. ALL STATE AGENCIES SHALL PARTICIPATE IN AND COMPLY WITH THE REQUIREMENTS OF THE FEDERAL FLOOD INSURANCE PROGAM.

This policy simply makes sure that the many State government actions which may affect flood hazard areas management are consistent with federal and local efforts.

6. STATE AGENCIES SHALL TO THE MAXIMUM EXTENT POSSIBLE MINIMIZE THE THREAT POSED BY FLOOD HAZARDS FOR THE FOLLOWING ACTIVITIES: (1) THE CONSTRUCTION OF STATE BUILDINGS, STRUCTURES, ROADS OR OTHER FACILITIES; (2) THE ADMINISTRATION OF GRANT OR LOAN PROGRAMS INVOLVING SUCH CONSTRUCTION BY OTHER GOVERNMENTAL ENTITIES OR PRIVATE PARTIES; (3) THE TRANSFER OF LANDS OR OTHER PROPERTIES; AND (4) PROGRAMS WHICH AFFECT OR INFLUENCE LAND DEVELOPMENT.

This policy requires State agency consideration of flood hazards beyond that which is required in the federal program. OMBP has several tools at its disposal to encourage such consideration. It has been designated as the agency responsible for the review of all federally aided projects pursuant to the federal Office of Management and Budget Circular A-95, established by Section 204 of the Demonstration Cities and Metropolitan Areas Development Act of 1966 and Title IV of the Intergovernmental Cooperation Act of 1968. OMBP's review is based upon conformance with the State Comprehensive Development Plan which OMBP developed pursuant to the Delaware Planning Act. The CMP is an amendment to that Plan and, therefore, OMBP review and comment on any federally funded project affecting flood hazard areas must reflect the policies contained herein (OMBP's review pursuant to Circular A-95 also considers county and local plans as well as various State plans and programs.)

OMBP is also the State agency responsible for the preparation of the statewide plan designating Critical Areas, which will be used to implement portions of the Delaware Land Use Planning Act. By including some or all of the floodplains in the plan, State and local actions involving those areas will be subject to the Land Use Planning Act review process, described elsewhere in the document.

Finally, and perhaps most importantly, the Governor has designated OMBP to oversee State compliance with the Federal Flood Insurance Program. Thus, the Governor expects other State agencies to pay close attention to OMBP's policies on flood hazard areas management. The next policy statement adopts one of the Governor's directives in this regard.

7. ALL STATE AGENCIES, IN COOPERATION WITH THE DELAWARE OFFICE OF MANAGEMENT, BUDGET, AND PLANNING, SHALL CONDUCT A SURVEY OF THEIR HOLDINGS AND IDENTIFY THOSE STRUCTURES AND SITES WHICH ARE FLOOD PRONE. AN INVENTORY SHALL BE MAINTAINED BY SUCH AGENCIES AND UPDATED AS OF JUNE 30 OF EACH YEAR, INDICATING: SUCH STRUCTURES, SITES, AND USES THEREOF; THE REPLACEMENT OR CURRENT ECONOMIC VALUE OF THE STRUCTURES, THEIR CONTENTS, AND SITES; AND RECORDS OF FLOOD-RELATED DAMAGE INCURRED BY THE STRUCTURES, CONTENTS OR SITES.

This policy helps the State to comply with the requirements of the Federal Flood Insurance Program and also raises State government awareness of flood hazards.

5.B.3.

8. THE DESIGNATED LEAD STATE AGENCY RESPONSIBLE FOR CMP IMPLEMENTATION SHALL MONITOR FEDERAL ACTIONS WHICH MAY AFFECT STATE OR LOCAL FLOOD HAZARD AREAS MANAGEMENT, AND TAKE WHATEVER ACTION IT DEEMS APPROPRIATE TO ENCOURAGE OR REQUIRE SUCH ACTIONS WHICH ARE INCONSISTENT WITH SUCH MANAGEMENT TO BE MODIFIED IN A MANNER THAT WILL MAKE THEM CONSISTENT.

This policy is primarily intended to apprise local units of government that the CMP is committed to supporting their flood hazard areas management efforts. Section 307 of the federal Coastal Zone Management Act requires that federal actions must be consistent with the State CMP unless there is an over-riding national security objective requiring non-compliance or unless the Secretary of Commerce determines that the activity is consistent with the objectives of the federal Coastal Zone Management Act. Local flood hazard areas management programs are incorporated in the CMP. Thus, Section 307 may be used to assist local governments to implement their programs. Appendix F. discusses Section 307 in greater detail.

AUTHORITIES

All counties and incorporated communities in Delaware are authorized to establish zoning and subdivision ordinances and building codes. The enabling statutes are sufficiently broad to permit regulation of structures for flood damage mitigation purposes, and in a manner consistent with the Federal Flood Insurance Program. Authorities Table Six cites the specific constitutional and statutory sections of the Delaware Code which provide counties and municipalities this authority.

The CMP policy does not require all local units of government to establish floodplain regulations because the voluntary program is working well. The imposition of a mandatory program might, given the current success of the voluntary program, upset local governments to the point that the entire program could be jeopardized. The participation of the only "hold-out" in the Federal Flood Insurance Program is not essential in the light of such a risk.

The authority for the policies which call for State action is derived mostly from Executive Orders. Executive Order Number 61 requires State agencies to implement the CMP; Executive Order Number 48 designates OMBP to oversee State compliance with the Federal Flood Insurance Program; and Executive Order Number 29 designates OMBP as the A-95 State Clearinghouse.

AUTHORITIES TABLE SIX

Policy Number	Authority
1	Del. Const., art. II, §25; 9 Del. Code Ch. 26, 30, 44, 49, 63, 68 and 69; 22 Del. Code Ch. 3
2	Del. Const., art. II, §25; 9 Del. Code Ch. 26, 30, 44, 49, 63, 68 and 69; 22 Del. Code Ch. 3
3	Executive Order Number 61
4	Executive Order Number 61
5	Executive Order Numbers 48 and 61
6	Executive Order Numbers 29, 48 and 61; 29 Del. Code 9212 and 9225
7	Executive Order Numbers 48 and 61
8	Executive Order Number 61

Selected References: Flood Hazard Areas

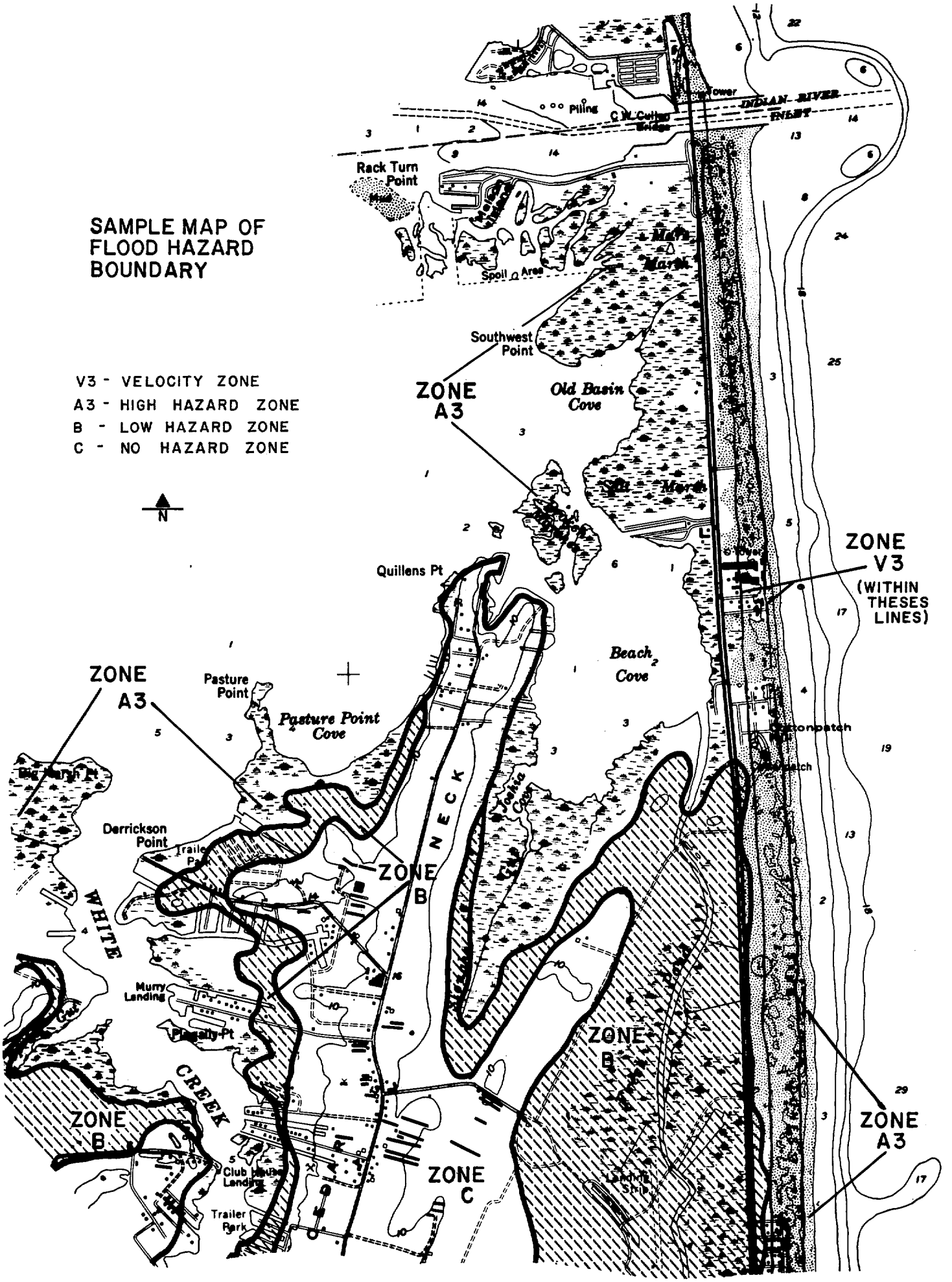
1. A Perspective on Flood Plain Management, Office of Chief of Engineers, U. S. Army Corps of Engineers, Washington, DC June 1976.

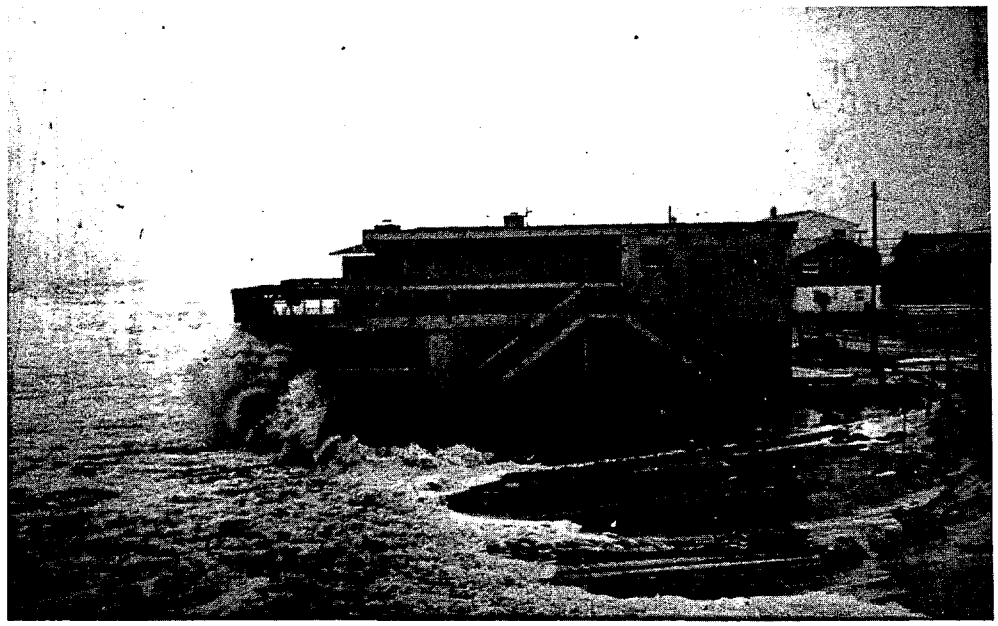
2. Coastal Storm Damage: 1923-1974, Technical Report No. 4, Delaware Coastal Management Program, Dover, September 1977.

3. Delaware's Changing Shoreline, Technical Report No. 1, Delaware Coastal Management Program, Dover, August 1975.

4. National Attempts to Reduce Losses from Floods by Planning for and Controlling the Uses of Flood Prone Lands, U. S. Comptroller General, March 1975.

5. Natural Hazard Management in Coastal Areas, U. S. Department of Commerce, Office of Coastal Zone Management, Washington, DC, November 1976.


SAMPLE MAP OF
FLOOD HAZARD
BOUNDARY
V3 - VELOCITY ZONE
A3 - HIGH HAZARD ZONE
B - LOW HAZARD ZONE
C - NO HAZARD ZONE
N
Piling
C.N. Cutler Bridge
INDIAN RIVER INLET
Rack Turn Point
Spoil Area
Southwest Point
ZONE A3
Old Basin Cove
Quillens Pt
ZONE V3 (WITHIN THESES LINES)
Beach Cove
Pasture Point
Pasture Point Cove
ZONE A3
Derrickson Point
ZONE B
NECK
WHITE
Murry Landing
CREEK
ZONE B
ZONE C
ZONE B
ZONE A3
Trailer Park



5.B.4.

PORT OF WILMINGTON

SIGNIFICANCE AND VALUE

The Port of Wilmington is the State's most important port facility and clearly a facility of unique coastal-related value. As such, the Port is designated as a CMP Area of Particular Concern. The CMP encourages port development wherever it is economically desirable and consistent with environmental objectives and policies, and recognizes that the Port of Wilmington is an especially attractive site for meeting regional and national port needs.

The Port of Wilmington is owned and controlled by the City of Wilmington. An average of 225 members of the International Longshoremen's Association and 100 full-time Port employees are responsible for the Port's daily operation, management and maintenance. The Port is located on the south bank of the Christina River at its confluence with the Delaware, 65 nautical miles above the mouth of the Delaware Bay. Wilmington is the first major inbound port on the Delaware. Comprised of 200 acres with several hundred acres available for expansion, the Port's uncongested facilities are designed for rapid loading and unloading of trucks and rail cars. Numerous truck lines service the Port, and utilize Interstate Highways I-95 and I-495 for easy access to Washington, Baltimore, Philadelphia and New York. Full service railways and 7½ miles of Port-owned track also facilitate efficient overland movement of cargo from the Port.

Moreover, the Chesapeake and Delaware Canal, which connects the Delaware River and Bay to the upper reaches of the Chesapeake Bay across a 14-mile strip of Delaware and Maryland countryside, provides convenient water access to and from the Port of Wilmington to the Port of Baltimore. The Port now has berths with greater than 35 foot depths (MLW) able to simultaneously accommodate eight vessels of the largest size that currently travel the Delaware River and Bay.

Discharge of cargo is expedited by three Gantry cranes with a capacity of up to 100 tons. Equipped with 54-inch magnets and cargo block and buckets up to 14-cubic yard capacity, these cranes are able to handle all types of large, bulk or palletized cargo. A bulk tower equipped with a 9½ cubic yard bucket for loading and unlaoding of basic ores, such as fluorspar, gypsum, titanium, chrome, illemenite, petrocoke, urea and many others, dominates the Port's bulk handling facilities. The tower is also equipped with a cargo block capable of handling lifts of up to 25 tons. Cargo can

be dispatched directly from ships to freight cars, trucks, or lighters, saving handling costs and speeding delivery.

Over two million square feet of open storage area are available to both exporters and importers at the Port. Thousands of Fiat and Volkswagon cars await shipment across the United States on a 33-acre blacktop parking lot. Indeed, the Port of Wilmington is the largest port of entry for Fiats in the United States. In addition, the Port imports tractors and heavy construction equipment, and exports large numbers of General Motors, Chrysler Corporation and American Motors vehicles. Other cargoes which the Port provides open storage for are lumber, pumice, steel, automotive parts, lead and iron.

There are 472,000 square feet of enclosed warehouse and storage space within a few hundred feet of dockside, offering efficient storage for both package and bulk goods as well as facilitating rapid loading and unloading. The Port also has bagging facilities for those bulk items which need to be packaged for shipment.

In Fiscal Year 1977, the Port handled almost 2.4 million tons of cargo, valued at nearly $500 million. Roughly one-half the total tonnage was crude oil and approximately three-fifths was some form of fuel. Together with the Getty Oil Comapny port facility in Delaware City, which accommodates an average of 100-120,000 barrels of crude oil per day, the ports serve regional and national energy needs.

The Port of Wilmington is one part of a regional port complex which handled almost 80 million short tons of cargo in 1974, and which accounts for roughly one-seventh of the Nation's total tonnage; more than any other port complex. Maintenance of these port facilities is important to the Delaware Valley because of the essential fuels and basic raw materials necessary for a vigorous economy which are handled by the Port.

Partly because of its significant value to Delaware, the Port of Wilmington is specifically excluded from the offshore bulk product transfer facility prohibition in the Delaware Coastal Zone Act.

5.B.4.

PORT OF WILMINGTON
MANAGEMENT ISSUES

Port activities in general raise a number of issues which are addressed in Section 5.D.9. (Transportation Facilities). The Port of Wilmington raises its own special issues, however, particularly those relating to continued economic health and large, long-term capital investment needs.

Considerable effort has been made to examine the future course of the Port. A comprehensive Port Development Plan was prepared in 1972 under the direction of the City of Wilmington. The Plan analyzes port markets; develops short-term market forecasts; describes port facilities and future facility requirements; schedules port development activities; calculates revenue and expense projections; and recommends financing strategies. Unfortunately, some of the Plan will be outdated in the near future. The 1972 market forecasts, for example, were developed only for the ensuing 6-year period. An update study was scheduled for 1978.

The City of Wilmington, of course, has not been alone in considering the Port's future. In July 1972, a Governor's Task Force on Marine and Coastal Affairs issued a plan for action with respect to Delaware's coastal zone. Among other things, the plan describes the existing port facilities in the State; reports the volume, nature, and importance of port traffic; reviews potential port growth trends; identifies existing and potential port hazards; discusses problems impeding improvements in marine transportation; and recommends measures for addressing the problems. The problems identified in the plan include: (1) Insufficient financial commitment for maintenance and development of the channels, harbors, ports and shore facilities to utilize the water resource; (2) The need for study and research to prepare for the rapidly changing technology and specialization of cargoes and ports and the creation of new deepwater ports and harbors to service the next generation of superships; (3) The inadequate depth of the river and bay channel for long-haul cargo ships; and (4) The lack of suitable sites for spoil disposal from dredging operations. The Task Force also found that the City bears the operating costs of the port and receives no support for paying its bonded debt, while port benefits extend to State and county governments, as well as private businesses.

In 1974, another Gubernatorial Committee was formed, this time by Executive Order and for the exclusive purpose of studying the Port of Wilmington. The final report of the committee reviews the Port's finances, operational functions and shipping activity. It also forecasts port use, develops an investment strategy, describes institutional alternatives, and makes findings and recommendations on the future of the Port. Once again, the report finds that all the financial burdens of the Port fall on the City of Wilmington while benefits are dispersed throughout the State and region.

Particularly important were findings of the 1974 study that "Terminal geographical location, channel depth, availability and cost of nearby land, very good lighting and rail access are assets capable of much greater development," and that "Even conservative tonnage forecasts for Wilmington suggest that the present pier will be at capacity and suffer from congestion before 1980" unless a significant upgrading and expansion program is conducted.

The need for upgrading and expansion, originally documented in the Port's Master Plan, was emphasized by recent action to accelerate dredging near the Port. A 1977 examination of maintenance dredging alternatives indicated a six month build-up of silt to a depth of 12 feet caused the loss of business to the region stimated at almost $10,000,000.

GENERAL CMP POLICY FOR PORT OF WILMINGTON MANAGEMENT

1. THE LONG-TERM ECONOMIC VIABILITY AND COMPETITIVENESS OF THE PORT OF WILMINGTON SHOULD BE ENCOURAGED AND SUPPORTED.

The CMP recommends that the State and others support the Port because it is a resource of special Statewide and regional importance. The policies which follow recommend specific strategies for implementing the general policy.

SPECIFIC CMP POLICIES FOR PORT OF WILMINGTON MANAGEMENT

2. THE PEOPLE WHO BENEFIT FROM THE PORT OF WILMINGTON SHOULD CONTRIBUTE TO ITS SUPPORT AND HELP MAINTAIN THE FINANCIAL HEALTH OF THE PORT.

The State policy for the Port of Wilmington was re-established by the Delaware Tomorrow Commission whose final report (January 1976) was adopted as part of the Delaware Comprehensive Development Plan

by the Governor pursuant to the Delaware Code. The report recommends that the State of Delaware contribute to the expansion of the Port of Wilmington by providing "necessary capital investment."

Fortunately, many of the recommendations of previous study committees have been heeded. For example, the City has expanded the size of the Port and upgraded its facilities to meet what is expected to be an increasing use of the facility. From 1970-1975, the City allocated over $3 million in capital expenditures for Port development. Another $10 million has been recommended by the City Planning Commission for capital improvements to the Port over the 6-year period from 1976-1981. Nearly half of this sum is dedicated to repairs and improvements of existing facilities. The remaining money is allotted to land reclamation, crane purchase, annual improvements, and freezer conversion and expansion. The City has committed $3.4 million of local public works funds to reconstruct the remaining original docks and to convert a warehouse into a freezer and chill facility.

The City of Wilmington and the State are undertaking the development of an investment strategy for the Port of Wilmington. The main purpose of this effort is to provide technical data for decision-makers concerning a schedule with costs and benefits for various capital investments coupled with marketing procedures. The results of the study will provide a market development program which will utilize present and potential Port investments.

The CMP policy, of course, does not attempt to define what the appropriate State contribution to Port development and maintenance should be. To an extent, State financial priorities are determined by unpredictable events, and are therefore difficult to forecast. The CMP policy, however, does focus attention on the need for State investment in the Port, and the State is responsive to that need. In 1978, for example, the Delaware General Assembly authorized a State contribution of $1,250,000 to be funnelled through the Delaware Department of Community Affairs and Economic Development, towards the purchase of a multipurpose crane and auxiliary equipment for the Port. In addition, the CMP is supporting a look at the need for comprehensive waterfront planning and design to accommodate new marine recreation areas, industrial sites, reuse of old industrial buildings, and the expansion of facilities at the Port of Wilmington into adjacent acreage.

3. EXPANSION OF THE PORT OF WILMINGTON ALONG THE DELAWARE RIVER IS ENCOURAGED TO MEET FUTURE NATIONAL AND REGIONAL TRANSSHIPMENT NEEDS AND TO REDUCE THE DREDGING AND SPOILS DISPOSAL ACTIVITIES ASSOCIATED WITH PORT OPERATIONS ALONG THE CHRISTINA RIVER. PORT EXPANSION, HOWEVER, SHOULD NOT PROCEED IF SUCH EXPANSION MEANS AIR AND WATER QUALITY STANDARDS CANNOT BE KEPT.

The City of Wilmington is currently negotiating with New Castle County for an exchange of land along the Delaware River. The exchange of land would not only quadruple the Port's total docking space, but also would require little dredging because a 40-foot channel is nearby. Suitable spoil disposal areas are scarce and cannot accommodate the long-term spoil disposal requirements resulting from the dredging needed to keep the channel to the Christina docks open. Thus, by relocating the Port on the Delaware River an environmental problem would be alleviated. The exchange would provide the Port with over one mile of Delaware River front, thus enabling a long-term transition of Port facilities to the Delaware River. Unfortuantely, even the Delaware River and Bay is not deep enough to accommodate some of the bigger long-haul cargo ships. Dredging the River and Bay for this purpose, however, does not appear to be economically feasible and, therefore, is not supported by the CMP.

It is acknowledged that port expansion may aggravate an air quality problem, particularly with respect to particulates. The policy statement is phrased accordingly. Port expansion cannot proceed unless measures are taken to protect air and water quality. Expansion will also require filling of submerged lands along the River. These lands are not wetlands, however, Port expansion plans should incorporate mitigation and compensatory habitat measures to the maximum extent possible.

4. THE PORT SHOULD BE PROMOTED FOR GENERAL CARGO TRANSFER AND, TO THE EXTENT FEASIBLE, AS A LOCATION FOR THE SUPPORT OF OUTER CONTINENTAL SHELF DEVELOPMENT.

The Port has the space, heavy materials handling equipment, harbor depth, access facilities for rail and truck shipment, labor force, and nearby industrial infrastructure to accommodate many of the land and other needs of OCS activities, particularly those resulting from long term development and production operations. Moreover, it is the closest facility with these capabilities to many of the offshore tracts leased for development. Thus, the Port of Wilmington appears to be suited for a role in the support of offshore operations should the offshore resources prove to be extensive. Both the City of Wilmington and the Delaware Department of Community Affairs and Economic Development have worked with representatives of the oil industry to explore Delaware's potential for supporting offshore development.

5.B.4.

PRIORITY OF USES

The Port should be developed and promoted as a general cargo facility since this aspect of port operations has experienced growth and has favorable employment generation features. Within certain limitations, priority also should be given to uses which support offshore oil and/or gas development. The limitations are described in Section 5.D.2. (Energy Facilities) and Working Paper No. 7.

Lowest priority uses should be any non-Port related development which may detract from the regional economic advantages of the Port or which may preclude future expansion. Examples might include residential, commercial or industrial uses which do not need direct water access. Most non-Port facilities of a permanent nature should be permitted only if the location selected is clearly demonstrated to have an exceptionally desirable economic and employment benefit to the State and the nearby region. Temporary non-Port uses of lands destined for future Port development, such as passive recreation, are appropriate, provided Port-related activities and the public safety are not impaired.

AUTHORITIES

The Port is owned by the City of Wilmington which has the authority to plan for, develop and operate the port. Thus, Wilmington has the primary management responsibility for the Port. Inasmuch as the CMP policies are so-called "encouragement policies", there is little regulatory authority required to implement the policies. The State agency most likely to financially support the Port of Wilmington is the Department of Community Affairs and Economic Development which derives its authority in Title 29, Chapter 86 of the Delaware Code. The authorization for this agency's expenditure on the crane referred to above appears in the 1978 Capital Improvement Program/Bond Act. The authority to regulate air and water quality, as well as activities on submerged lands, is cited and discussed in Sections 5.A.3. (Coastal Waters), 5.A.4. (Coastal Strip and Submerged Lands) and 5.D.7. (Air Quality) of the document.

5.B.4.

Selected References: Port of Wilmington

1. Annual Report: Department of Commerce, Port of Wilmington, Wilmington, 1977.

2. Capital Improvements Program, 1976-1981, City of Wilmington, 1976.

3. Port Development Plan, Volumes 1 and 2, Board of Harbor Commissioners, Port of Wilmington, 1972.

4. Report of the Port of Wilmington Study Committee, October, 1974.

5. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware, Newark).

C8
SEA CREST

OTHER AREAS OF INTEREST

Woodlands and Agricultural Lands	5.C.1.
Historic and Cultural Areas	5.C.2.
Fish and Wildlife	5.C.3.
Mineral Resources	5.C.4.
State-Owned Recreation and Conservation Lands	5.C.5.

SECTION 5C

5.C. OTHER AREAS OF INTEREST

Introduction

The CMP is primarily concerned with the management of those land and water resources which are typically associated with the coast, such as wetlands, beaches and coastal waters. However, it also recognizes that other resources within the CMP coastal boundary are worthy of recognition because of their contribution to Delaware's social, economic, or cultural heritage, and because they enhance or are otherwise related to the resources more often thought of as coastal resources.

For each of the resources which follows, policies are formulated, which generally encourage the recognition of these resources and their proper management and utilization. The CMP is not, of course, a panacea for all State land and water use management problems. Thus, the CMP expresses its interest and concern in connection with these "Other Areas of Interest", and pledges whatever support it can land once its more central concerns are addressed.

5.C.1. WOODLANDS AND AGRICULTURAL LANDS

A. Woodlands

SIGNIFICANCE AND VALUE

As of 1969, Delaware's land was 30.8 percent forested and contained approximately 400,000 acres of woodlands--of which 355,000 acres were privately owned, 25,000 acres State owned, and 20,000 acres federally owned. About one half of the acreage consisted of loblolly-shortleaf pine forest, with oak-hickory and oak-gum-red maple forests accounting for most of the remaining acreage. The largest forest holdings are concentrated in the southern and western portions of the State. The marsh soil which typifies the eastern side of the State does not generally support mature forest stands.

The harvesting of both softwood and hardwood trees for commercial purposes is an important State industry. In 1970, 33 million board feet of sawtimber were removed from Delaware forests, while growing stock removals in the State amounted to 12 million cubic feet. Principal timber products included lumber (13.1 million board feet); pulpwood (62,000 cords); and veneer logs and bolts, cooperage, piling, poles and fuelwood (2.8 million cubic feet).

Woodlands also have a variety of natural and cultural values, not all of which are readily apparent to people. The recreation values of woods for walking, camping, nature observation and hunting are probably the most recognized and many people appreciate the esthetic value of woodlands. Depending on the season, area of woodland coverage, and tree sizes, density, species and variety of vegetation, woods can be places of great beauty. Woods also add variety to a landscape. This is particularly important in Delaware which is comprised mostly of flat, cleared land.

The natural values of woodlands are numerous, but sometimes not as well recognized as other values. As a habitat for animals and birds, woodlands are essential for the survival of many species. By the process of photosynthesis, green plants absorb carbon dioxide from the air and water from the soil to manufacture sugars and oxygen for the atmosphere. This replenishment of the Earth's oxygen supply by woodlands is clearly an important process. Woodlands also improve atmospheric quality by removing dust and pollutants from the air.

Woodlands significantly affect the micro (local) climate of small areas by functioning as windbreaks and shade producers. They also play a role in the hydrologic cycle and transfer of energy. On a hot summer day, a thick woodland is noticeably cooler than the open land bordering it; on a windy, cold day, the woodland is warmer than its surroundings.

The hydrologic cycle is also significantly affected by woodlands. The amount of water (in the form of rain or snow) that is delivered to the land is reflected in the severity of erosion or flooding, replenishment of ground water supplies, and the quality of ground and surface waters. A woodland canopy of limbs and leaves slows the downward fall of precipitation, reducing the force of its impact on the soil, the rate of surface water runoff, and the rate of erosion. Trees utilize some of the water and return much of it to the atmosphere by the process of transpiration. The litter of leaves and dead wood on the forest floor serves also to slow the force of precipitation and allows more of it to slowly percolate into the ground than would occur on open land.

5.C.1.

The Congress and the President have proclaimed the Nation's woodlands to be important to the Nation's social and economic well being. Several legislative enactments recognize the role of woodlands in promoting national, economic and environmental goals. Thus, proper management of these resources is a matter of national as well as State and local concern.

WOODLANDS MANAGEMENT CONCERNS

Woodlands can be used for numerous purposes. Some of these uses are compatible while others are not. Because wood is the primary renewable resource used and needed by the nation's construction industry, timber production is an important use of woodlands. Unfortunately, such use is not always compatible with the provision of wildlife habitat or recreational opportunities. Moreover, other uses which introduce hazardous levels of air and water contaminants into the woodlands interfere with timber production. In some cases timber production is threatened by recreational uses because such uses pose risks of fire, trampling damage to young trees, and other problems. In Delaware, many privately owned forest areas have been closed to hunting and other recreational uses because of these problems.

Various urban uses threaten the woodlands through competition for space. Scenic woodlands are particularly threatened by the spread of suburban development. For example, much of the forest in northern New Castle County has been depleted in recent decades, and similar losses are occuring in other portions of the State. In southern Delaware, ground-clearing operations, which are necessary during agricultural drainage projects, have led to the removal of many trees. Newly drained lands are typically cleared for agricultural purposes. Although some marginal lands may be allowed to revert to woodlands. Drainage projects may also improve the productivity of the forest areas.

Primary management issues, then, relate to the maintenance of the timber industry; preservation of certain forest tracts for conservation, recreation, and educational purposes; and protection of the resource from fire, disease, and air pollution damage.

5.C.1.

CMP WOODLANDS POLICY

FEDERAL, STATE, AND LOCAL GOVERNMENT, AS WELL AS PRIVATE INDIVIDUALS AND ENTITIES, SHOULD SUPPORT AND ENCOURAGE THE PREVENTION OF UNWARRANTED DESTRUCTION OR DAMAGE TO WOODLANDS. PUBLIC AND PRIVATE INTERESTS MUST RECOGNIZE THAT WOODLANDS HAVE ECONOMIC, RECREATIONAL, WILDLIFE, WATER SUPPLY AND SCENIC VALUES. STATE ACTIONS SHALL AVOID THE UNNECESSARY DAMAGE OR DESTRUCTION OF WOODLANDS.

This policy promotes the continuation of the State timber industry, and preservation of woodlands for their natural values, as discussed above. The CMP does not presume to prejudge when woodlands destruction is warranted or when it is not. Individual circumstances will dictate whether destruction can be justified, and although various critiera could be established as guidance for woodlands management decisions, the CMP is not the appropriate forum to do so.

The realization of the policy objective and the future of Delaware woodlands will depend, therefore, to a large extent, on the efforts of the Delaware Forest Service. The Service, a section within the Delaware Department of Agriculture, derives its authority from Title 7, Chapter 29 of the Delaware Code, and has four branches. The State Forest Branch lets contracts and issues permits for harvesting timber; thins, prunes, plants and harvests State timber; patrols forest areas for fires; conducts research; and provides information to hunters and other members of the public. The Cooperative Forest Management Branch provides woodland management advice to forest landowners; marks timber stands; secures markets; assists with timber contracts; maps forest resources; distributes public relations programs to schools and civic organizations; and administers a watershed reforestation program. The Forest Fire Control Branch assists the 61 fire companies of Delaware to prevent and control forest fires. It also cooperates and coordinates on a regional basis with four other Mid-Atlantic States pursuant to the Mid-Atlantic Interstate Forest Fire Compact. Finally, the State Tree Nursery Branch raises and sells tree seedlings to encourage timber planting and production. All of these activities are consistent with the CMP policy objective and, accordingly, are endorsed by the CMP.

B. Agricultural Lands

SIGNIFICANCE AND VALUE

The great issues of our age concern the environment, energy and food. All of these problems involve the use of land and

water resources and the complex relationship between man and his environment. The lands and waters of the nation are crucial to the life chain of all forms of life, including man. Destruction of these resources, whether due to major events or as a result of many smaller actions, may ultimately lead to food shortages and higher food prices, possible elimination of certain species, and unpredictable changes in the ecological balance ranging from nuisance to catastrophe. Wise management of agricultural lands is essential to avert such catastrophe.

Governor du Pont underscored the value of farmlands when he said:

> "Particularly crucial is the need to protect and preserve Delaware farmland to insure a continued agricultural industry, adequate food supply, and open space. Prime farmland also protects water recharge, provides a relief from urban sprawl and maintains an important aspect of our national heritage. Agriculture is Delaware's largest industry, and we all share its benefits."

Agricultural lands are of particular value in Delaware because they contribute to the regional food supply and the Delaware economy. In 1976, Delaware's farmers sold more than 640 million pounds of broilers, over 18 million bushels of corn, nearly 5 million bushels of soybeans, over 1 million bushels of wheat, and approximately 11.5 million pounds of apples.

Only Arizona, California, and Florida have a higher net income per farm than Delaware. In 1972, Delaware's net income per farm was about seven times greater than New Jersey's or Pennsylvania's, and more than twice that of Maryland's and the entire Nation's. In 1970, there were 3,369 farmers and almost 3,000 farm laborers in Delaware, farming over 630,000 acres, of which approximately 483,000 acres were croplands.

In addition to these values, farmlands have scenic and recreational values for urban residents, providing a break between settlements and helping to establish community identity. Agricultural lands have traditionally been included in the low density use or open land categories of local master plans, a recognition of their values but, unfortunately, in practice not an indication of their continued agricultural use.

5.C.1.

Working Paper No. 7 details the national interest in agricultural lands.

AGRICULTURAL LANDS MANAGEMENT CONCERNS

Farmlands, particularly those farmlands designated as prime or of statewide importance by the USDA, are suitable not only for agricultural pursuits, but also for most non-farm purposes. Unlike the patterns of development seen in earlier periods when settlements tended to be concentrated around watercourses or transportation hubs, recent development has reflected the mobility provided by the automobile, and has expanded into previously farmed areas. This pattern of development, commonly called sprawl, uses land extravagantly and is the major cause of the loss of prime farmlands in Delaware.

Various federal programs often lead to development in rural areas. The U. S. Farmers Home Administration (FmHA) construction and mortgage assistance program is one example. Rural and semi-rural development supported by FmHA is viewed by the CMP as a significant cause of farmland loss in Delaware. Residential development is located along almost every rural road in Delaware, especially outside a five to six mile radius of the larger urban areas. In many cases, these developments represent the selling-off of road frontage, initally involving few interior lots. While this minimizes the loss of prime farm areas, the latent pressure remains to extend the development into remaining, interior farm tracts.

In many cases these developments are constructed with septic systems or small package plants, and frequently with individual wells. While these systems are acceptable for a limited period, they eventually result in isolated pockets of water supply or waste disposal problems, difficult if not impossible to service with public systems.

Scattered rural residential development can also be encouraged by financial incentives of local governments. For example, the preferential tax assessment available for farmland in New Castle County has provided a boon to developers and land speculators. A developer can buy rural land at a relatively low cost and obtain tax breaks on it up to the time he wants to subdivide it. There are no penalties that require tax savings to be repaid when the land is developed. The result? The public subsidizes the very type of sprawl growth it is trying to prevent by the preferential tax provision. Further, the low return on the investment in farmland at today's commodity prices makes the sale of farmland to developers an attractive proposition, if not a necessity. In some cases, farms are subdivided, developed, or otherwise taken out of production in order to raise money to pay inheritance taxes.

Much of this acreage is prime agricultural land. In Kent County, prime farmland totals 142,377 acres, almost half of that county's farmland. This quality farmland lies primarily in the eastern half of the county. The flatness of this area--and indeed most of the State--makes it suitable for the use of large farm machinery, and minimizes run-off caused erosion problems but increases wind erosion problems. Unfortunately, these atributes also enhance use of these areas for residential uses and other types of development.

It is not surprising, then, that the amount of farmland in Delaware has declined over the years. In 1954, the State had 814,316 acres; in 1959, 762,526 acres; in 1964, 717,015 acres; in 1969, 673,895 acres; and 1974, 630,605 acres, according to the U.S. Census of Agriculture. Total cropland has also diminished, but there is some evidence that more cropland is actually in use. For example, cropland decreased from 505,356 acres in 1969 to 483,342 acres in 1974, but harvested cropland increased from 422,984 acres to 447,833 acres during the same period (these figures can be deceptive due to double counting of multiple crop practices).

The U.S. Department of Agriculture is "concerned about any action that tends to impair the productive capacity of American agriculture." As the Governor's Task Force on Marine and Coastal Affairs has pointed out,

> "Such impairment may occur directly through the conversion of agricultural land to non-agricultural uses. Indirect effects of urban development may include escalation of agricultural land costs and property taxes."

The adverse effects of commercial and industrial facilities construction can be identified briefly. Many facilities impair agricultural production because of air pollution. To the extent that there is competition for a limited water supply, facilities may interfere with farmland productivity. Indeed, water withdrawal for farmland irrigation purposes has increased to the point where the supply may soon be inadequate for domestic, industrial, and farm uses unless more restricitve allocation and conservation measures are adopted for all users. Facilities which exacerbate salt water intrusion or otherwise impinge upon the quality of water used by farms may be harmful. It should be noted also that agricultural operations themselves are often major contributors to water pollution problems. The trend in agriculture is to employ complex technologies involving the use of fertilizers, pesticides, irrigation systems and confined animal

feedlots. A consequence of this trend is increased potential for water pollution both in the surface water and in the groundwater. Protecting water quality is an important concern for agriculture.

To curb erosion from agricultural lands, the New Castle County (208) Water Quality Management Program has contracted with the Soil Conservation District to undertake an accelerated program to apply conservation plans to farms. Similar efforts are being considered in Kent and Sussex Counties. The New Castle County 208 Program has also recommended that the County explore the feasibility of changing existing statutes to require that conservation plans be in effect before a preferential assessment is approved. The CMP supports New Castle County's 208 efforts.

CMP AGRICULTURAL LAND POLICIES

1. ALL PUBLIC AND PRIVATE ENTITIES WHOSE ACTIONS MAY SUBSTANTIALLY AFFECT AGRICULTURAL LANDS IN DELAWARE, OR THE AGRICULTURAL PRODUCTIVITY OF SUCH LANDS, SHOULD CONSIDER THE NEED TO PRESERVE AND PROTECT SUCH LANDS PRIOR TO TAKING SUCH ACTIONS, AND SHOULD PRESERVE AND PROTECT AGRICULTURAL LANDS WHENEVER PRACTICABLE. STATE AGENCIES SHALL PROTECT AND PRESERVE AGRICULTURAL LANDS TO THE MAXIMUM EXTENT PRACTICAL.

This policy recognizes the management concerns associated with the resource and requires (pursuant to Executive Order 61) that State agencies avoid actions which result in an unnecessary disruption or loss of agricultural lands.

The State Department of Agriculture and the Division of Soil and Water Conservation within the State Department of Natural Resources and Environmental Control are the most active State agencies involved in farmlands management. The Division's efforts concentrate on maintaining the level of technical and financial assistance available from federal, State and county programs. Most assistance comes from the U.S. Department of Agriculture's Soil Conservation Service.

Agricultural non-point source water pollution problems (sediments, toxins, nutrients) in Delaware are being addressed by the various Water Quality Management planning programs being conducted pursuant to Section 208 of the Federal Clean Water Act. These so-called "208" programs will work closely with Delaware's farmers to lessen the agricultural pollution problem as much as possible.

5.C.1.

The Delaware Department of Agriculture functions both as a regulatory and a service agency. As a regulatory agency, the Department enforces five State agricultural laws; issues various licenses, permits and certifications; oversees product registration; and requires surety bonds. The non-regulatory services provided by the Department are designed to improve the quality of Delaware's agricultural products throught the Department's inspection and grading services and its cooperation with the Delaware Extension Service, as well as federal agencies.

2. THE DEVELOPMENT OF SCATTERED RURAL RESIDENTIAL SETTLEMENTS SHOULD BE DISCOURAGED AS LONG AS THERE ARE REASONABLE ALTERNATIVE LOCATIONS FOR SUCH DEVELOPMENT, SUCH AS IN OR IMMEDIATELY ADJACENT TO EXISTING COMMUNITIES OR AREAS WHERE UNDERUTILIZED SEWER SYSTEMS, WATER SYSTEMS, POLICE AND FIRE FACILITIES, AND OTHER COMMUNITY FACILITIES AND SERVICES ARE AVAILABLE.

Delaware recently completed a federally sponsored inventory of prime farmlands in the State. These maps along with the soil survey reports for each county are available to the public, State and local officials, and FmHA to use as a basis for limiting FmHA assisted development in a manner that is consistent with the policy. For any proposed FmHA assisted development on farmlands, FmHA should consider denial of assistance, particularly if other reasonable alternate sites for development are available which would minimize the loss of farmlands. FmHA should also assess the potential impacts of such a proposal on public service and facility requirements, general land use and community development patterns, and induced secondary development. The next policy statement applies this guidance to other public and private entities.

3. THE USE OF FARMLANDS FOR NON-AGRICULTURAL PURPOSES SHOULD BE DISCOURAGED BY THE FARMERS HOME ADMINISTRATION AND ALL OTHER PUBLIC FINANCING PROGRAMS. INSTEAD, DEVELOPMENT SHOULD BE DIRECTED TO THE NUMEROUS SMALLER COMMUNITIES WHICH HAVE ADEQUATE IN-PLACE PUBLIC SERVICES AND FACILITIES, AS WELL AS ADEQUATE LAND AREA TO ACCOMMODATE NEW DEVELOPMENT.

The U.S. Secretary of Agriculture has recently issued a Memorandum (No. 1827, Revised) on protection of farmlands from losses to non-farm uses. This Memorandum specifically commits the USDA to actions which will reduce or prevent farmland loss as a result of actions, programs, or approvals by the USDA or other Federal agencies. In response to the Secretary's order the Michigan Farmers Home Administration has established as policy that it "will no longer make loans which will unnecessarily convert agricultural, timber and wetlands to other uses." This policy states that when development activities require locations beyond existing committees they should be

adjacent to the already developed areas and on least productive lands. The Michigan FmHA has pledged to not fund subdivisions and/or water and sewer lines crossing open spaces which open up new land for conversion from farm uses. The CMP encourages the Delaware FmHA to follow Michigan's lead.

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Woodlands

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4. The Nation's Renewable Resources - An Assessment, 1975, U.S. Forest Service, June 1977

5. The Outlook for Timber in the United States, U.S. Forest Service, 1973

6. The Timber Resources of Delaware, U.S. Forest Service, 1974

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1. Annual Report, Delaware Department of Agriculture 1977, Department of Agriculture, September 1977

2. Census of Agriculture,; 1974, Preliminary Report, USDC, Bureau of Census, 1976

3. Clean Water and Agriculture, U.S. EPA, Office of Public Affairs, January 1977

4. Delaware Statistical Abstract, Delaware State Planning Office, 1975 and later

5. Farmland: Will There Be Enough?, M.L. Cotner, et. al. USDA, Economic Research Service, May 1976

6. Statistical Abstract of U.S., 1975, USDC, Bureau of the Census, 1975

7. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, College of Marine Studies, University of Delaware, 1972

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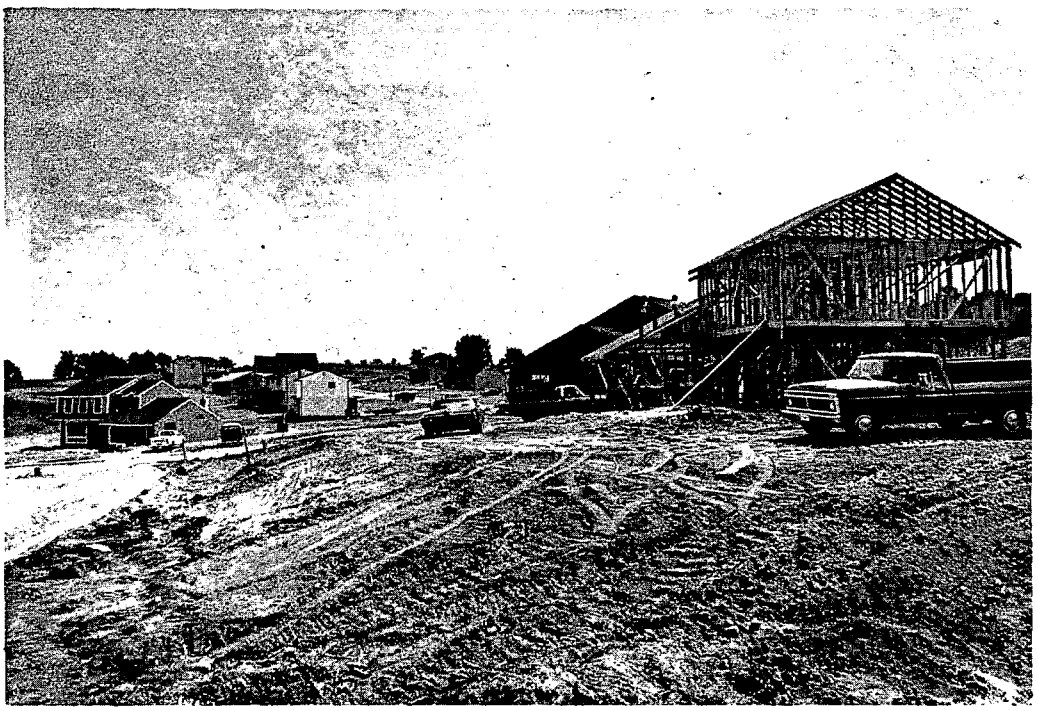

HISTORIC AND CULTURAL AREAS

SIGNIFICANCE AND VALUE

President Carter indicated in his environmental message to the Congress that a nation finds in its land and history the things which give it continuity, and by "preserving places that have special natural, historical, cultural and scientific value, we can ensure that our children and grandchildren have a chance to know something of the America that we and our ancestors simply took for granted." The national interest in the proper management of these historic and cultural areas has been expressed in legislative enactments such as the National Historic Preservation Act of 1966, and in various Executive Orders, particularly #11593, which requires federal agencies to cooperate in the location, inventory and preservation of historic resources. Working Paper No. 7 contains a comprehensive discussion of the national interest in these resources.

Delaware's modern economy and culture are largely products of historical events and the people and places associated with them. From earliest settlement until today, Delaware has played a leading role in the growth and emergence of the Nation. But Delaware, like all states, is prey to the urbanization of the landscape and the increasing mobility of society. The Delaware Historic Preservation Plan of 1973, prepared by the Division of Historical and Cultural Affairs pursuant to the Historic Preservation Act of 1966, observes that the apparent lack of interest in preservation results from a "lack of roots, a loss of identity and closeness with a place or person or event. Preservation of our heritage is important to instilling in present and future generations a respect for their surroundings and the overall good of society."

HISTORIC AND CULTURAL AFFAIRS MANAGEMENT CONCERNS

The 1973 Plan, referred to above, identifies a number of management concerns relating to preservation of historic and cultural resources. Included are: control of vandalism and wanton destruction, the latter often by amateur relic collectors; the renovation of historically significant structures to either change their style or adapt them to some other use; indifference and general neglect, particularly where the historic value of the structure or site is not recognized; and replacement, rather than reuse, of older, sound structures with newer, and perhaps less enduring buildings.

5.C.2.

The loss of historic and cultural areas is also a function of changing community patterns; particularly those resulting from rapid suburbanization and the evolution of the community away from its historic and cultural core. Construction of highway and utility systems, along with the land uses they service, often force the removal of older areas, the readjustment of community patterns, and the development of rural areas before adequate historic surveys can be completed.

CMP HISTORIC AND CULTURAL AREAS POLICIES

1. ALL PUBLIC AND PRIVATE ENTITIES WHOSE ACTIONS MAY INTERFERE WITH THE ENJOYMENT OR OTHER USE OF HISTORIC AND CULTURAL AREAS IN DELAWARE SHOULD CONSIDER THE NEED TO PRESERVE AND PROTECT THESE AREAS PRIOR TO TAKING SUCH ACTIONS, AND SHOULD PRESERVE AND PROTECT SUCH AREAS WHENEVER PRACTICABLE.

The policy encourages recognition of the management concerns associated with the resource. The following comments explain what the State and various local agencies do to promote historic and cultural areas preservation.

Delaware's Historic Preservation Program, which is hereby endorsed by the CMP, is carried out by the Division of Historical and Cultural Affairs in accordance with the 1973 Plan and annual preservation planning activities. The Division's role in historic site preservation is to identify and provide information concerning the sites to appropriate State and federal management agencies, but not to directly manage and preserve the sites. The Division assists federal agencies and project developers by providing expertise in performance of resource assessments, development of project plans, and other assistance to make certain that the cultural heritage is preserved.

The Annual State Historic Preservation Plan for Fiscal Year 1978 was prepared by the Division and submitted to the National Park Service, in part, for continued funding under the National Historic Preservation Act of 1966. The annual plan identifies State personnel involved in the historic preservation program; summarizes survey, planning, acquisition, and development activities accomplished during the previous year; outlines activities to be undertaken during fiscal year 1978; and estimates federal funding needs. Much of the information contained in the Annual Plan has been gathered during the course of the latest survey, initiated in 1971 and still underway. There have been 8,000 historical and cultural sites identified. The Division has described these sites generally and subjectively evaluated the respective importance of each, based on age, discrete characteristics, relationship to historical events, degree to which the site has changed, and relative significance to the population where the site is located. The Delaware Office of Management, Budget, and Planning, with the aid of coastal

management program funds, provides a graphic service which maps the sites. Storage of survey data in microform is a current project of the Division.

The Division also initiates the process by which sites are added to the National Register of Historic Places. It prepares a nomination form which a professional State Review Board considers at a public meeting. The nomination is judged by the criteria established for the National Register, and, if approved, is forwarded to Washington for final review and action. There are approximately 250 Delaware entries in the National Register, representing about 2000 discrete properties (another 1000 buildings will be covered by pending Historic District nominations). These properties are eligible for federal funds under the National Historic Preservation Act of 1966. The Division assists the owner in applying for the funds, which must be matched equally and used to stabilize, restore, preserve or reconstruct the site. In the last six years, over $1.5 million has been "passed through" the Division from the federal government for these purposes. The funds are important because private properties listed in the National Register are not protected in a regulatory manner.

The Division comments, through the "A-95" review process, on all federally funded or licenses projects which may affect these properties and those deemed eligible. Federal agencies are required under recent regulations (36 CFR 800) to identify properties which may be eligible for National Register listing and assess the impacts of federal actions on them. When there is a possibility of adverse effects, the Division and the federal Advisory Council on Historic Preservation suggest alternative plans to the federal agency involved. The Soil Conservation Service and the Corps of Engineers do not participate in the A-95 process, thus the Division maintains a liaison with these federal agencies.

Local preservation efforts are also significant, particularly in New Castle County. This County has an Historic Review Board which administers historic zoning, acts as an architectural review board, and makes recommendations to the County Council concerning historic sites. Several such sites have been granted historic zoning status and many more are in the rezoning process. Currently, New Castle County is zoning historic sites only at the request of the individual property owners. To create an enthusiastic response from property owners, the County is considering the passage of tax incentive measures to encourage the preservation of historic sites.

In addition to historic zoning, New Castle County uses a Demolition Permit Delay for buildings of possible historic significance. Administered jointly by the County Department of Planning and the Division of Development and Licensing, it gives the Historic Review Board the authority to review all demolition requests for structures over 74 years of age and to negotiate with their owners to try to find alternatives to demolition.

Other New Castle County preservation programs include assistance to County residents and historic property owners on problems of preservation and assistance regarding historic areas surveys to the State of Delaware Division of Historical and Cultural Affairs. A preservation study for the town of Christiana has been prepared which supports local residents' request for federal preservation and restoration funds. The Historic Review Board and Department of Planning also assist interested organizations or parties, both public and private, in their efforts to preserve, restore, and conserve historic and architectural landmarks, buildings, sites, and areas in New Castle County.

In addition to New Castle County's efforts, preservation programs, particularly in the form of historic district zoning, are administered in New Castle City, Newark, Wilmington, Dover, Lewes, and a number of other communities.

2. STATE AND LOCAL UNITS OF GOVERNMENT SHALL, TO THE MAXIMUM EXTENT POSSIBLE, COORDINATE THEIR ACTIVITIES WHICH MAY ADVERSELY AFFECT HISTORIC AND CULTURAL AREAS WITH THE DELAWARE DIVISION OF HISTORICAL AND CULTURAL AFFAIRS.

Coordination between and the cooperation of State and local governments is essential to assure that known or potential historic and cultural resources are properly evaluated in the consideration of proposed land and water uses.

State projects are generally reviewed by the Division. For the most part, State agencies have been very responsive to the needs and concerns of the Division, particularly the State Division of Highways. Such coordination among all State agencies is clearly desirable and, therefore, required by the CMP pursuant to Executive Order 61. Better cooperation has been forthcoming from political subdivisions of the State. The Division has established ad hoc arrangements with all three Delaware counties to informally review potentially significant actions, such as subdivisions proposals. The State is then afforded an opportunity to accomplish historical and archeological work before the sites are destroyed.

3. ALL FEDERAL AGENCIES AND DEPARTMENTS SHALL TO THE MAXIMUM EXTENT POSSIBLE (1) COORDINATE THEIR ACTIVITIES WHICH MAY ADVERSELY AFFECT HISTORIC AND CULTURAL AREAS IN DELAWARE WITH THE DELAWARE DIVISION OF HISTORICAL AND CULTURAL AFFAIRS AND (2) OTHERWISE COOPERATE WITH THE DIVISION IN ACCORDANCE WITH THE FEDERAL AGENCY'S LEGALLY MANDATED RESPONSIBILITIES.

5.C.2.

Federal Executive Order No. 11593 requires federal agencies to survey their holdings for all known historic and cultural resources, but, unfortunately, the Division reports that, despite not all of the relevant federal agencies have complied with the Order. As a result, valuable resources in the State may be destroyed unknowingly. This policy statement may be used as the basis for reviewing federal actions pursuant to the Section 307 provisions of the Coastal Zone Management Act. These provisions are discussed in Appendix F, but they basically require all federal actions, other than those conducted on federal property, to be consistent with the CMP policies.

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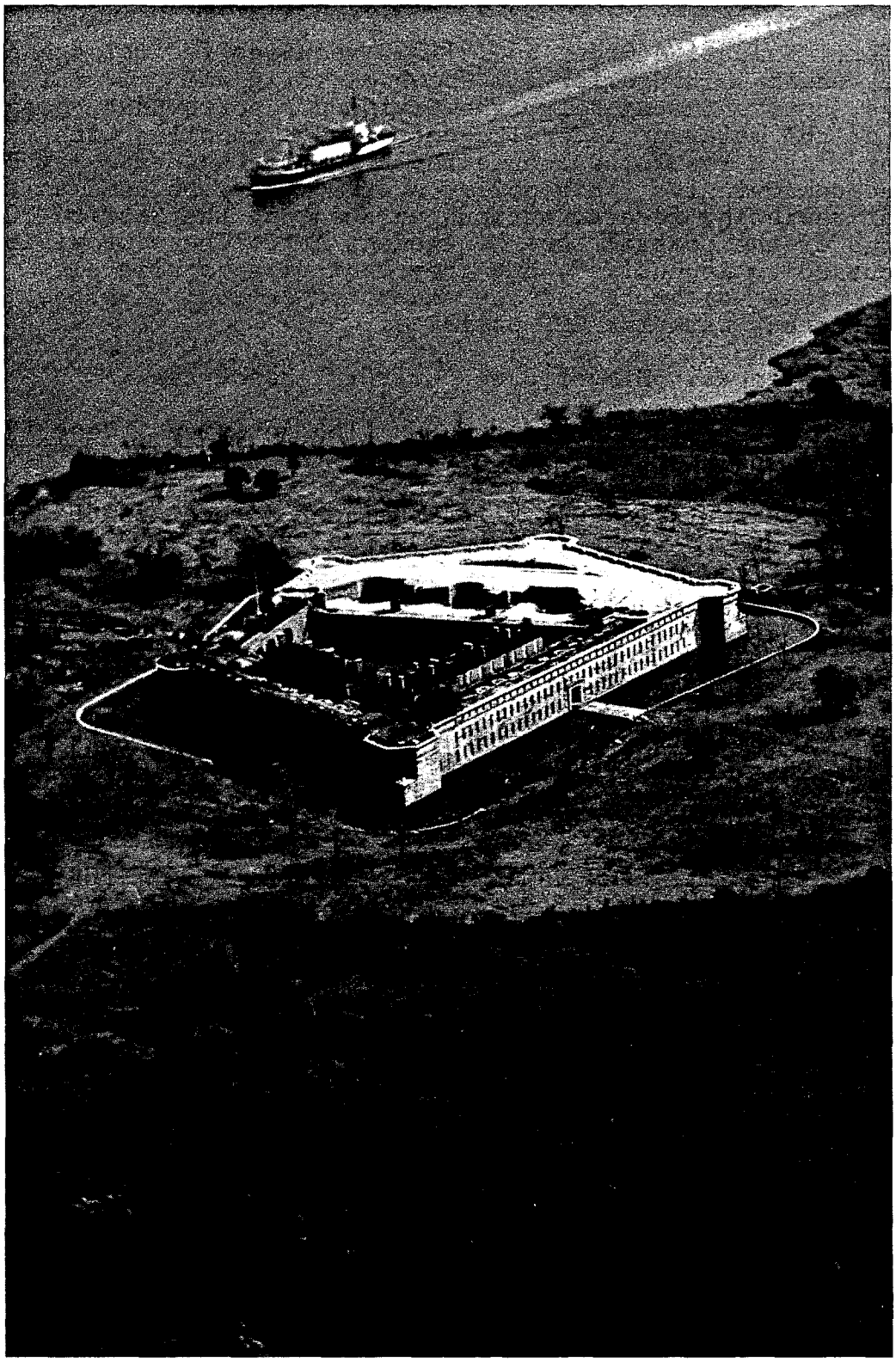


5.C.3.

FISH AND WILDLIFE

SIGNIFICANCE AND VALUE

Delaware has an abundance of wild birds, fish and fur bearing animals. The State is inhabited by approximately 37 species of waterfowl, 91 species of other water birds, four upland game birds, 24 species of birds of prey, 160 species of song birds and 45 species of mammals. In addition, Delaware's waters are home for numerous species of freshwater and saltwater fish.

The State's coastal and freshwater wetlands provide habitats for mallards, black duck, least terns, blue-winged teal, gadwall, wood duck and snow and Canada geese. Coastal waters in the Delaware Bay are inhabited seasonally by sea ducks. The fall migration of waterfowl along the Atlantic flyway brings hundreds of thousands of waterbirds to Delaware's coastal areas. During the winter, the State supports more than 125,000 Canada geese. This represents one of the largest winter concentrations of the species on the East Coast. These waterfowl are enjoyed by the general public for their scenic value and for hunting.

Most of the salt and brackish water sport fishing in Delaware occurs in the Delaware Bay, but there are also important sport fishing areas in the Atlantic Ocean, Inland Bays and the tidal streams feeding these waters. The principal salt and brackish water fish caught in Delaware include weakfish, flounder (summer and winter), bluefish, striped bass, sea bass, perch, commercial and sport sturgeon, spot, drum, Atlantic croaker and shad.

Crabbing and clamming are popular activities along the Delaware Coast. Large numbers of crabs and clams are taken in the State's bays and estuaries.

A great deal of fresh water fishing occurs on mill ponds. Once there were 130 mill ponds in Delaware, but only 60 remain today. Twenty-five of the 60 remaining ponds have been restored and maintained over the last two decades for public use, and provide recreation for Delaware's 20,000 fresh water angler.

The value of fish and wildlife is documented in the State Comprehensive Outdoor Recreation Plan (SCORP) and in numerous studies prepared by the Division of Fish and Wildlife of the Delaware Department of Natural Resources and Environmental

Control (DNREC). In addition, the National Marine Fisheries Service (NMFS) has confirmed the importance of State fisheries management in a letter to the Delaware CMP which says, "approximately two-thirds of our commercial species are dependent upon estuarine waters that are under State control."

As Working Paper No. 7 discusses in detail, fish have national value for recreation and commerce. The Congress declared, in the Fishery Conservation and Management Act of 1976, that "commercial and recreational fishing constitute a major source of employment and contribute significantly to the economy of the Nation." NMFS has pointed out that "in this ... age of growing populations and growing demands for food ... the sea remains both a frontier and a storehouse of living resources of immense value."

The Congress has also expressed the Nation's interest in maintenance of fish and wildlife with passage of such legislation as the Federal Aid in Fisheries Restoration Act, the Federal Aid in Wildlife Restoration Act, the Land and Water Conservation Fund Act, the Wild and Scenic Rivers Act, the Wilderness Act, the National Wildlife Refuge Administration Act, the Fish and Wildlife Coordination Act, the Migratory Bird Conservation Act, the Endangered Species Act, the Federal Land Management Policy Act. Indeed, there are over 100 treaties, international agreements, federal statutes and executive orders to protect wildlife in this country.

The national interest in endangered fauna and flora is stated in several federal statutes, particularly the Endangered Species Act of 1973, wherein Congress "finds and declares" that species of fish, wildlife, and plants in danger of or threatened with extinction "are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."

Endangered and threatened animal species listed by the federal government which are "resident" (as defined by the Endangered Species Act of 1973) in Delaware, include: the southern bald eagle; the brown pelican; the American peregrine falcon; the artic peregrine falcon; the leatherback turtle; the Atlantic ridley turtle; the shortnose sturgeon; and several whales, including the blue, bowhead, finback, humpback, right, sei, and sperm. Of these, only the bald eagle, which nests near the Bombay Hook National Wildlife Refuge, is sighted more than rarely.

5.C.3.

The following plants found in the State of Delaware have been proposed for inclusion on the national endangered and threatened list by the Smithsonian Endangered Flora Project: Cyperaceae-Phynochospora Knieskernii (Family-species), endangered; Ranunculaceae-Trollius laxus, endangered; Spiaceae-Oxypolis canbyi, threatened; Betulaceae-Alnus maritima, threatened; Orchidaceae-Platanthera peramoena, threatened; Poaceae-Muhlenbergia torreyana, threatened; and Scrophulariacea Micranthemum micranthemoides, threatened.

CMP LIVING RESOURCES
MANAGEMENT CONCERNS

The CMP is concerned primarily with five aspects of fish and wildlife management, namely: (1) habitat preservation; (2) species diversity and population maintenance; (3) program funding; (4) regional coordination; and (5) public awareness.

The importance of habitat preservation is obvious. Activities which destroy or even slightly alter habitats can upset the fragile ecosystem. Inland clearing for development eliminates wildlife cover, causing many species to leave the area or perish. If an endangered species can utilize only a specific area, the preservation of that area is of much greater concern than other areas.

Particularly important, however, are the estauries because they are especially productive. Until recently, however, these areas were not protected. Between 1950 to 1969, four percent of the Nation's wetlands were lost by dredging and filling. That low percentage may not seem serious, but in acreage a great deal of wildlife habitat had been lost. Moreover, 20 years is a short period and cumulative losses over longer periods would be significant.

Development pressures are intense due to the recreational amenity of estuaries. A 1969 study showed that 25%, 44% and 10% of the shorelines of Rehoboth Bay, Indian River Bay, and Assawoman Bay, respectively, were developed. Although these changes were observed from 1938 to 1969, most of the development took place between 1958 and 1969.

Slight changes in water quality can also be important. Dissolved, suspended and floating waste consume oxygen either directly by oxidation or indirectly by causing "plankton blooms" when plankton die oxygen is removed from the water by the process of decomposition. The quantity of dissolved oxygen is important to the economics of the commercial and sport fishery.

The decline of many species of finfish and shellfish has been correlated with the decline in water quality. Seventy years ago, shad and sturgeon were important commercial fish in Delaware. Throughout the 19th century the annual shad catch weighed between 10 and 19 million pounds. Today only a few Delaware gill net fishermen seek the shad or sturgeon for commercial purposes. Their small number is attributed to pollution in the lower Delaware River which contributes to mortality and curtails up-river spawning migration.

There are, of course several activities which cause water quality problems. Sewage disposal systems can pollute the water and devastate living resources when such systems malfunction or when the systems are inadequate to handle the quantity or components of the sewage. Ninety-two percent of the fish kills reported in the Nation in 1974 were attributed to such problems.

The transportation of petroleum through estuaries threatens fish and wildlife because of the possibility of an oil spill although oil tanker traffic in the Delaware River and Bay so far has been free of trouble. Petrochemical complexes, of course, also present oil pollution hazards. A 1961 study by the Delaware Game and Fish Commission contends that such complexes are incompatible with wildlife, concluding, "Which shall it be? Heavy petrochemcial industry or the benefit and use of Delaware's most valuable natural resource."

Finally, spoil disposal and certain agricultural practices constitute threats to habitat. Benthic organisms, those animals living on the bottom of a body of water, are smothered by spoil deposits. In the past, most spoil disposal took place on wetlands which were thereby destroyed. The State's mosquito control program has in the past relied on pesticides and other practices which also have harmful side effects on aquatic life. Agircultural activities can affect fish and wildlife through the introduction of pesticides and herbicides into the ground and water. However, agricultural lands can provide multi-use recreation and important contributions to wildlife through crop and cover planting practices.

Habitat preservation is only one factor which bears on the diversity, population, and health of fish and wildlife. Excess fishing and hunting can reduce species population far beyond the maximum sustainable yield. On the other hand, overly strict hunting and fishing prohibitions prevent the resources from being utilized and may adversely affect the health of the resources through competition for limited food supplies.

Unfortunately, past game and fish management has been hampered by lack of funds. Usually, the bulk of the money appropriated for natural resource management has been spent on protecting air and water quality, and relatively little was spent on fish and wildlife management.

Interstate regulations have also caused problems, particularly the restrictions contained in the New Jersey-Delaware Fisheries Compact of 1907. This Compact requires the adoption of identical fishery laws by New Jersey and Delaware for the Delaware Bay. Once these laws were agreed upon by the States they could not be changed without the approval of both States. For a time the two states believed that the Compact had been properly implemented and that they could not change their respective laws without each other's approval. This arrangement proved unsatisfactory because it was difficult to reach a consensus on how the laws should be modified to deal with changing fishery technology. Under the auspices of the CMP, the Compact was examined by the Delaware Department of Justice and an opinion was issued which declared that an important provision in the Compact was not implemented. This will allow Delaware to update its fishery statutes and regulations, an action now underway. However, the need for regional fishery planning still exists because fish do not recognize jurisdictional boundaries and because fishermen from the two states must be regulated in a similar manner if they are to be competitive with each other.

Finally, as with many of the resources considered by the CMP, the program is concerned that the public becomes aware of the value of fish and wildlife.

CMP LIVING RESOURCES POLICIES

1. THE QUANTITY AND QUALITY OF FISH AND WILDLIFE HABITAT SHALL BE PRESERVED TO THE MAXIMUM EXTENT POSSIBLE.

Several sections of the document describe CMP habitat preservation measures. Most important are the wetlands policies (Sec. 5.A.1.), the water quality policies (Sec. 5.A.3.), the coastal strip policies (5.A.4.), the nature preserves policies (Sec. 5.B.2.), and the State-owned conservation lands policies (Sec. 5.C.5.). Also noteworthy is DNREC's Endangered Species Program discussed under Policy No. 6.

2. AGRICULTURAL PRACTICES SHOULD BE CONDUCTED IN A MANNER WHICH REDUCES PESTICIDES AND SEDIMENT LOADS TO ESTUARIES, BAYS, AND OTHER WATERBODIES.

Voluntary conservation programs for reducing the impact of agricultural practices on water quality already have been implemented in the State. An important limitation on preventing such pollution, of course, is the large cost that would be imposed. Section 5.A.3. discusses the water pollution problem caused by agricultural practices in detail, and describes what the CMP is doing about it.

3. MOSQUITO AND OTHER PEST CONTROLS SHALL USE TECHNIQUES OF MARSH MANAGEMENT WHICH REDUCE THE APPLICATION OF CHEMICALS AND WHICH SUBSTITUTE BIOLOGICAL CONTROLS.

DNREC conducts a pest control program pursuant to authority vested in the Department of Title 16, Chapter 19 of the Delaware Code. New developments in amphibious equipment allow the construction of selected open and closed water control measures in mosquito producing wetlands without subsequent spoil disposal problems and vegetation changes. These measures allow fish and other invertebrates to inhabit deep pools which are interconnected by ditches to mosquito breeding depressions on the wetlands. This technique permits natural predation of larval mosquitos by such species as the mummichog (Fundulus heterocelitus), Atlantic silverside (Menidia menidia) and stripped killifish (Fundulus majalis). These species in turn are staples of the eel, bluefish, perch, large crabs, and other species of commercial and recreational importance. Thus, these new methods for mosquito control can avoid the damage to other organisms which is associated with chemicals, and the damage to wetlands caused by ditching and impounding. DNREC's mosquito control program now uses open and closed water management methods in order to capitalize on those advantages.

4. ADEQUATE AND SAFE BOATING AND FISHING FACILITIES SHOULD BE PROVIDED AND MAINTAINED, IN ORDER TO ASSURE ACCESS TO COASTAL WATERS FOR THESE RECREATIONAL PURSUITS. FILLING OF WETLANDS SHALL BE AVOIDED WHEREVER POSSIBLE AND MITIGATING OR COMPENSATING MEASURES EMPLOYED WHERE FILLING IS UNAVOIDABLE.

This policy recognizes the importance of recreational boating and fishing. Frequently, however, access facilities require space for the construction of piers, parking lots, roadways,

or other structures. In many cases such construction is precluded by the CMP's prohibition against filling wetlands. Although the prohibition occasionally frustrates uses which the CMP supports, such as boating and fishing, the CMP remains committed to preventing additional losses of wetlands. Only after careful evaluation of the wetland area to be affected and where mitigating measures, such as marsh reconstruction, can be employed should the filling of wetlands be considered. Section 5.A.1. supplies the rationale for this commitment.

5. DELAWARE'S WILDLIFE SHALL BE MANAGED TO MAINTAIN A POPULATION WHICH WILL SUPPORT RECREATIONAL HUNTING, COMMERCIAL FUR TRAPPING, AND NON-CONSUMPTIVE USES SUCH AS BIRD WATCHING AND NATURE STUDY.

DNREC's Division of Fish and Wildlife is responsible for wildlife management and law enforcement in the State, except on the national wildlife refuges--Bombay Hook and Primehook which together comprise approximately 25,000 acres of wildlife habitat. The Division operates 11 major wildlife areas totalling about 26,000 acres. Among the Division's wildlife management activities are raising and reintroducing certain wildlife species; enforcing of season and bag limits; preventing unlawful hunging, especially for deer and waterfowl; conducting hunter safety programs; collecting wildlife data and providing technical assistance and information on wildlife to public and private agencies and persons.

6. ENDANGERED SPECIES SHALL BE PROTECTED TO THE EXTENT POSSIBLE.

DNREC's Endangered Species Program encourages habitat preservation for endangered species. General program activities include an inventory of endangered species, patrol of areas where endangered species are believed present, acquisition of land, and an endangered species information and education service. In addition, DNREC has an agreement with the Fish and Wildlife Service of the U.S. Department of Interior to protect endangered species. State legislation prohibits importing, transportating, possessing or selling endangered species, including species declared endangered pursuant to the federal Endangered Species Act of 1973 (See Title 7, Chapter 6 of the Delaware Code). Title 7, Section 101(a) of the Delaware Code also requres DNREC to protect, conserve, and propagate wildlife.

7. A SUSTAINABLE YIELD OF STATE FINFISH AND SHELLFISH SHALL BE ASSURED BY THE ESTABLISHING AND ENFORCING HARVEST QUOTAS, EQUIPMENT AND SEASONAL LIMITATIONS; LICENSES AND OTHER REQUIREMENTS; AND THROUGH HABITAT ENHANCEMENT AND PROTECTION MEASURES.

5.C.3.

The Division of Fish and Wildlife has a freshwater and saltwater fishery management program. Water fertilizating, fish stocking, mechanical and chemical control of aquatic vegetation, seed clam planting, surveying and research, oyster management and providing boating and fishing access facilities (ramps, piers, parking areas) are among the programs of the Division.

8. ADEQUATE FUNDS SHOULD BE PROVIDED FOR FISH AND WILDLIFE MANAGEMENT PROGRAMS.

With the advent of the federal Office of Coastal Zone Management's Coastal Fisheries Assistance Program (CFAP), funds are now available for the design and implementation of long-range fisheries management programs. The Division of Fish and Wildlife, in conjunction with the CMP, has recently developed a fisheries management program proposal. Included in the initial phase of this program will be an identification and ranking of management problems (i.e. obsolete laws, research needs, funding limitations), an examination of management options and approaches, and public education activities. The Coastal Fisheries Assistance Program (CFAP) will provide a near shore management complement to work being done by the Mid-Atlantic Fisheries Management Council (see policy #9) which is developing plans for management of offshore fisheries. These two programs will be coordinated through the Fisheries Section of Delaware's Division of Fish and Wildlife which has primary responsibility for the CFAP and whose Manager serves as a member of the Council.

9. INTERSTATE PLANNING AND MANAGEMENT OF FINFISH AND SHELLFISH WHICH ARE SHARED BY MORE THAN ONE STATE SHOULD BE PROMOTED.

The Mid-Atlantic Fisheries Management Council is authorized to regulate harvest, standardize management and regulatory processes, assess the economic implications of commercial fishing on a regional basis, and address reasonable allocation between commercial and recreational use of the resources. The Council, DNREC, and other states will work together closely to promote the policy objective.

10. FEDERAL ACTIONS WHICH MAY INTERFERE WITH OR OTHERWISE ADVERSELY AFFECT FISH AND WILDLIFE IN DELAWARE SHALL BE IMPLEMENTED ONLY AFTER CAREFUL CONSULTATION WITH DNREC AND EXPLORATION OF ALTERNATIVES LESS DAMAGING TO SUCH FISH AND WILDLIFE.

This policy will be the basis for requiring a determination that such federal actions or projects are consistent with State fish and wildlife management objectives pursuant to Section 307 of the Coastal Zone Management Act.

5.C.3.

11. THE WISE USE AND ENJOYMENT OF FISH AND WILDLIFE IS ENCOURAGED THROUGH EDUCATION AND TECHNICAL SERVICE PROGRAMS OFFERED TO PUBLIC AND PRIVATE AGENCIES, AS WELL AS INDIVIDUALS.

Once again DNREC has the responsibility and authority for implementing the policy.

Authorities

The authorities for carrying out the State's Fish and Wildlife policies are found in various parts of Title 7 of the Delaware Code. Section 101(a) of that title requires the Department of Natural Resources and Environmental Control (DNREC) to protect, conserve and propagate wildlife. Chapter 6 establishes an endangered species program, Chapter 7 provides for the development of regulations and prohibitions covering fish and game, Chapters 9 and 11 regulate fishing in Delaware waters, and Chapters 13 and 27 provide for enforcement of game, fish and shellfish laws. Other authorities can be found in Chapter 5 which sets forth licensing provisions while Chapters 19, 21, 23, and 25 set forth regulations pertaining to taking of shellfish.

Selected References: Fish and Wildlife

1. An Atlas of Delaware's Wetlands and Estuarine Resources, Prepared by the College of Marine Studies, University of Delaware Coastal Management Program (Technical Report #2)

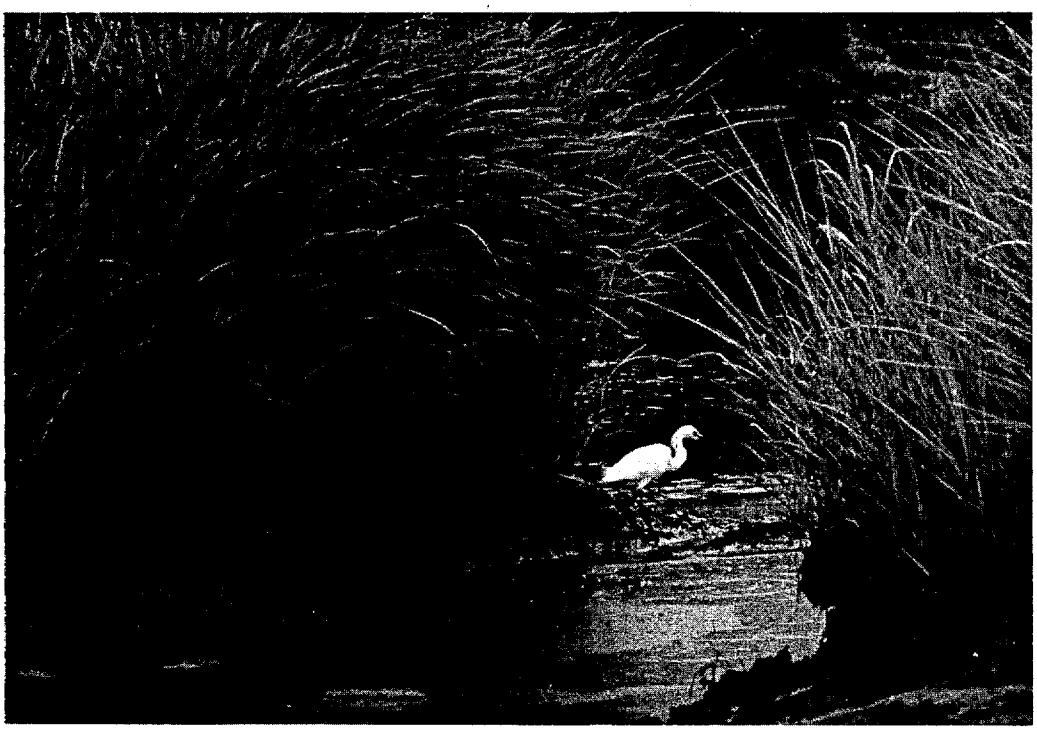
2. Annual Report 1977, Delaware Department of Natural Resources and Environmental Control, 1977

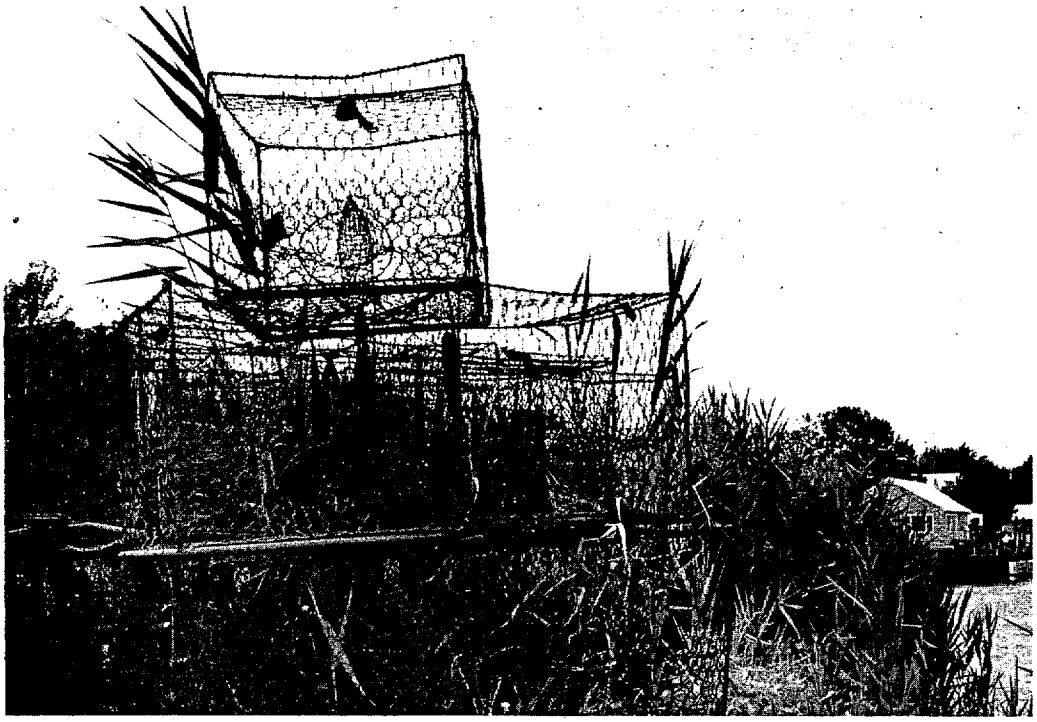
3. Conserving Our Fish and Wildlife Heritage, Annual Report FY 1976, U.S. Fish and Wildlife Service

4. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, College of Marine Studies, University of Delaware, 1972

5. The Effects of Industrialization on Delaware River and Bay Bordering Wetlands with Particular Reference to the Shell Oil Company's Request for Rezoning, Delaware Board of Game and Fish Commissioners, 1961

6. Waterfowl Harvest and Hunter Activity in the United States during the 1976 Hunting Season, U.S. Department of the Interior, Fish and Wildlife Service, May 1977





MINERAL RESOURCES

SIGNIFICANCE AND VALUE

The extracting and processing of minerals in Delaware are important to the State and the Nation. The national interest in minerals, as expressed to the Delaware CMP by the U.S. Bureau of Mines, is to ensure that the Nation has an "adequate, dependable, and continuing supply of mineral commodities at reasonable cost." The total value of mineral-related materials manufactured in Delaware according to the Bureau is approximately $1.3 billion each year, much of it attributable to the production of petroleum products. Thus, Delaware contributes significantly to the Nation's mineral-related production. This contribution may become more significant if oil and gas are discovered offshore, in particular if they are discovered under Delaware's submerged lands. Working Paper No. 7 discusses the national interest and Delaware's role in mineral resource extraction and processing in detail. The leasing of State lands for mineral extraction will become important only if economically feasible quantities of minerals are discovered. Preliminary surveys have not disclosed such deposits in the State, but industrial interest has been shown in the past and geologic conditions do not preclude their existence. These potential onshore mineral resources include: building stone, heavy minerals, kaolin clay for ceramics sand of suitable quality for glass and phosphate deposits.

Minerals know to exist in Delaware support a valuable industry. In 1976 sand, gravel, and clay worth $1.7 million were produced in Delaware. This is a drop of about 50 percent from previous years and can be attributed to a periodic reduction of construction. The consumer of the largest amounts of sand and gravel in Delaware is the State Division of Highways.

MINERAL RESOURCE MANAGEMENT CONCERNS

The President in his environmental message to the Congress in 1977 said that environmental standards should be maintained while meeting the demand for minerals. The primary CMP concern related to Delaware's mineral resources is how do we meet the demand for these resources with a minimal effect on environmental quality? Mineral extraction, in particular sand and gravel, is inherently noisy, dusty and destructive of vegetation wildlife habitat. Abandoned sand and gravel pits frequently become safety hazards, unauthorized dumping grounds for trash, and "eyesores." The use of sand and gravel pits for waste disposal can lead to ground water pollution. These are discussed in Working Paper No. 7.

Another management concern relates to the lack of information on mineral resources, particularly offshore resources. This lack of information about the location of mineral deposits creates a problem because subsequent land uses can prevent extraction that would otherwise have been feasible. Not much is known about offshore mineral resources in Delaware, but the Delaware Geological Survey with financial assistance from the CMP is devoting a good deal of time to evaluating the possible presence of hydrocarbons. Recent work has led the Survey to believe that the geology is more favorable for the presence of offshore oil and gas than originally believed.

The best areas for sand and gravel extraction have been identified and are located mostly in Kent and Sussex Counties. New Castle County has possible sites for mining hard rock and clay. The active sand and gravel pits have been mapped and are dispersed throughout the State. The only clay pit in the State is just south of the town of New Castle. The possible existence of geothermal energy in southern Delaware is being investigated by the Delaware Geological Survey with the cooperation of State of Maryland, the U.S. Energy Research and Development Administration, and the U.S. Department of Energy.

CMP MINERAL RESOURCE POLICY

THE EXTRACTION AND PRODUCTION OF MINERALS SHOULD BE ENCOURAGED, BUT IN A MANNER WHICH MAINTAINS ENVIRONMENTAL QUALITY.

The policy is consistent with the President's goal to assure an adequate supply of minerals while maintaining environmental quality. Other parts of the document, especially Section 5.A. and Subsection 5.D.3. (Energy Facilities) provide specific policies which address mineral resource development. Local zoning and site approval authorities regulate surface minerals extraction, although State standards dealing with erosion and sediment control and disposal of solid wastes will apply to these operations.

The CMP has supported the objectives of this general policy in several ways. The CMP has sponsored the Delaware Geological Survey's offshore hydrocarbon evaluation. In addition, the upland mineral resource locations mentioned above were mapped and discussed in a CMP technical report prepared by the Water Resources Center at the University of Delaware (Technical Report No. 3, Hydrology, Geology, and Mineral Resources of the Coastal Zone of Delaware, September 1976). Generally, CMP environmental protection policies have promoted and will continue to promote these objectives. Reuse of mineral extraction sites for recreation such as the newly authorized Kent County/St. Jones River Park and the Smyrna-Clayton Little League Ballpark are encouraged. Likewise, the CMP encourages alternatives to landfills and to the routine discarding of recyclable materials into abandoned extractive sites.

5.C.4.

Selected References: Mineral Resources

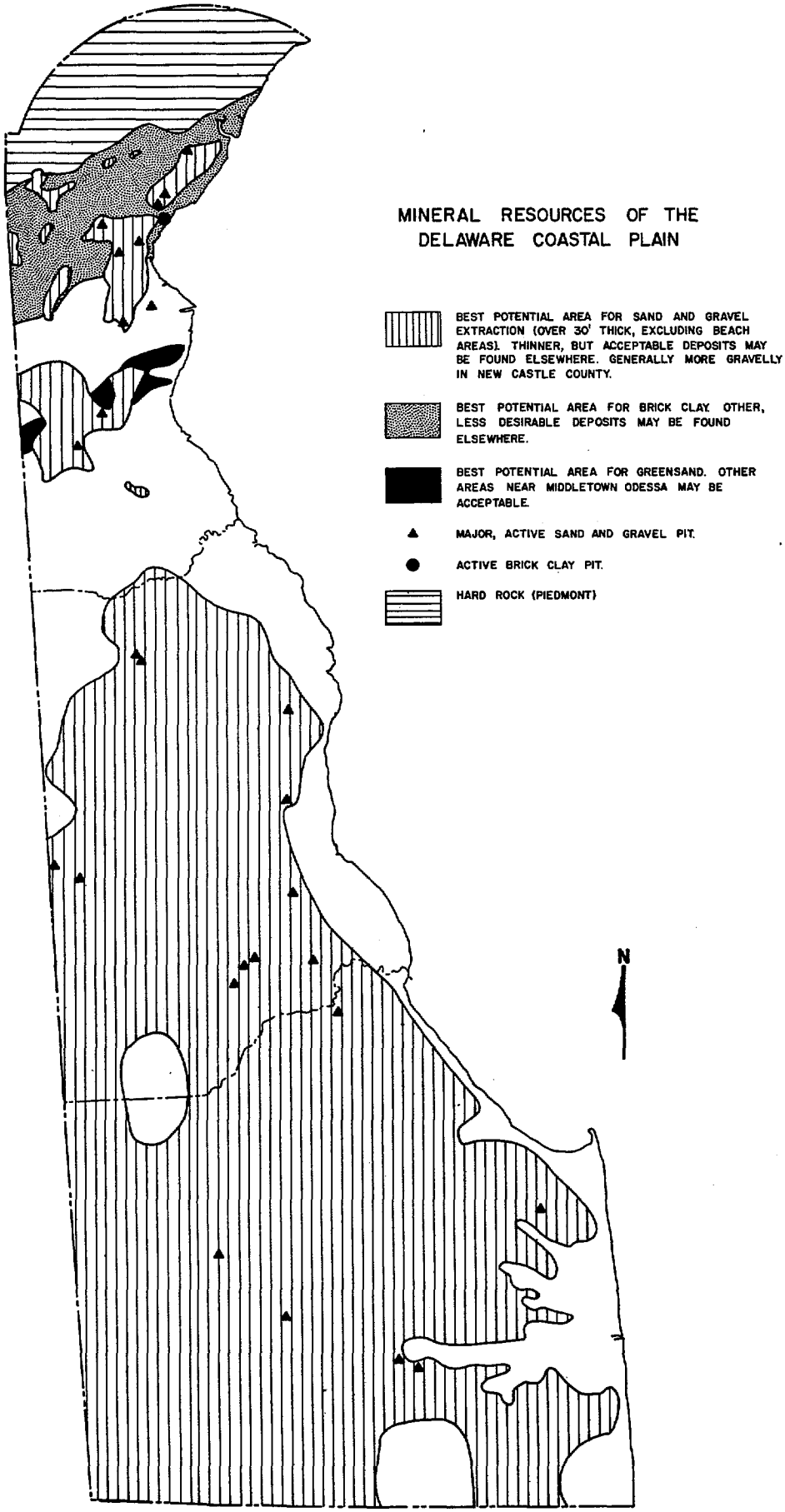
1. Hydrology, Geology and Mineral Resources of the Coastal Zone of Delaware, Technical Report Number 3, September 1976, Delaware Coastal Management Program

2. Minerals Yearbook 1974, Volume I, U.S. Department of the Interior, Bureau of Mines, 1976

3. Hydrocarbon Resource Potential of the Baltimore Canyon Trough, Report of Investigation No. 31, January 1979, Delaware Geological Survey

4. Minerals in the Economy of Delaware, State Minerals Profile - 46, Bureau of Mines - U.S. Department of the Interior and Delaware Geological Survey.

5. General Geological Map of Delaware, Revised 1976, Delaware Geological Survey.



SOURCE: TECH. REPORT "4" DEL. COASTAL MANAGEMENT PROGRAM

5.C.5.

STATE OWNED COASTAL RECREATION AND CONSERVATION LANDS

SIGNIFICANCE AND VALUE

Among Delaware's valuable natural resources are her State owned coastal recreation and conservation lands. Their importance has been examined, debated, and documented by numerous studies, including Environmental Assessment of Rehoboth, Indian River and Assawoman Bays, in 1968; Coastal Zone of Delaware by the Governor's Task Force on Marine and Coastal Affairs in 1972; Report of the Governor's Wetlands Action Committee, in 1973; and the 1970, 1976 and 1978 Delaware Statewide Comprehensive Outdoor Recreation Plans (SCORPs).

Delaware's 1976 SCORP emphasizes the value of the ocean coast portion of the State, calling it

> "... probably the State's most important recreational resource. Delaware has about 24.5 miles of Atlantic Ocean coastline which extends from the mouth of the Delaware Bay at Cape Henlopen to the Maryland border at Fenwick Island. This area received extensive summertime use and contains two state parks in addition to one of the East Coast's most popular resort beaches, Rehoboth Beach. The coastline resources draw both Delawareans and out-of-state residents.... The Ocean and bays provide ...water oriented activities including fishing, crabbing, boating, swimming and surfing."

In recognition of the value of these resouces the State has undertaken an amibitious land acquisition and development program in recent years. The State owns or manages about 40,000 acres of land throughout the State for recreation and conservation purposes. Many of these areas are located adjacent to coastal waters, and most are adjacent to the shores of the Delaware River and Bay, the Atlantic Ocean, and the Rehoboth, Indian River and Little Assawoman Bays. About 28,000 acres are in this latter category, of which almost 5,000 acres are managed as State Parks and about 13,000 ares are managed as wildlife areas or public boating and fishing access areas.

As noted by the Governor's Task Force on Marine and Coastal Affairs, it is not just be accident, but rather through careful selection that these parks and conservation areas were acquired. Cape Henlopen State Park has regional as well as state significance. This park has outstanding natural attributes which include distinctive flora and many species of wildlife.

Delaware Seashore State Park, extending south from Dewey Beach to the Maryland state line, has some of the finest ocean beachlands on the eastern seacoast. It includes Indian River Inlet, Indian River Bay, and Rehoboth Bay. Holts Landing State Park, a 33-acre tract, provides access to Indian River Bay and is a favorite spot for clamming, shellfishing, and family outings.

Lums Pond State Park, although not as significant as the ocean parks, is important to Delaware residents because it is located in proximity to the urban populace of the State. Lums Pond is Delaware's largest freshwater lake and is contiguous to the recreation lands along the Chesapeake and Delaware Canal.

Fort Delaware State Park on Pea Patch Island includes Fort Delaware, a Civil War fort constructed as a harbor defense to protect the ports of Philadelphia and Wilmington.

The number of visitors to these parks in the first nine months of 1977 was over three million people according to records of the Delaware Division of Parks and Recreation. About 70 percent of the users of these areas come from out of state. On a peak day, Delaware Seashore State Park accommodates 40,000 visitors, many of whom would not have an opportunity to enjoy the beach if these areas were not publicly owned.

The State wildlife areas are also ideally located for their purposes. They include, in combination with the Federal Wildlife Refuges, large areas in each county for hunting, hiking, bird watching and other activities. It is estimated that over 500,000 recreation-days of hunting were enjoyed in Delaware by over 30,000 licensed hunters during the fiscal year ending June 30, 1977. The Division of Fish and Wildlife has noted that Delaware's waterfowl population and their habitat are enjoyed by many more birdwatchers, photographers and nature walkers than by hunters, with the latter group accounting for only a "small portion" of the use of these areas.

The wildlife areas contain a variety of sights for the naturalist. The fall migration of waterfowl along the Atlantic flyway annually brings hundreds of thousands of waterfowl and other water-birds into Delaware. Other game birds (pheasant, quail, woodcock, dove, Wilson's snipe, gallinules, and four species of rails) abound in the coastal wetlands and uplands. During the breeding season, Delaware's coastal wildlife areas provide nesting habitat for the mallard, black duck, blue-winged teal, gadwall, wood duck, Canada goose, and numerous other species of water birds and songbirds. For most species, the adjoining uplands provide nesting habitat while the wetlands provide brooding habitat. Game mammals, such as the white-tailed deer, eastern cottontail rabbit, raccoon and opossum, are found in these coastal areas more frequently than inland.

Finally, the national value of Delaware's coastal recreation and conservation lands has been acknowledged in reports and statements by the federal government, particularly the Bureau of Outdoor Recreation within the U.S. Department of the Interior, which has proclaimed Delaware's coast a national recreational asset. In addition, the U.S. Outdoor Recreation Resources Review Commission has noted that "the Delaware coast is ideal for the development of the total recreation possibilites of a shoreline, with ocean waves, sand beaches, sand dunes, inland marsh, and bay making up the ideal combination of physical features desirable for seashore recreation."

STATE OWNED COASTAL RECREATION AND CONSERVATION LANDS MANAGEMENT CONCERNS

Management of these areas is primarily a matter of determining their carrying capacity for various recreational and wildlife purposes, and accommodating public use in a manner which does not damage the resource. In the case of the State parks, the conflict among demand--particularly on peak days--limited facilities and finite resources are management concerns. The 1976 and 1978 SCORP identified a number of management problems relating to outdoor recreation facilities. Among these are: (1) determining the proper roles of the public and private sectors in providing recreation facilities; (2) the need for the continued planning for recreational use near sensitive habitat areas; and (3) developing priorities for development and acquisition. Master plans prepared by the State Division of Parks and Recreation have been cognizant of the problems which heavy demand can inflict on sensitive coastal resources.

5.C.5.

Management of the State-owned coastal wildlife areas raises issues relating to species populations and harvests, conflicts between various users of the areas (e.g., between hunters and bird watchers), control of mosquitoes and other pests, and provision of public facilities (such as launching areas, parking lots, and observation platforms).

CMP STATE OWNED COASTAL RECREATION AND CONSERVATION LANDS POLICY

STATE OWNED RECREATION AND CONSERVATION LANDS SHALL BE MANAGED, PRESERVED, AND PROTECTED, FOR THE LONG-RANGE PUBLIC RECREATION AND CONSERVATION USE AND ENJOYMENT THEREOF.

The primary purpose of the policy is to encourage the continued wise management and maintenance of State owned and coastal recreation and conservation lands. Accommodating the public need for recreation is a function of the carrying capacity of available resources. Delaware's coastal recreation and conservation lands are ideally located for recreational use. In order to maintain the quality of these areas, however, it is important that the resources be protected. Specific recreation management policies on all of Delaware lands appear in the SCORP and Section 5.D.5. In addition, other specific CMP policies support and promote the foregoing policy by protecting the environment in and around State owned coastal recreation and conservation lands. Particularly important in this regard are the Coastal Strip management policies in 5.A.4.

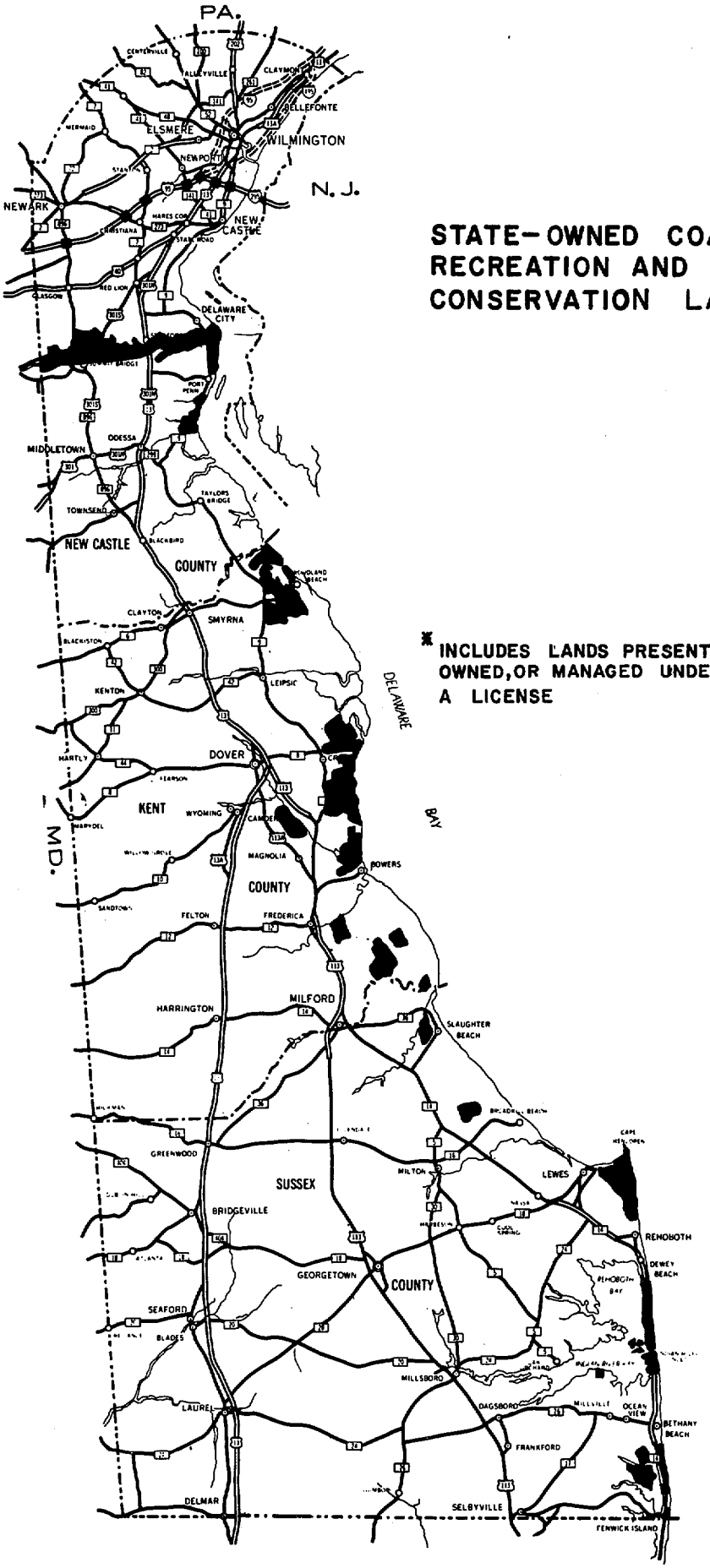
Selected References: State Recreation and Conservation Lands

1. Delaware Comprehensive Outdoor Recreation Plan (SCORP) 1978, Department of Natural Resources and Environmental Control. (Also 1970 and 1976 SCORP).

2. Environmental Assessment of Rehoboth, Indian River and Assawoman Bays, Delaware State Planning Office, 1968

3. Report of the Governor's Wetlands Action Committee, 1973

4. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware, Newark)



STATE-OWNED COASTAL RECREATION AND CONSERVATION LANDS*

* INCLUDES LANDS PRESENTLY OWNED, OR MANAGED UNDER A LICENSE

DEVELOPMENT ISSUES

Introduction	5.D.1.
General Development	5.D.2.
Energy Facilities	5.D.3.
Public Investment Considerations	5.D.4.
Recreation and Tourism	5.D.5
National Defense and Aerospace Facilities	5.D.6.
Transportation Facilities	5.D.7.
Air Quality	5.D.8.
Water Supply	5.D.9.
Implementation	5.D.10.

SECTION 5D

5.D. DEVELOPMENT ISSUES

5.D.1.

Introduction

The Coastal Zone Management Act of 1972 (P.L. 92-583) as amended, states that it is national policy "(a) to preserve, protect, develop and where possible, restore or enhance the resources of the Nation's coastal zone for this and succeeding generations," and "(b) to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone giving full consideration to ecological, cultural, historical and aesthetic values as well as to needs for economic development." (Section 303 in part). Hence, a State's program must provide a balance between the protection of valuable resources and the need for development of those resources where economic and physical location considerations warrant such usage.

Economic growth and development are continuous processes based upon thousands of independent, generally private, as opposed to public, decisions, each reflecting different social, economic and political values. The issues of growth and development have been debated at length in a variety of forums for years, but the most recent, and perhaps most comprehensive, look at the subject was undertaken by the Delaware Tomorrow Commission which was established in 1974 and charged with the responsibility of developing a Statewide plan for growth. The Commission concluded that the pattern of development that has occurred over the past two centuries has led to an extravagant use of land and water resources and has led to problems of air and water pollution, traffic congestion, and the loss of open space coupled with tremendous demand for facilities and services. Among the findings were that: many areas experience sewer overflows and marginal water supplies in spite of an approved (1975) sewer program of more than $100 million; and while 23 Delaware communities lost population between 1960 and 1970, over 19,000 surburban acres were being converted to new developments, some using prime farmland and fragile coastal areas.

While concerned about the use and misuse of land and the cost of providing new public facilities, the Commission recognized a need for economic development to offset unemployment, a weakened economy, declining State revenues and rapidly rising costs of public services and facilities.

5.D.1.

The Coastal Management Program recogizes the need for development policy just as previous sections recognize the need for specific policy to prevent unwise use of limited natural or economic resources.

The CMP also recognizes that many construction projects impact "coastal resources" either because they are located adjacent to a shoreline or because they, singularly or collectively, can impact coastal waters by the addition of sediments, toxic pollutants, or other wastes. Hence, this section of Delaware's Coastal Management Program describes the issues of growth and development of the State as a whole, and the policy and programmatic approaches to be applied to management of development needs.

The primary CMP concern with development is that it proceed after considering and resolving environmental issues, and that it be an efficient user of land, water and financial resources. To that end the enforceable CMP policies relating to development are found mostly in Section 5.A., while encouragement policies are contained in the discussion which follows.

The format for this section of the CMP is different from that of preceding sections for several reasons: (1) the issues discussed are of State concern because of their relationship to public investment, community development patterns, or the quality of human settlement, as well as their relationship to "coastal resources"; (2) with some exceptions, the traditional roles of State government in such matters are those of guidance and reliance on local (as opposed to direct) control, in order to "encourage" efficient use of land and water resources; and (3) for most of the uses discussed, only general policies are appropriate because the State lacks specific authority to control them.

5.D.2. GENERAL DEVELOPMENT ISSUES

A. Background

Development issues relate to questions of population and economic growth. As population increases, the arrangements by which people share their environment become more complex. Conflicts between human needs and more become more pronounced; solutions become matters of group versus individual action. When an area becomes urbanized, people find it desirable and often necessary to provide such public services and facilities as schools, roads, sewer and water systems and public safety. It is partly through the planned provision of these public facilities and services needed for growth that development can be guided.

Economic growth depends on the attractiveness of the area to employers which includes the area's employment environment, labor force, availability of building sites, wage rates, and educational and training facilities. Furthermore, the quantity and quality of public services and facilities and their cost are important to business, industry and individuals in determining whether an area will be a desirable place to live or work.

B. The Pattern of Development

Delaware has a land area of approximately 1982 square miles and a 1978 population estimated at 583,000. Until recently, the State was mostly rural with established urban settlements, both large and small, the predominate pattern of development. Between 1960 and 1970, however, the population of all incorporated areas grew by only 4 percent while the unincorporated areas increased by 35 percent. This shows that Delaware was experiencing the phenomenon which in recent years has been commonly called "sprawl" or "suburbanization."

Land use surveys conducted during the period of rapid growth have shown the spread of development into rural areas of all three Delaware counties, which resulted in a 27 percent decline in farm operations between 1945 and 1969.

This pattern of development has occurred primarily in response to the demand for housing caused by the rapid population growth, the lower cost of land in rural areas, and the expansion of the highway system. Public agencies, unprepared to deal with the increase of suburban residents, reinforced the pattern by providing new schools, sewer extensions, and other services which encouraged still more development in the suburbs.

C. The Rate, Intensity, and Location of Development

During the 1950's Delaware was one of the nation's fastest growing states, with its population increasing by over 40 percent. In the 1960's the rate of growth slowed, perhaps as a result of the trend toward smaller families or the attractiveness of other

regions, but a 22.9 percent increase was still seen. This growth rate still made Delaware the eighth fastest growing State in the nation. Most of this growth occurred in New Castle County, particularly in suburban areas around Newark and in the Route 2/I-95 corridor.

More than 56 percent of the change in Delaware's population growth rate since 1940 has resulted from natural increase (excess of births over deaths). After gradually declining during the previous four decades, the fertility rate increased sharply in the 1950's to its highest of the century. The rate began falling again in the early 1960's and this downward trend has continued through the 1970's.

Delaware has in the past thirty years experienced a large net in-migration of people. The greatest in-migration occurred during the 1950's and over three-fourths of the immigrants have located in New Castle County. The bulk of the new residents were whites under forty years of age.

Delaware's age distribution has changed significantly since 1900. In 1970, there was a disproportionately large population between the ages 5-19 and a smaller than normal number in the age ranges 0-4 and 30-44. As these present groups age their disproportionate size will have a significant impact on the demand for both public and private goods and services. In Sussex County, 16.3 percent of the residents were over age 60 in 1976, compared to 12.6 percent statewide. This age group recorded an almost 17 percent growth rate over the previous six years, giving rise to concern about the impacts of a retirement area boom.

The State's racial composition has remained nearly constant in the past seventy years with the non-white proportion of the population ranging from a high of 16.6 percent in 1990 to a low of 13.5 percent in 1940. In 1970, non-whites comprised 14.9 percent of the State's population. Sussex County had the highest proportion of non-whites at 21.2 percent compared to 17.7 percent in Kent County and 13.1 percent in New Castle County. Wilmington's population was 44.1 percent non-white in 1970.

More than 72 percent of Delaware's people lived in urban areas in 1970. These areas increased by more than 102,000 people during the 1960's and rural areas lost 969 people. The population of 28 of the 51 incorporated towns in Delaware grew during this period, however, and the percent of the population living in these areas declined from 39.4 percent in 1960 to 32.9 percent in 1970.

In 1970, Delaware was the eighth most densely populated State in the nation. The population per square mile is expected to increase from the 1970 average of 276.5 to 448 by the year 2000.

5.D.2.

According to the Delaware Population Consortium, the State's population is expected to increase to 760,555 by 1995; about 210,000 more than the 1970 population. Much of this growth will occur in New Castle County (88,400), although the rate of growth in this county will be significantly less than in earlier periods. An increase in population of 70,000 and 53,000 for Kent and Sussex Counties respectively is projected through 1995.

Population of Delaware, by County

1900-1970 and projected to 1995

	State	New Castle	Kent	Sussex
1900	184,735	109,697	32,762	42,276
1910	202,322	123,188	32,721	46,413
1920	223,003	148,239	31,023	43,741
1930	238,380	161,032	31,841	45,507
1940	266,505	179,562	34,441	52,502
1950	318,085	218,879	37,870	61,336
1960	446,292	307,446	65,651	73,195
1970	548,104	385,856	81,892	80,356
1975	574,692	393,648	93,030	88,014
1980	612,948	405,778	109,752	97,418 (91,767)
1985	657,738	423,178	126,436	108,124 (95,786)
1990	707,172	445,884	141,194	120,094 (100,119)
1995	760,555	474,215	152,927	133,413 (104,727)

Sources: 1900-1970, U.S. Census of Population; Mid-Year Projections 1975-1995, Delaware Population Consortium. Projections for Sussex County 208 Program are shown in parentheses.

During the 1960's the largest increase in new employees were recorded in Services (21, 817), Wholesale and Retail Trade (12,878), and Manufacturing (7,442). The fastest growth rates were in Services; Finance, Insurance, and Real Estate; Wholesale and Retail Trades; and Mining, each with an increase of more than 40 percent. Long term projections indicate a continued growth in Service Employment (up 73 percent between 1973 and 1995); Finance, Insurance, and Real Estate (+61percent by 1995); Construction (+51 percent by 1995); and Wholesale and Retail Trade (+27 percent by 1995). Government employment, always a significant component of the Delaware economy, is expected to grow sharply during the period (+180 percent by 1995).

Future land requirements are a function of population density, the extent of reuse of underused or obsolete structures, land prices, public policies on the extension of sewers and other services into undeveloped areas, and the effectiveness of planning and regulatory programs in encouraging concentrated rather than sprawling development patterns. Because these factors are unpredictable, estimates of future land requirements are suspect. Using the accepted standard of four dwelling units per acre, however, the additional development by 1995 would require 17-20,000 acres of land. In addition there would be land demands for second-home and resort related development, estimated by the Coastal Sussex Water Quality (208) Program to require 4900+ new acres by 1995. Those needs can be accommodated without undue environmental impact and in a manner consistent with the policies recommended, if all levels of government become aware of the problems and work together to solve them.

D. Development Concerns

Governor Tribbitt, recognizing the need for a coordinated, statewide examination of growth, established the Delaware Tomorrow Commission in June, 1974. The Commission was comprised of representatiaves from State, county, and local units of government, and business, labor, conservation, land development, agriculture, finance, and good government interests. During the course of its 2½ years of work it was aided by numerous citizens representing these and other interests. The Commission's task was to examine issues relating to industrial, commercial, and residential development, open space, recreation, and transportation, and to recommend economic growth policies. In addition it was the Commission's task to look at ways to attract industry to the State.

Specific responsibilities of the Commission were to:

(a) Determine what the State Government's historical experience has been in regard to population and economic growth.
(b) Determine how effectively State Government is handling growth problems.
(c) Determine alternative ways that State Government can provide for growth.
(d) Evaluate the possible impact of various growth alternatives on private and public sectors.
(e) Recommend policies and strategies to State Government for growth in the residential, commercial and industrial areas.

Another purpose of the Commission was to raise the level of public discussion with respect to growth-related issues. The Commission's conclusions and recommendations are discussed below:

COMMUNITY PATTERNS

(a) Established urban settlements with their existing sewer and water systems, streets, sidewalks, street lights, parks, and other facilities, and their ability to accommodate growth, represent an important community development resource.
(b) Individual land development decisions fail to consider the implications of the land development process.
(c) Factors other than those of local or individual concern must be brought into the planning and decision-making process.
(d) All those who are significantly affected by, or must in some way respond to, development decisions must be permitted to have a role in making those decisions.

The Commission concluded that concentrating development in or near existing communities would reduce the need for costly utility extensions and encouraged the placement of employment opportunities on existing industrial land. This also would reduce the need for expensive highways to serve outlying areas.

Detached houses on large lots can no longer be the standard for community development. Cluster housing, planned unit development (PUD's), and other proven patterns should be stressed in future developments according to the Commission.

Urban centers were recommended to once again become areas where cultural, medical, educational, financial, business, government, and other institutions are clustered. Public investment policies should foster this clustering, not oppose it.

5.D.2.

The Commission also recommended that older buildings, business districts, water fronts, streets, empty spaces, and dwellings be renewed and reused in imaginative and attractive ways and not be allowed to deteriorate into unused eyesores. Urban spaces should be made attractive and renewed and redesigned for pedestrians. This should be accomplished by tax and regulatory methods which encourage reuse and preservation.

COMMERCIAL LAND

(a) Strip commercial development reduces the usefulness of highways for their original purpose, and transforms them into commercial streets. (note: many early zoning ordinaces incorporated this pattern of development and though many jurisdictions now oppose strip rezoning the problem remains).
(b) A commercial developer should be expected to show the need for such development.

INDUSTRY AND INDUSTRIAL LAND

(a) Delaware should prepare an inventory of sites and services to help industrial firms meet the job needs of the State. This is being accomplished through such efforts as the industrial site inventory prepared with county and municipal assistance by the State's Division of Economic Development.
(b) Job needs should be met within the framework of comprehensive plans, which define the goals of the State and its local units.
(c) Plants should be located where the State and local governments are able to provide services.
(d) Plants should be located where they will not downgrade the environment and where energy, water, and sewers are available.

INSTITUTIONAL LAND USE

(a) Large institutions, both public and private, impact community development patterns and use large tracts of land. These tracts should be located to foster urban concentration.
(b) Often large institutions are not controlled by municipal, county, and State governments and may disrupt the community. Recent decisions to locate a branch of Delaware Technical and Community College and the suburban unit of the Wilmington Medical Center are examples of the lack of communication and coordination between institutions, the communities they serve, and the various levels of government affected.

E. CMP Development Policies

The following policies were recommended by the Delaware Tomorrow Commission and are intended for implementation by all levels of government through planning, land use control, public investments, and other programs. These policies were adopted as an amendment to the Delaware Development Plan by Governor Tribbitt in February, 1976. They are hereby adopted as Coastal Management Program Policies.

1. Community Patterns

(A) NEW COMMUNITY DEVELOPMENT ACTIONS SHOULD DISCOURAGE "SPRAWL."

(B) NEW COMMUNITY DEVELOPMENT GENERALLY SHOULD OCCUR WITHIN OR NEAR EXISTING POPULATION CONCENTRATIONS WHERE UTILITY NETWORKS AND COMMUNITY FACILITIES AND SERVICES ARE ALREADY IN PLACE OR CAN ECONOMICALLY BE EXPANDED.

(C) ESTABLISHED URBAN CENTERS, SMALL AND LARGE, SHOULD BE REVITALIZED AND RECOGNIZED FOR THE VALUES OF THEIR IN-PLACE STRUCTURES, FACILIITES AND INSTITUTIONS

2. Commercial Land

(A) COMMERCIAL STRIP DEVELOPMENT THAT IMPEDES TRAFFIC FLOW THROUGHOUT THE HIGHWAY NETWORK, REDUCES THE OPERATING CAPACITY OF ROADWAYS, AND DECENTRALIZES COMMERCIAL ACTIVITY SHOULD BE SIGNIFICANTLY CURTAILED.

(B) MAJOR COMMERCIAL DEVELOPMENT SHOULD BE ENCOURAGED IN EXISTING CENTRAL BUSINESS DISTRICTS.

(C) HIGHWAY ORIENTED USES SHOULD BE CLUSTERED AND NOT STRUNG OUT ALONG MAJOR HIGHWAYS.

3. Industry and Industrial Land Use

(A) THE USE OF EXISTING UNUSED INDUSTRIAL SITES AND BUILDINGS SHOULD BE ENCOURAGED WHEREVER THEY CAN BE ADAPTED TO TODAY'S INDUSTRIAL NEEDS.

(B) DELAWARE SHOULD ENCOURAGE THE INTRODUCTION OF NEW INDUSTRIES THAT OPTIMIZE THE STATE'S RESOURCES AND THE SPECIAL SKILLS AND NEEDS OF DELAWARE RESIDENTS.

(C) DELAWARE SHOULD ENCOURAGE DEVELOPMENT OF INDUSTRIAL AREAS THAT ARE LOCATED SO THAT SERVICES CAN BE PROVIDED ECONOMICALLY, MASS TRANSPORTATION CAN SERVE THE NEEDS OF THE WORKERS, AND THE INDUSTRIES WILL DRAW ON AND SUPPORT EXISTING RAIL LINES, PORTS, AND AIR TERMINALS.

(D) DELAWARE SHOULD ASSUME REGULATORY CONTROL OVER ANY FUTURE SITES OR RIGHTS-OF-WAY FOR MARINE TERMINALS, BULK TRANSFER FACILITIES, OR UTILITIES INCLUDING PIPELINES.

(E) DELAWARE AND ITS LOCAL GOVERNMENTS SHOULD ESTABLISH STANDARDS AND CRITERIA FOR INDUSTRIAL LOCATION INCLUDING OPTIMUM SIZE, UTILITY AVAILABILITY, ACCESSIBILITY, AND THE OVERALL IMPACT ON LOCAL COMMUNITIES, SUCH STANDARDS TO BE MET PRIOR TO REZONING FOR INDUSTRY. THE STATE SHALL NOT PROMOTE A SITE FOR INDUSTRIAL PURPOSES WHEN THE UTILIZATION FOR THAT PURPOSE IS CONTRARY TO THE LAND USE PLAN IN THE AREA.

4. Institutional Land Use

(A) PUBLIC AND TAX EXEMPT PRIVATE INSTITUTIONS, SERVICES, AND FACILITIES SHOULD BE LOCATED TO SERVE URBAN CONCENTRATION AND SHOULD COMPLY WITH LAND USE, DRAINAGE, AND OTHER REGULATORY PLANS.

F. Recommended Location for Urban Development

The Coastal Management Program is not intended to be a detailed land use plan; however, it is important that the locations for urban development be recommended in order for the program to have balance and utility. Again, the work of the Delaware Tomorrow Commission, and the many commissions, committees, and task forces that preceded it, have set the land use framework for Delaware.

1. Urban Development (Except Industry)

As reflected in the policies listed above, new development should be located in, or immediately adjacent to, the established urban centers where transportation, utility, and other services exist or can be easily expanded. The Route 2 (Kirkwood Highway)/I-95/U.S. 40 corridors in New Castle County are the planned location for much of the growth in this portion of the State. The previous expectation of growth in the I-95/U.S. 40 corridor, however, has been reduced because of current land development trends in the County. Development is being discouraged in the Piedmont (northern)

portion of the County and in the rural portions south of the Chesapeake and Delaware Canal. (New Castle County is updating its Comprehensive Development Plan to reflect this policy and development expectations).

Wilmington should be given special consideration as a center for future development since there are vacant industrial buildings and land as well as water and sewer systems, and an infrastructure which was built to serve 110,000 people, but now serving less than 75,000. These public services not only serve residents of the City, but also workers and visitors. These people more than double the City's population during working hours. Although Wilmington's residential population has been declining, the number of employees has been steadily increasing. According to the U.S. Census of Population, while the number of residents decreased by 15,400 between 1960 and 1970, the number of employees increased by 14,000 (from 54,000 to 68,000). The Program now underway to redevelop and enhance the City is important not only to the City, but to northern New Castle County and the State as well.

Elsewhere, existing urban centers should be the location for new development with scattered, rural development the exception rather than the rule. New development should be directed to these centers to take advantage of their commercial, institutional, cultural and economic assets and to allow for the development of economies of scale and specialization of services that can be lost through a dispersion of markets and trade.

These recommendations are cognizant of the added burdens on air and water quality, noise levels, and visual quality, all of which are significantly impacted by a more concentrated development-pattern. Pursuit of these policy objectives must not be at the sacrifice of environmental standards and desires.

2. Industrial Development

Much of Delaware's industry is clustered in areas where transportation, public services, and support facilities are available. These clusters should be reinforced and, where necessary, reused. Areas recommended for new industrial development include: the older industrial areas of Wilmington; the Port of Wilmington (see Section 5.B.4.); the area between New Castle and the Delaware Memorial Bridge along the Delaware River; the Getty/DP&L complex at Delaware City; the I-95/Route 40 coordior, particularly the Glasgow/Newark and Greater Wilmington Airport areas; the Greater Dover area; Lewes; Georgetown in conjunction with the County Industrial Airpark; and in those established communities which have both the capability and the desire to accommodate economic growth. The emphasis of the State's program will be recruitment of domestic firms seeking to relocate or expand, particularly the electronics industry, which could benefit from Delaware's location near markets, skilled labor force, and nearby sources of raw materials.

Industries which are excluded from the Coastal Strip (see Section 5.A.4.) due to environmental concerns and those industries which do not need a coastal location are encouraged inland. Specific locations are identified in county and municipal land use plans for short and long-term industrial expansion. In every case State and local land use, site development, and environmental standards must be met.

The CMP recognizes that industrial facilities, whether concentrated or dispersed, can cause environmental and land use problems. However, the State and local governments exercise sufficient authority to ensure that industrial location needs can be accommodated in a manner which maintains high environmental quality standards. Both industry and government recognize that a clean, attractive and well-managed environment rank among the most important industrial location considerations. The industrial development policies listed earlier will direct and encourage new industrial facilities to sites which can meet the resource protection objectives of the CMP while adding to the State's economic growth.

The City of Lewes is a special case where industrial development is encouraged provided such development does not conflict with the historical and resort character of the community. Light industrial research and development facilities related to the University of Delaware's College of Marine Studies campus at Lewes is particularly encouraged. Also encouraged is the reuse of the industrial site on the Delaware Bay as a general purpose port, a commercial fishing port and as a supply base for OCS oil and gas drilling.

3. Urban Waterfronts

Changes in marine transportation methods and industrial location requirements have left a legacy of economically obsolete, physically deteriorating, underused urban waterfronts in Delaware. Several studies have examined portions of the urban waterfront in the State and proposals for development of the deteriorated industrial waterfront along the Christina and Brandywine Rivers in Wilmington could create new recreation areas and scenic attractions in this urban area. On a small scale a riverfront redevelopment program is underway in Milford along the Mispillion River. With State and Federal (USDA) help the City has begun on a series of park development projects which replace old municipal warehouses, storage yards, and a sewage treatment plant. The first phase, a Bicentennial Park, has been completed and provides an attractive park in the center of town on land formerly occupied by a dog kennel, storage yard, and city warehouse. Similar programs are in various stages of development in a number of communities including a project recently completed by the City of Dover and the State along the St. Jones River.

5.D.2.

New Castle County is interested in developing waterfront recreation facilities along the Delaware River. A study funded by the County Department of Parks and Recreation, in cooperation with the Delaware River Shoreline Committee, determined that the public was receptive to developing several types of water-oriented recreation facilities. These include a riverfront park as well as a marina, shoreline bicycle paths, and a coastal nature study preserve. The options evaluated in the study are especially attractive because they would serve urban recreation needs. While the State is often precluded from funding such projects due to a lack of money, the State has provided technical assistance to a number of projects. In one case State funds were used to acquire a derelict waterfront along the Delaware River which was later transferred to New Castle County for future development as a riverfront park.

The Delaware Comprehensive Outdoor Recreation Plan of 1978 (SCORP) includes a policy which encourages the acquisition and development of parks near urban areas. Clearly urban waterfronts pass that test.

Recognizing the problems and importance of urban waterfronts the Office of Coastal Zone Management (OCZM) of the U.S. Department of Commerce has provided money to evaluate the potential for redevelopment of these areas. The Coastal Management Program, with the support of county, city, regional, and state agencies, has applied for money for such a project. This project is designed to survey the State's urban waterfront in New Castle County and assess the possiblities for redevelopment of this area. The study will also establish criteria by which to rank possible projects and develop a list of redevelopment options with sufficient detail to assess costs and feasibility. The objectives are to:

1. Plan for development of the deteriorating and underused urban waterfront;

2. Encourage establishment of water-dependent uses along the State's urban waterfront;

3. Provide increased economic activity, private investment, tax revenues, and number of jobs;

4. Provide urban amenities along the waterfront, with particular emphasis placed on increasing public access to the shoreline;

5. Encourage concentrated coastal development in or adjacent to urbanized areas; and

6. Encourage coordinated planning for management of and public investment in urban waterfront areas.

Selected References: General Development

1. Census of Population, 1970, Bureau of the Census, U.S. Department of Commerce, (also selected special reports and annual population estimates)

2. Delaware Population Growth, 1975-1995, Division of Urban Affairs, University of Delaware, 1975, for the Delaware Population Consortium

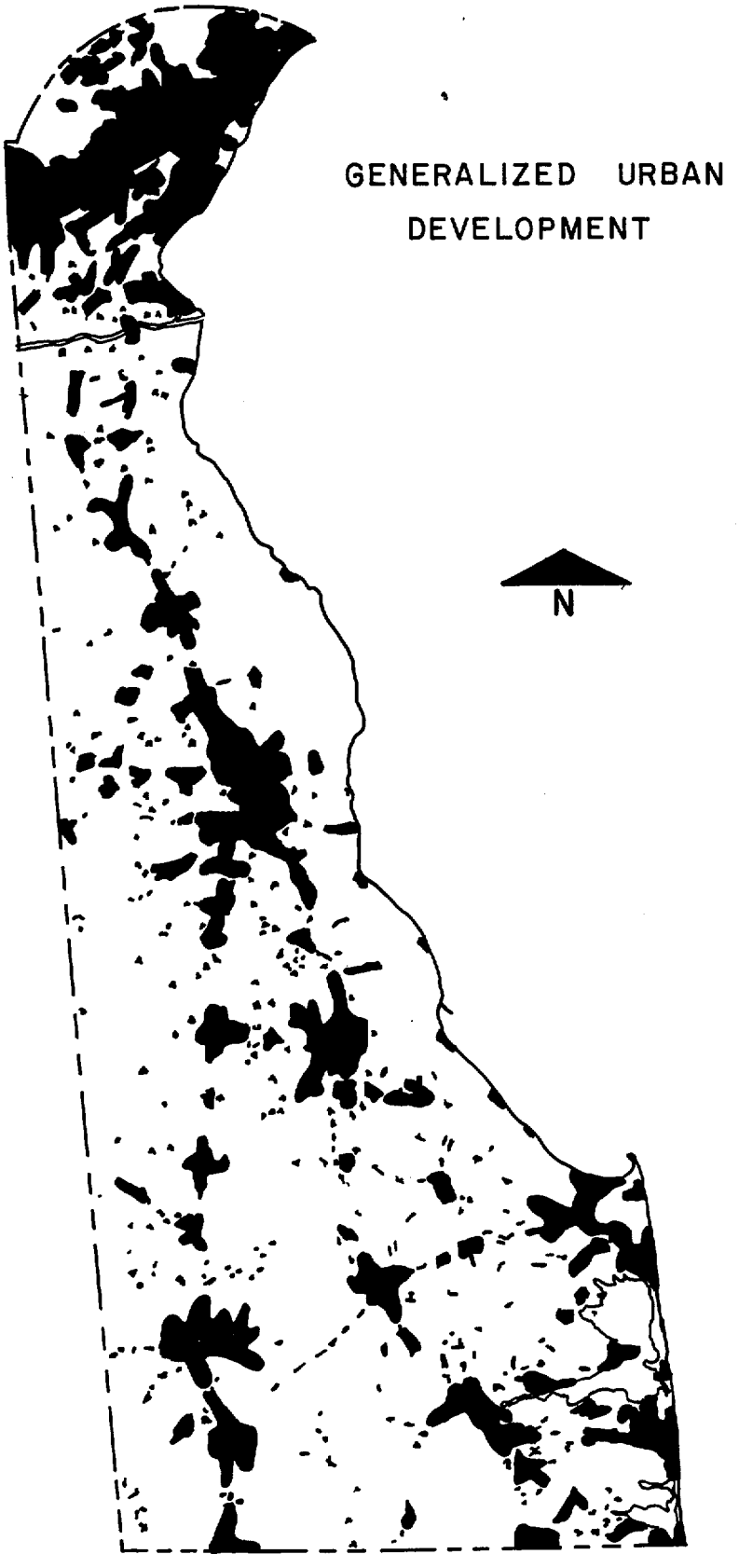
3. Final Report of the Delaware Tomorrow Commission to Governor Sherman W. Tribbitt, January 1976, (published by the Office of Management, Budget, and Planning)

4. Kent County Comprehensive Development Plan, Kent County Planning Department

5. New Castle County Comprehensive Development Plan and Planning District Studies, various dates, New Castle County Department of Planning

6. Sussex County Comprehensive Plan and Planning Area Studies Sussex County Planning and Zoning Department

7. The Coastal Zone of Delaware, Governor's Task Force on Marine and Coastal Affairs, 1972 (published by the College of Marine Studies, University of Delaware)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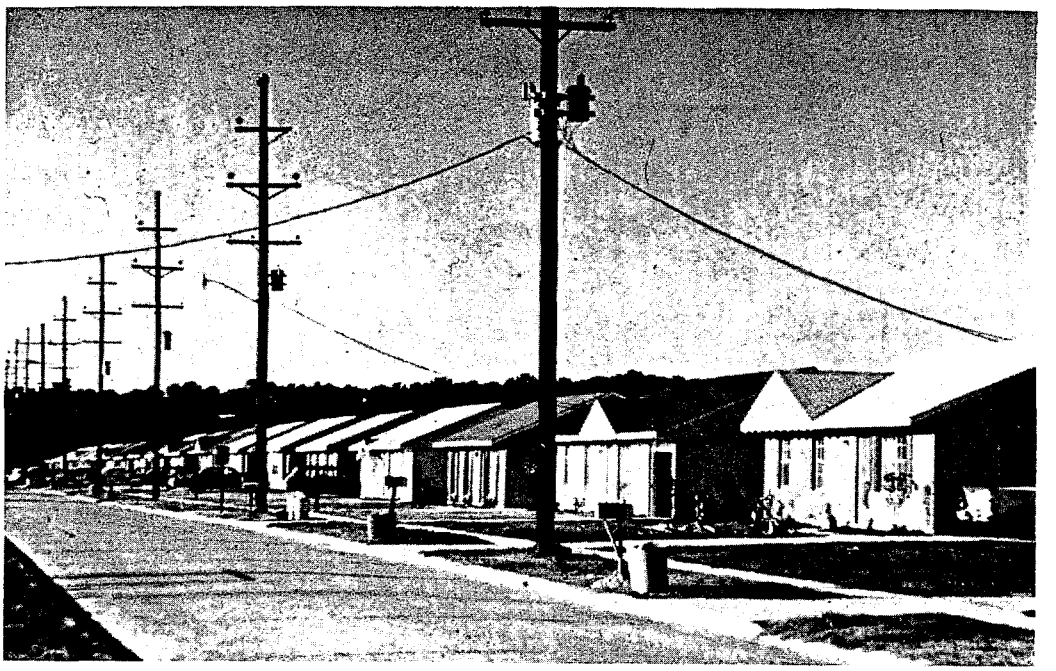

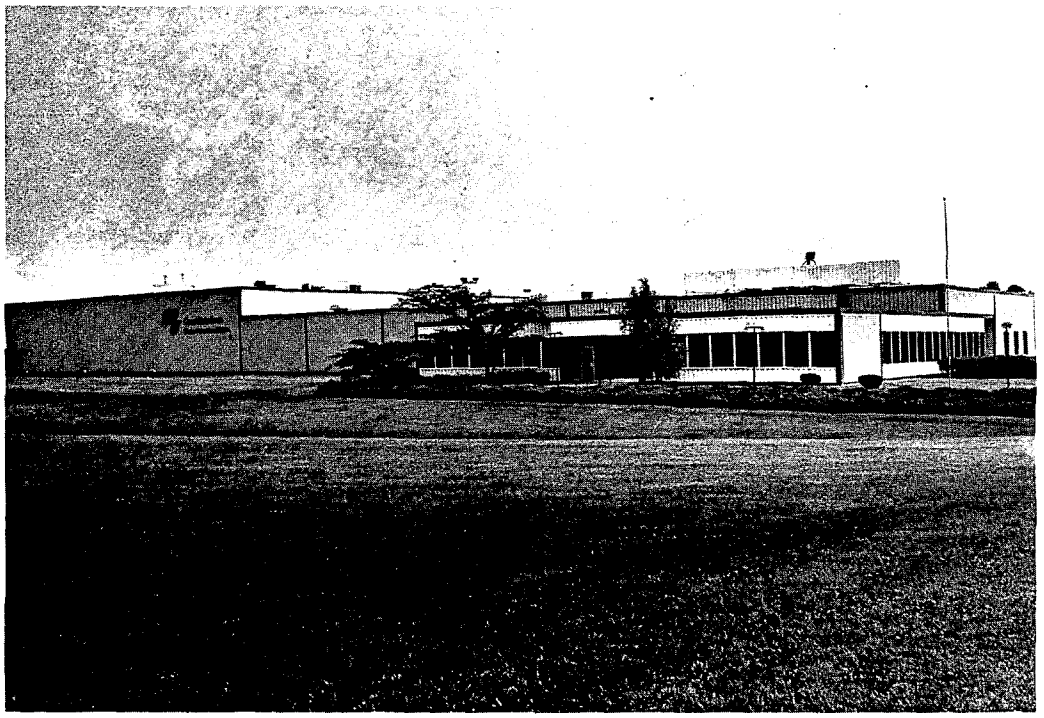

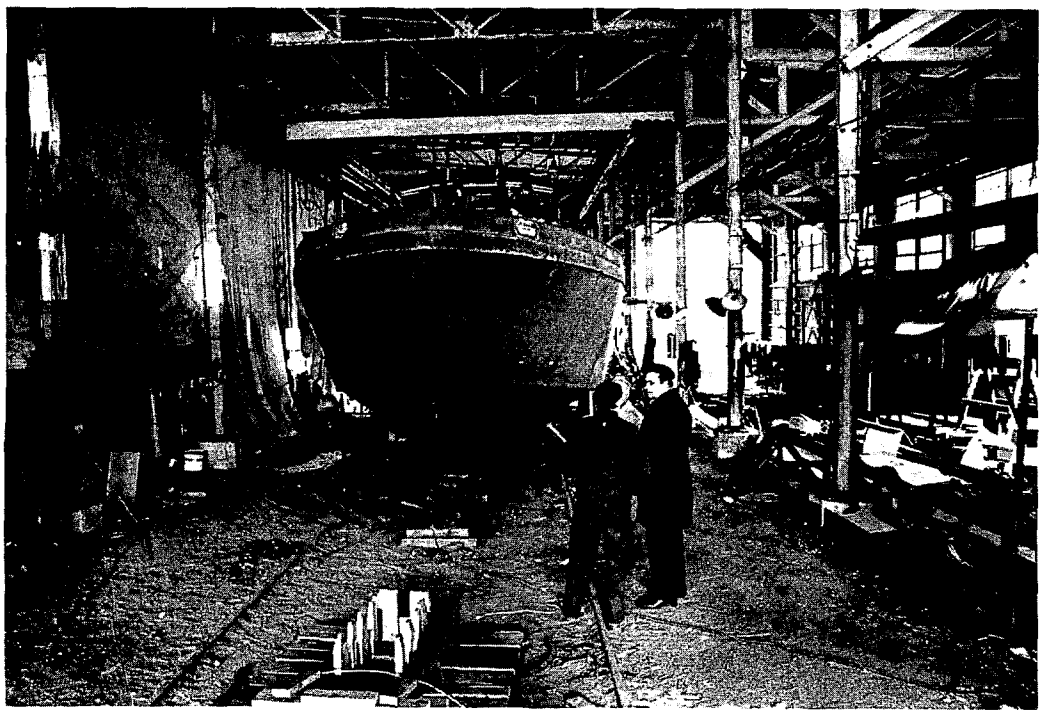

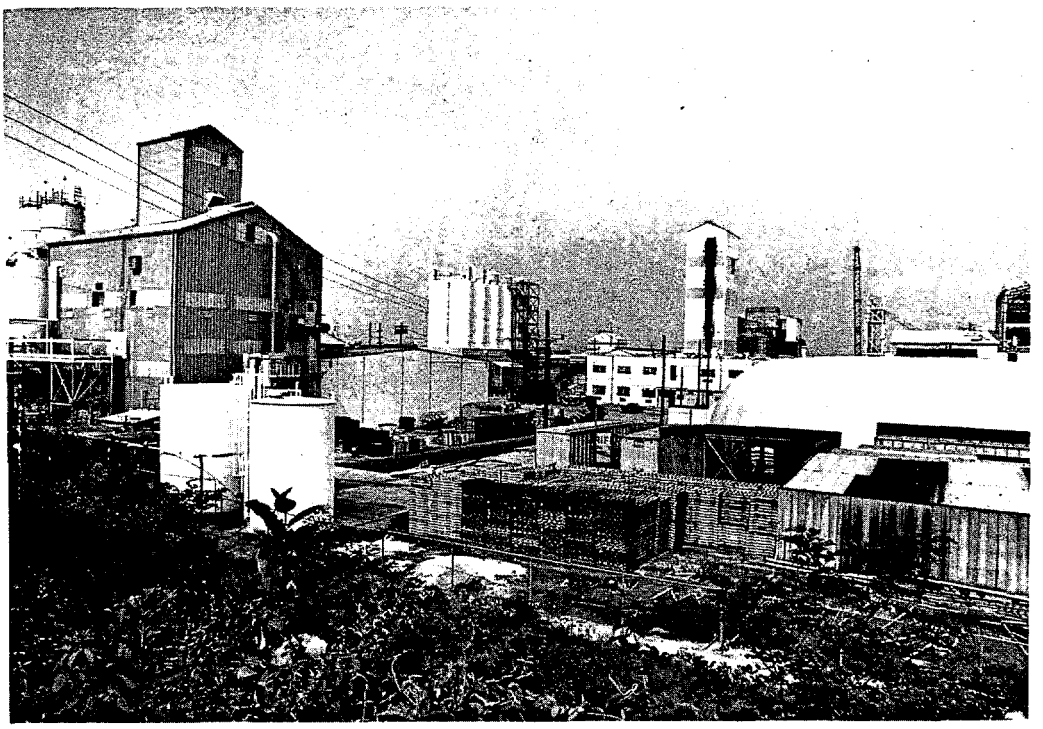

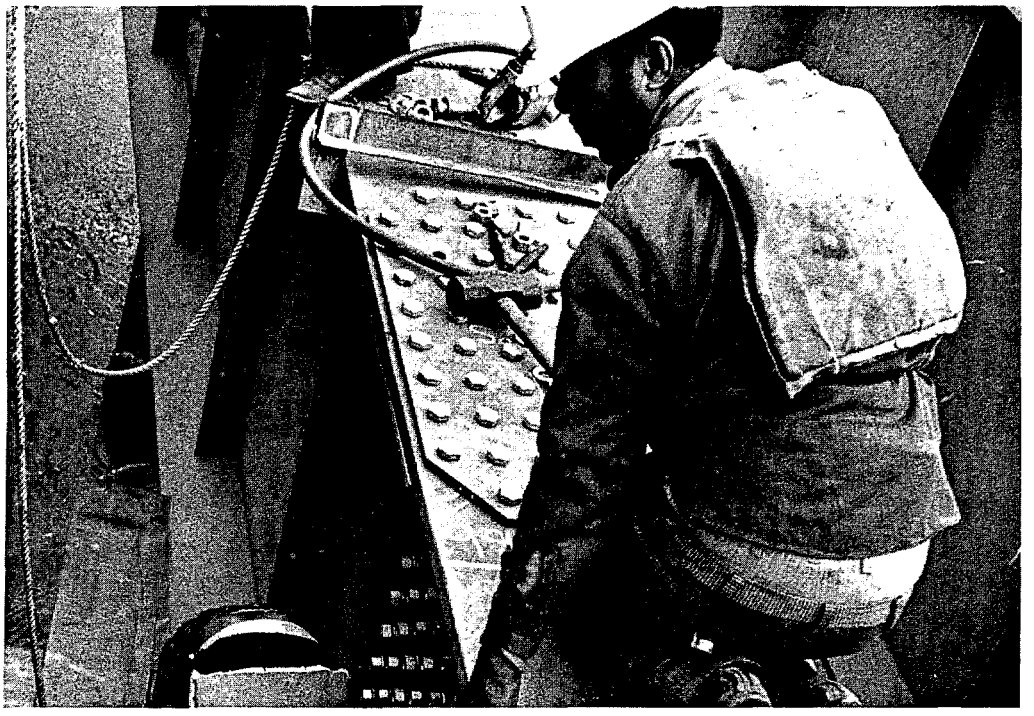

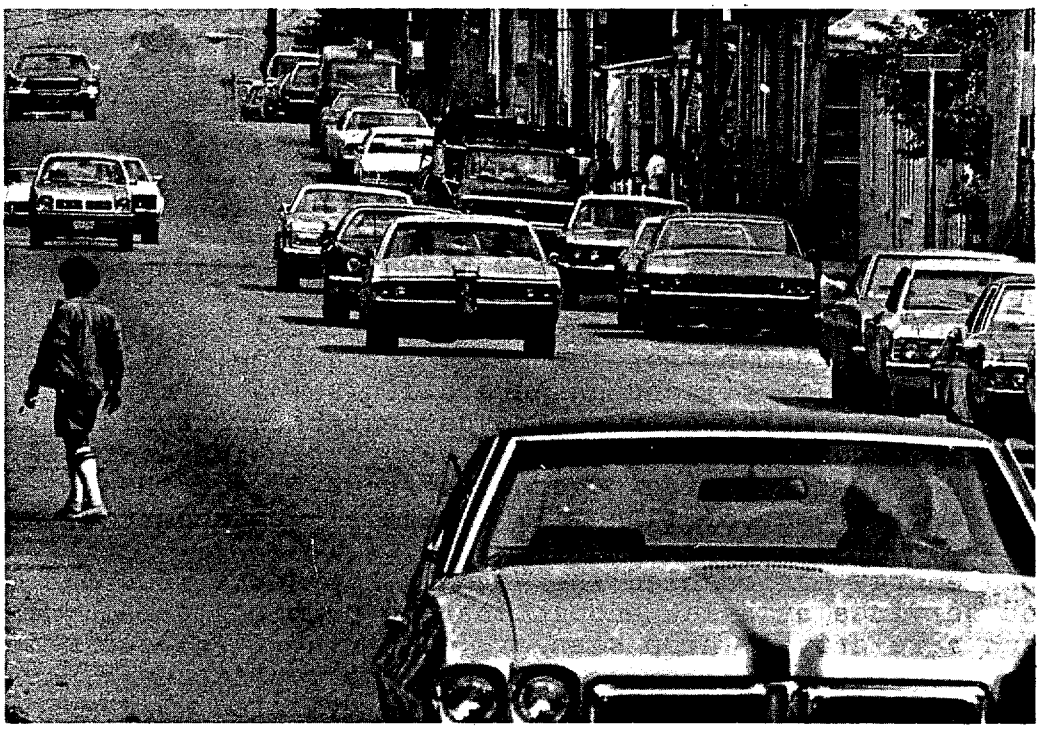

ENERGY FACILITIES

Introduction

This section includes a number of subjects centering on energy facilities. It examines national, regional and State-wide energy resources and needs. It describes energy facility siting criteria. It identifies effects of such facilities on coastal resources. It discusses the need to balance the need for energy facilities with protection and conservation of natural resources. It also describes Coastal Management Program energy activity policies. And it presents the CMP planning process for energy facilities located in or likely to affect the coastal zone.

The format for this section is different than that used for most of the CMP because of the variety of subjects and the detailed treatment of them required by the Federal Coastal Zone Management Act. Accordingly, each consideration of a particular energy facility includes discussions of the national interest, potential demand, siting criteria, and CMP policy. The discussions contained in this section are more extensive than those previously contained in the CMP Discussion Draft (September 1978). Many reviewers of the September Draft felt that the commentary related to energy facilities contained in a CMP Working Paper (Number 7, The National Interest in Resources and Facilities of the Delaware Coastal Zone, March 1978) should be included in the CMP document.

ENERGY AND THE NATIONAL INTEREST

WORLD AND NATIONAL SUPPLY AND DEMAND

The President's National Energy Plan states that:

> "The diagnosis of the U.S. energy crisis is quite simple: demand for energy is increasing, while supplies of oil and gas are diminishing. Unless the U.S. makes a timely adjustment before world oil becomes very scarce and very expensive in the 1980's, the nation's economic security and the American way of life will be gravely endangered."

Cheap energy has enabled the Nation to produce food and other goods and services at a low enough cost to permit general prosperity and a relatively high standard of living. The economic importance of energy to the Nation cannot be overstated. The United States consumed approximately 60 quadrillion

(60,000,000,000,000,000) Btu--one btu is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit--of energy in 1970. In 1975, the United States consumed 73 quadrillion Btu. At current consumption levels, the national use of energy is projected to reach 125 quadrillion Btu by the year 2000. If the cost of all that energy rises appreciably, the economic consequences will obviously be profound.

Unfortunately, rising costs seem almost inevitable. The cost of energy will, to a large extent, be determined by the familiar principle of demand and supply. As demand increases and supply dwindles, prices will escalate. The world-wide demand for energy has been projected to jump from 250.4 quadrillion Btu in 1973 to 406.1 quadrillion Btu in 1990, an average annual growth rate of 2.9 percent. Supplies, on the other hand, are expected to become more scarce. Of the 250.4 quadrillion Btu consumed in 1973, only 15.1 quadrillion Btu were from other than non-renewable fossil fuels. As the world runs out of those fuels, the price of energy will rise unless alternative energy sources can fill the void.

Like the rest of the world, the United States depends on fossil fuels almost exclusively. About 95 percent of the Nation's energy is supplied by non-renewable fossil fuels. Oil and gas provide 75 percent of the country's energy needs, although they constitute less than 8 percent of its energy resources. In 1975, the Nation used more than 16 million barrels of oil per day, compared to less than 7 million barrels per day in 1947. Oil is used heavily in the residential, commercial and transportation sectors, but is needed most for transportation, where no substitute is currently available. In early 1977, the United States imported 9 million barrels of oil per day, one-half of the domestic supply.

The impact on the Nation's balance of trade--an important measure of the country's economic health--has been substantial. The impact, of course, has been aggravated by rising prices. World-wide oil prices increased four-fold in 1973-1974 alone. In 1974, the United States imported $15.2 billion worth of petroleum crude, $6 billion worth of fuel oil, and $.5 billion worth of natural gas; while it exported only $13 million worth of crude oil, $46 million worth of fuel oil, and $68 million worth of natural gas. During an 8 month period in 1977, oil imports were reportedly worth $23 billion.

Energy-induced economic vulnerability jeopardizes the country's position in the world and may adversely influence foreign policy. The distribution of the remaining oil in the

world is such that OPEC and the Soviet bloc together control approximately 85 percent of the remaining potential recoverable resources. It has been estimated that by the year 2000, about 73 percent of world's oil production will probably come from OPEC and the Soviet bloc. In addition, the Mid-east Nations and the Sino-Soviet bloc combined, hold more than 1.3 quadrillion cubic feet of the less than 2.2 quadrillion cubic feet remaining estimated world reserve of natural gas. United States holdings amount to only 237.1 trillion cubic feet, about one-third of the amount in the Sino-Soviet bloc.

A report by the U. S. Central Intelligence Agency predicts that the United States' demand for oil imports in 1985 could reach between 12 and 15 million barrels per day, most of which will be sought from OPEC countries. The Federal Energy Administration--now part of the Department of Energy--has reported that oil imports could reach 13.5 million barrels per day in 1985 if oil and gas prices are regulated, but that gradual deregulation could drop the figure to 5.9 million barrels per day. However, the Federal Energy Administration has also warned that imports could increase again in 1990 as domestic production declines. Finally, the National Energy Plan projects a 12-16 million barrel per day import figure for 1985.

Natural gas constitutes only 4 percent of domestic energy reserves, but, in 1976, furnished 27 percent of national energy needs--the equivalent of 10 million barrels of oil per day. The National Energy Plan declares that "the growing imbalance between America's domestic natural gas resources and its annual consumption is of particular concern."

Projections of the national gas supply vary. The U. S. Bureau of Mines has predicted that domestic supplies will decrease steadily between now and 2000. A Federal Energy Administration forecast of gas supplies is more optimistic, and estimates that there will be a small increase, until at least 1985. On the other hand, more dire predictions have been made. The National Research Council, for example, has reportedly warned that the United States will completely run out of both oil and natural gas by 2000.

Coal is unlikely to be exhausted in the near future. Coal constitutes 90 percent of the country's conventional energy reserves, but supplies only 18 percent of energy consumption. Within the lower 48 states, the United States has about one-third of the known economically recoverable coal reserves in the world. Full utilization of America's coal resources has been hampered by constraints on demand, rather than lack of supply. Demand has been curtailed by government regulations designed to minimize adverse environmental and health efforts of coal operations,

as well as equipment and transportation limitations.

According to the National Energy Plan, the country must overcome such problems. The Plan states that "Expansion of U. S. coal production and use is essential if the Nation is to maintain economic growth, reduce oil imports, and have adequate supplies of natural gas for residential use."

The Federal Energy Administration has projected a coal production increase from 603 million tons in 1974 to 1040 million tons in 1985. Most of the coal will be used in the generation of electricity. The Federal Energy Administration expects that coal's use in electric generation could increase by 77 percent from 1975 to 1985. In 1974, coal was already used to generate more electricity than any other source.

The demand for electricity--currently greater than 20 quadrillion Btu annually--may more than double by 1990. Accordingly to the Federal Energy Administration, nuclear energy could represent about 26 percent of electric generation in 1985, as compared with 8.6 percent in 1975. Nuclear plants now supply about 10 percent of the Nation's electricity, or 3 percent of the total energy output.

New technology, of course, will also play a role in meeting national and world energy needs, but major contributions from solar, geothermal, and synthetic fuels are not expected to be felt until after 1990. For the near-term, the Nation must rely primarily on oil, gas, coal, and nuclear fuel.

REGIONAL AND STATEWIDE ENERGY SUPPLY AND DEMAND

Even with adequate national energy resource reserves there may be regional or state energy shortages in the U. S. due to the geographic distribution of resources and to factors affecting receipt of energy fuels by particular regions. Although the Middle Atlantic region, however defined, is both an important consumer and processor of energy fuels, this part focuses on Delaware's demand and supply issues. To summarize a Delaware regional energy situation is very difficult due to the way statistics are compiled and the lack of a concensus on a Middle Atlantic region. In some reports, Delaware is considered in the "Northeast"; other reports place it with its immediate neighbors in the "Middle Atlantic"; and still other reports claim Delaware as a "Southeastern" state including it with states as far off as Georgia and Florida. In some cases, regional terminology does not clearly identify component states. Use of data from Delaware's neighboring states is suspect because parts

of those states are distant from Delaware and share few, if any, commonly identifying characteristics and interests. Thus, the focus here is necessarily on Delaware rather than some ill-defined region.

The Federal Energy Administration has prepared energy forecasts to 1980 for each of the states. The Delaware Energy Resources Conservation and Development Commission, created by Executive Order No. 106 and discussed below, has independently predicted State energy needs based on State population projections and national economic growth forecasts. With no allowance for energy conservation, the Commission prediction shows a 19 percent increase in demand between 1975 and 1980, a 33 percent increase between 1975 and 1985, and a 50 percent increase between 1975 and 1990. The Federal Energy Administration forecasts show slightly higher consumption rates, in part because it uses higher population projections. Inasmuch as the State anticipates substantial savings from implementation of energy conservation measures, both projections are probably pessimistic.

Delaware, like other states along the East Coast, has already experienced gas shortages. In the winter of 1976-1977, several industries in the State were forced to close temporarily because of a 1.8 billion cubic feet shortage.

The long-term energy situation for both the State and the Nation is equally uncertain. The next part discusses efforts at the federal level for addressing such uncertainties.

FEDERAL ENERGY INITIATIVES

The Congress has expressed its concern over energy resources in several statutes. One of those, the Federal Energy Administration Act of 1974, states that:

> "The Congress hereby declares that the general welfare and the common defense and security require positive and effective action to conserve scarce energy supplies, to insure fair and efficient distribution of, and the maintenance of fair and reasonable consumer prices for, such supplies, to promote the expansion of readily usable energy sources, and to assist in developing policies and plans to meet the energy needs of the Nation."

The Coastal Zone Management Act, of course, also addresses energy problems. In it, the Congress finds that:

> "The national objective of attaining a greater degree of energy self-sufficiency would be

> advanced by providing Federal financial assistance to meet state and local needs resulting from new or expanded energy activity in or affecting the coastal zone."

Energy activities are broadly defined in the Act and must be considered during Coastal Management Program development. Substantial sums of money are appropriated under Section 308--the Coastal Energy Impact Program--for energy impact assistance.

More recently, the Department of Energy Organization Act, of August 4, 1977, created a Department of Energy to carry out a comprehensive national energy policy. Among the major programs under the new Department are conservation, resource development and production, research and development, date information management, and regulation.

Purposes of the Federal Energy Policy and Conservation Act are:

1. to grant specific standby authority to the President, subject to congressional review, to impose rationing, to reduce demand for energy through the implementation of energy conservation plans, and to fulfill obligations of the United States under the international energy program;

2. to provide for the creation of a Strategic Petroleum Reserve capable of reducing the impact of severe energy supply interruptions;

3. to increase the supply of fossil fuels in the United States through price incentives and production requirements;

4. to conserve energy supplies through energy conservation programs, and, where necessary, the regulation of certain energy use;

5. to provide for improved energy efficiency of motor vehicles, major appliances, and certain other consumer products;

6. to reduce the demand for petroleum products and natural gas through programs designed to provide greater availability and use of this Nation's abundant coal resources; and

7. to provide a means for verification of energy data to assure the reliability of energy data."

Among other things, the Act provides federal funding and technical assistance to state conservation programs. To qualify, states must prepare and implement energy conservation plans to achieve conservation energy savings of at least 5 percent by 1980.

The Energy Policy and Conservation Act also authorized the Federal Energy Administration to require power plants and other major fuel-burning installations to convert to coal. This authority extends powers conferred in the Energy Supply and Environmental Coordination Act of 1974, and may impact energy facility siting choices, as well as the environment.

The potential conflict between energy needs and environmental quality is acknowledged in a number of statutes, including the Clean Air Act, as amended in 1977. That Act provides that the Governor may petition the President to determine that a national or regional energy emergency exists of such severity that air quality standards may be temporarily suspended. Suspension is permissible only if there exists in the vicinity of the pollution source a temporary energy emergency involving loss of necessary energy supplies for residential dwellings or high levels of unemployment.

Part of the solution to energy problems, of course, is the siting of facilities which make efficient use of energy resources. Those facilities are discussed in the following discussion of CMP energy facility issues and policies.

CMP ENERGY FACILITIES ISSUES AND POLICIES

CONSERVATION

The Nation's economic security and the American way of life will be gravely endangered unless the United States makes a timely adjustment of its use of energy. Oil and gas provide about 75 percent of the country's energy needs, but constitute less than 8 percent of its energy resources. In early 1977, the Nation imported 9 million barrels of oil per day, one-half of the domestic supply. During an 8-month period in that year, oil imports were reportedly worth $23 billion. Moreover, oil and gas supply disruptions have already caused temporary unemployment of more than one million American workers--some of them Delawareans. Finally, most of the known oil and gas supplies are owned by nations which have uncertain relationships with the United States, a situation which jeopardizes foreign policy and the reliability of future energy imports.

5.D.3.

As oil and gas supplies continue to dwindle, the problems of the adverse balance of trade, energy shortage-induced unemployment, and a weakened foreign policy posture may be aggravated unless the country learns to change its energy consumption habits. Ultimately, new sources of energy must be developed. In the meantime, conservation measures are needed to mitigate the impacts of the growing energy crisis.

In response to the Federal Energy Conservation and Production Act (P. L. 94-385), Delaware's Energy Office has developed an Energy Conservation Plan for the State of Delaware. That plan has been approved by the Federal Energy Administration and is hereby incorporated into the CMP by reference. The objective of the plan is to reduce energy consumption in the State by more than 5 percent by 1980. Measures which will be utilized to achieve that goal include, but are not limited to: increased thermal and lighting efficiency in State buildings; industrial and commercial energy audits; homeowner energy audits; legislation allowing right turns on red stoplight signals; strict enforcement of highway speed limits; promotion of the use of carpools and mass transit; waste oil recycling; and several energy conservation educational programs.

The Governor not only has supported energy conservation measures with the development and adoption of the Energy Conservation Plan, but also with two Executive Orders. Executive Order No. 15 restricts the use of air conditioning in State buildings and encourages homeowners to do likewise. Executive Order No. 9 establishes the Governor's Energy Resource Management Commission which, among its other duties has assisted in the development and updating of the Energy Conservation Plan.

By virtue of House Joint Resolution No. 11 (1977), the Delaware General Assembly has also adopted energy conservation as an official State policy. Moreover, the Delaware Energy Act of 1978 implements many of the program steps adopted by the Delaware Energy Conservation Plan, as well as several other energy conservation measures.

Finally, the CMP encourages the reduction of demand for energy by recommending more energy efficient land-use patterns. Several recent studies have demonstrated that substantial energy savings can result from the clustered form of land development, which is encouraged by the Program's public investment policies.

ENERGY FACILITIES SITING

1. Petroleum Refineries

5.D.3.

a. The National Interest

Oil which the country needs for energy and other purposes will have to be refined at petroleum refinery facilities. Petroleum refineries serve the national interest by converting crude oil, natural gas liquids or synthetic crude into gasoline, jet fuels, kerosene, diesel fuel, fuel oils, lubricants, waxes, petrochemical feedstocks, etc. Refineries also provide tax revenues and jobs, although few jobs on a per acre land use basis.

b. Potential Demand

As of November 1976, there were approximately 140 refining companies operating 276 refineries in the United States. The total national refining capacity that year was about 16.0 million barrels per day, slightly less than the 16.4 million barrels per day of total domestic demand for petroleum products.

Private industry typically initiates the siting process for petroleum refineries and associated facilities when the demand for facilities is such that there is a reasonable opportunity for profit. The public knows less about the demand for petroleum refineries than for electric generating plants because government is not as actively involved in assessing the need for the former, or in providing for their siting. Private industry, of course, is reluctant to release data on its analysis of the demand for facilities in specific areas. Thus, it is difficult to quantify the potential demand for additional petroleum refineries in Delaware to the extent that the future demand for power plants can be quantified, for example.

Representatives of the American Petroleum Institute and the U. S. Department of Energy have previously acknowledged that there was no current need for new petroleum refineries in the region. Recently, the Department of Energy has endorsed increased refining capacity along the Atlantic Coast.

Major refineries in New Jersey--at Linden, Perth Amboy, Bayonne, Port Reading/Sewaren, Westville, and Paulsboro/Greenwich; Pennsylvania--at Philadelphia and Marcus Hook; and Delaware--at Delaware City--give the Mid-Atlantic area a total refining capacity of more than one and a quarter million barrels per day. Petroleum refineries in the Delaware Valley alone had a capacity in 1976 of nearly one million barrels per day. Eight hundred-fifty thousand barrels of crude oil per day were shipped into the Delaware Valley during 1975, and the growth rate of imported oil from all sources into the entire Delaware Valley indicates that the total regional refining capacity should expand at a very gradual rate. With the replacement of old

equipment and increases in refining capability of presently operating refineries, the need for new sites will be reduced. Industry officials have explained that refining capacity in the Delaware Valley Region could be almost doubled by upgrading equipment.

A large oil find on the outer continental shelf (OCS) off the East Coast could, on the other hand, increase the demand such that industry will seek new refinery sites. New refineries may also be in demand if the type of OCS crude varies substantially from the type presently refined, although it may be cheaper to modify existing refineries.

That OCS development will create new demand for refineries is not clear, however. The Council on Environmental Quality has pointed out that:

> "In some outer continental shelf frontier areas, the refinery siting problem may not arise at all. Insofar as outer continental shelf oil simply replaces imports, there will be no call for new refineries to handle it."

That possibility, perhaps, accounts for the methodology of a study conducted for the American Petroleum Institute--Mid-Atlantic Regional Study - An Assessment of the Onshore Effects of Offshore Oil and Gas Development--which assumes no new refineries or petrochemical plants will result from OCS development.

In any event, the oil industry is undoubtedly mindful that one principle of the National Energy Plan is that "resources in plentiful supply must be used more widely, and the nation must begin the process of moderating its use of those in short supply." As oil reserves dwindle , so likely, will the need for new sites for oil refineries.

c. Siting Criteria

Direct waterfront access is not an absolute requirement for a refinery. The Federal Energy Administration has offered oil refineries as an example of energy facilities which are not coastal dependent. National Oceanic and Atmospheric Administration regulations, which "implement" the Coastal Zone Management Act, do likewise. Finally, the Council on Environmental Quality notes that refineries are energy facilities that have been "especially" suggested for inland siting. Competitve aspects, crude availability, total environmental impact, energy efficiency, and land availability also are essential determinants of refinery site selection.

Cheap and convenient transportation of crude oil by pipeline makes it feasible to site refineries inland. Mobil Oil Company, for example, operates a 175,000 barrel per day refinery in Illinois which utilizes crude oil transported by pipeline from fields as far away as 1500 miles.

Nonetheless, many elements work together to favor coastal sites, including good markets in populous coastal cities, access to crude oil from abroad, and cheap water transportation. With OCS development, and possibly, superports looming on the horizon, the pressure to locate refineries in the coastal zone will probably continue.

Oil refineries are land extensive. Refineries with a capacity of at least 100,000 barrels a day are able to yield different products to meet seasonal--for example, gasoline in the summer, fuel oil in the winter--geographic, and marketing variations in demand. This flexibility encourages the siting of large refineries, with attendant demands for land. A new domestic refinery in the 250,000 barrel per day range requires roughly 1,000 to 1,500 acres of clear, flat, industrially zoned land. The site should have a maximum slope of 5 degrees, moderately well-drained soil and the capability to support large storage tanks and processing units.

Being largely automated and having substantial acreage of storage tanks and pipelines, a petroleum refinery requires few employees per acre, that is, the employee: acre ratio is low. The capital investment per acre of actual refinery area (operating area excluding buffer and unused acreage) is, however, very high.

Water in large quantities is essential to petroleum refinery operations. The amount of water used depends upon the size of the refinery, the complexity of the product mix, the processing and cooling system technology, and water quality. With an efficient mix of water and air cooling, a 250,000 barrel per day refinery uses between 5 and 15 million gallons of water per day.

Finally, oil refineries require substantial amounts of energy. Electricity, fuel oil, and gas are the major power sources, with purchased electricity typically providing nearly 80 percent of the refinery's energy needs. Heavy-duty transmission lines and electrical substations are, therefore, normally necessary adjuncts to a refinery complex.

d. Impact on Natural Resources

The potential of a refinery for adverse impact on natural resources is directly related to its product mix and the processes

employed; the refinery size; and the sulfur content of the crude or intermediate feedstock being processed. Potential refinery pollutants include heat released either to the atmosphere or to a nearby water body; atmospheric contaminants from combustion required to generate heat and from the safety flare(s); from the evaporation of hydrocarbons and from catalyst regeneration; liquid contaminants resulting from contact of process streams with water; and solid and semi-solid contaminants which occur as bottom sediment from tank cleaning, sludges from waste treatment processes, and spent catalysts.

Noxious-smelling sulfur is potentially a serious source of air, land, and water pollution requiring special attention. Several hundred tons of elemental sulfur may be disposed of each day.

Air emissions of a 250,000 barrel per day refinery have been estimated at the levels shown in the following table. As the table indicates, emission levels vary according to the quality of fuel oil utilized.

Estimated Air Emissions
From a 250,000 Barrel Per Day Refinery
(lbs/day)

Type of Emission	Fuel Oil Yield	
	Low	High
Particulates	20,820	17,220
Sulfur Dioxide	97,420	83,950
Carbon Monoxide	5,640	5,750
Nitrogen Oxides	42,082	35,145
Hydrocarbons	90,130	91,870

Source: Modular Results, "Effects on New England of Petroleum-Related Industrial Development," Vol. 2, (Arthur D. Little, Inc., April 1975), pp. II-35.

Hydrocarbons are a principal emission of petroleum refineries and are difficult to control regardless of fuel quality. These chemicals escape from storage tanks, pipes and valves and are transformed by atmospheric processes into oxidants, harmful to human health according to the Council on

Environmental Quality. Unfortunately, Delaware, along with most other Atlantic coast states, is in violation of federal oxidant level standards.

Liquid refinery wastes include: wastes containing feedstock or process product; process by-products; spills and tank cleaning wastes; non-process effluents, such as blowdown, water treatment and sanitary wastes, ballast from tankers, etc.; and storm water, where the degree of contamination depends on the nature of the drainage area.

Undesirable components of refinery wastewater include: floating and dissolved oil, suspended solids; dissolved solids; phenol and other dissolved organics; cyanide; chromate; organic nitrogen; phosphate; sulfides and mercaptans; and caustics and acids.

A 100,000 barrel per day refinery typically produces the following effluents which may require land disposal: 225 barrels per day of waste treating unit sludge; 325 barrels per day of raw water sludge; 700 barrels per day of spent caustic, which may contain sodium hydroxide, sodium sulfate and sodium sulfide; 20 barrels per day of settling pond sludge; 3 barrels per day of tank cleaning sludge; 4.8 tons per day of electrostatic precipitator output; 6 tons per day of cyclone separator output; 35 tons per day of coke fines from bag filters; 0.3 ton per day of coke chunks; 0.3 ton per day of waste catalysts; and 0.2 ton per day of spent sulfur plant catalyst.

If a coastal location is chosen for an oil refinery, environmental disturbances will occur primarily to marine or estuarine communities. A coastal refinery is usually co-located with a marine terminal. Jetties, piers, and crude oil delivery and oil product transshipment facilities typically comprise a marine terminal for refineries. The construction impacts of those structures can be significant.

More critically, oil transfer operations pose accidental spillage risks. The impacts of oil spills on coastal resources is discussed most thoroughly in the deepwater ports section.

The severity of impact on fauna and flora will depend in part on their tolerance, the toxicity of the wastewater discharge, the size of the receiving waters, the flushing rates of the receiving waters, and the physical-chemical characteristics of the receiving waters. Also important, of course, is the amount and nature of habitat destroyed or disrupted by the construction or operation of the refinery or associated transportation facilities.

5.D.3.

In sum, oil refineries may impact natural resources substantially. The next part describes how the Coastal Management Program mitigates such impacts and provides for the siting of oil refineries in Delaware

e. Petroleum Refineries in Delaware

1. THE CMP ABSOLUTELY PROHIBITS THE CONSTRUCTION OF NEW PETROLEUM REFINERIES IN WETLANDS OR IN THE COASTAL STRIP LYING BETWEEN A SERIES OF INLAND ROADS AND THE DELAWARE AND BAY -- A STRETCH OF LAND WHICH VARIES FROM A FEW HUNDRED YARDS WIDE IN NORTHERN DELAWARE TO A MAXIMUM OF 12 MILES IN THE SOUTH.

This coastal strip is the Delaware Coastal Zone Act's "coastal zone." It averages approximately 4 miles in width and comprises about 20 percent of the State's total land area, as well as all of its territorial salt waters. This coastal zone is termed the "coastal strip" in the CMP document and is described and mapped in Section 5.A.4 (Coastal Strip and Submerged Lands). This coastal strip for State regulatory purposes should not be confused with the coastal zone for CMP purposes, which is the entire State.

The Coastal Management Program prohibits new refineries in the coastal strip in order to protect the quality of the natural environment and the coastal uses which that quality permits. The resource section of the Program document describes the national and State interests in preserving natural resources and also briefly discusses the impacts of facilities, including oil refineries. Protection of those resources is, of course, part of the basis for excluding refineries from the coastal strip. Resources within the coastal strip are accorded more protection than in inland areas primarily because they are generally either more valuable, or more fragile.

The examples are evident. An oil refinery near the Atlantic beaches is incompatible with the recreational uses of that resource--air and water quality, visual impact, and additional demands on limited water supply are all problems. The potential difficulties of a coastal oil refinery near a wetlands area has previously been noted in the resources section of the CMP. Inland sites pose lesser threats to wetlands and the fish and wildlife these support. In addition, inland sites are usually farther from floodplains.

Most of the State's wetlands are within the coastal strip. Large-scale construction of any kind is prohibited in wetlands. The Coastal Management Program designates wetlands as Geographic

Areas of Particular Concern and a full discussion of this invaluable resource is presented in the Program document. In brief, wetlands serve the national interest in many ways including contributing to food production, flood protection, recreational opportunities, water quality, coastal shoreline stabilization, the economy, and education.

Comparing the value of wetlands with the value of oil refineries or other energy facilities is to compare unlike things with highly dissimilar values. Although it may be impossible to state with certainty that a given wetlands area is more valuable to the State or the Nation in its natural state than it would be if it were utilized for a refinery site, the Coastal Management Program policy against wetlands destruction is justified on several grounds. First, and most important, alternate sites with less natural value are available and suitable for industrial development, but the reverse is not true. An existing wetland area cannot be relocated whereas an unbuilt energy facility can be readily relocated. As the President has pointed out, the Nation is losing wetlands at the rate of 300,000 acres per year and "must now protect against the cumulative effects of reducing (its) total wetlands acreage.

Another reason for excluding refineries from the coastal strip is that refineries have the capacity to stimulate additional industrial development in the same area because they produce products which are useable by other related industries. As one study points out, "...industries which use refined products either as fuel or as raw materials, particularly the petro-chemical industry, will find it desirable to locate near refineries." The Council on Environmental Quality supports that statement:

> "With offshore production, the petro-chemical development (in the Mid-Atlantic Region) is expected to increase roughly in proportion to refinery development..."

Thus, the secondary environmental impacts of an oil refinery in the coastal strip, if permitted, could be substantial.

A further reason for this exclusion of petroleum refineries is the principle expressed in 1971 with the enactment of Delaware's Coastal Zone Act that industrial land uses in the coastal strip should maximize employment per acre whenever possible and, as noted previously, petroleum refineries have a very low employee per acre ratio.

2. NEW PETROLEUM REFINERIES ARE NOT PROHIBITED INLAND PROVIDED STATE AND LOCAL ENVIRONMENTAL, LAND USE AND SITE DEVELOPMENT STANDARDS ARE MET.

The prohibition of new refineries set forth in Policy No. 1 eliminates, for now, some of the most attractive sites in Delaware, namely those fronting the Delaware River and Bay, where waterfront access is assured. As mentioned above, however, direct waterfront access is not absolutely necessary. Moreover, the northern portion of the prohibited strip is very narrow, which means that nonrestricted areas are close to the River and Bay.

It is difficult to compare, for example, the national and State recreational value of beaches with the interest in the products processed by oil refineries. From a national perspective, Delaware's beaches seem to be a rarer, and perhaps more valuable, resource than existing oil refinery sites, which dot the Mid-Atlantic region, or potential sites, which occur in many more locations.

Some of those potential sites are in Delaware, outside the coastal strip, and, as provided in Policy No. 2, new refineries could be permitted, provided specified environmental quality standards are assured. Those standards, such as air emission standards, are described in the Program document. Those and other standards establish criteria by which industry can predict State approval of specific sites. An Energy Facilities Siting Liaison Committee, whose functions are described in the Program document, assists industry in site selection and understanding the various regulatory requirements.

The Coastal Management Program provides a means to assure a continuous evaluation during Program implementation of the need for new facilities, and to allow for amendment of policies for compelling reasons. If there is a critical need in the future for a new petroleum refinery in Delaware to serve national or regional energy needs, the CMP provides for it.

It is a fact that decisions to develop are more irreversible once put into effect than are decisions not to develop. To the extent that there exists uncertainty about the highest value use, a "waiting" policy makes sense. This may account, in part, for President Carter's statement to The Congress that he is "...pleased at the number of states taking positive action to protect their natural resources."

The U. S. Department of Energy has unofficially expressed its concern that the prohibition may indicate a regulatory process

which does not give reasonable assurance of due consideration to allowing petroleum refineries in the coastal strip. That view is erroneous for several reasons.

First, the future siting of petroleum refineries in the coastal strip has already been considered. If the rationale for any standard of conduct must be re-examined each time the standard is applied to a set of circumstances, then the standard serves little purpose and outcome predictability is negligible.

The second factor bearing on the Department of Energy's concern is, as mentioned above, that the Coastal Management Program will continue to examine the viability of the policy and include in that examination consideration of the national interest in the facility.

It is possible, after adequate consideration of the national interest, that a given oil refinery will not be permitted at a specific site under the Coastal Management Program. The Federal Power Commission informed the Delaware Coastal Management Program during program development that the Commission had to be certain that each program "provided" for its own future energy needs and its fair share of regional and national needs."

The Federal Energy Regulatory Commission in July 1978 added that the FERC has "no interest in defining the energy future (including energy conservation) of any State, but we consider it necessary and realistic that State officials and the public demonstrate an understanding of the energy supply consequences of their coastal management program."

There are several flaws in those views. The states represent a diversity of resources that must be recognized. It is unlikely that energy production is the best course of action for each coastal state. In some states, wisest resource management may favor energy production. In other states, the national and state interest in natural resource preservation may be best served by precluding the siting of energy facilities.

In any event, the current oil refinery capacity in Delaware exceeds State demands, and makes Delaware a net exporter of petroleum products. The Getty Oil Company's 140,000 barrel per day capacity refinery in Delaware City is larger than either refinery on the New Jersey side of the Delaware River, and contributes substantially to the total refining capacity in the Mid-Atlantic region. That region--comprised of New Jersey, Pennsylvania, Maryland and Delaware--receives far more crude oil than any other East Coast area. New England, despite its heavy demand for heating oil, is without refineries, and, with the exception of a medium-sized plant near Norfolk, Virginia, there is no refining capacity on the Atlantic coast south of Delaware.

It is also noteworthy that Delaware's prohibition does not apply to the expansion of existing refinery facilities.

The only oil refinery in Delaware, located within that area where new refineries are prohibited, may be allowed to expanded its operations, provided a coastal zone and all other permits are obtained.

The Coastal Energy Impact Program (CEIP), established by the amended Coastal Zone Management Act, may help compensate for State and local environmental losses due to new petroleum refineries and other energy facilities sited in the coastal zone. The federally funded CEIP is designed to protect State and local, not national interests. However, State and local environmental losses and public expenditures due to coastal energy activities may or may not be fully covered by available CEIP funds.

2. Deepwater Ports

a. National Demand

There is no port in the contiguous 48 states with deep enough water to accommodate the 60-foot draft of the standard 200,000 ton "very large crude carriers," the so-called supertankers; and no East Coast port can handle anything larger than 80,000 tons fully loaded--most are restricted to tankers of no more than 50,000 tons. Yet, because of economies of scale, supertankers are carrying an increasingly large part of petroleum in world trade. In 1966 there was only one tanker in the world over 200,000 deadweight tons (dwt). By the end of 1975, there were over 583 supertankers this size in service, and 205 more were under construction or on order. Only 10 percent of the world's fleet, those 583 ships carried 40 percent of the crude oil shipped in world commerce.

The cost advantage of supertankers is demonstrated by comparing a 250,000 dwt tanker and a 50,000 dwt tanker. The latter normally serves Delaware Bay and New York Harbor and averages 40 feet in draft. A 250,000 dwt requires 70 feet of water, but can carry oil over long distances at about half the cost-per-barrel of the smaller tankers.

The U. S. Maritime Administration believes that deepwater ports can help keep the Nation's industry competitive, and, accordingly, has informed the Coastal Management Program that the exclusion of a deepwater terminal could affect the United States economy.

The Congress has also acknowledged the national interest in deepwater ports. The Deepwater Port Act of 1974 establishes a federal program to license ownership, construction, and maintenance of ports located outside the states' territorial limits to unload oil for transportation to onshore receiving facilities by pipeline or shallow draft lighter. The Act includes provisions for environmental review, public access to information, citizen civil actions, and strict liability for oil pollution. It also recognizes state and local concerns, and requires the prior approval of the Governors of coastal states adjacent to proposed deepwater ports.

One consideration in any gubernatorial approval or rejection undoubtedly will be the possibility of oil spills. Deepwater ports are generally regarded as safer than lightering, assuming equal amounts of oil are transferred. For example, the U. S. Office of Technology Assessment has estimated that a hypothetical deepwater port 30 miles off the New Jersey coast would spill half as much oil as small tankers based on the probable total spillage within 50 miles of shore.

A deepwater monobuoy-pipeline system avoids some of the hazards which have given tankers a questionable oil pollution record. Tanker groundings and collisions, oil transfer operations, oil ballast water discharges, and tank cleaning discharges are some of the tanker pollution sources which, to date, have been difficult to control.

Four factors make the risks of oil spills from deepwater port operations generally lower than the risks from small tanker operations: (1) a deepwater port reduces the number of tankers that must be used to move the oil; (2) close surveillance of oil transfer and handling is possible, allowing stricter enforcement of safety standards; (3) oil tanker traffic can avoid crowded harbors; and (4) the distance between the port and the shoreline may reduce damage to valuable coastal areas.

On the other hand, stricter tanker operation standards, improved communications technology and tanker design, and more intensive training of crews, combine to raise the hope that oil transport by tanker will become appreciably safer in the future. Stricter ballast regulations, computer and radar assisted marine traffic managements systems, double bottom hulls and twin screws, and training and licensing of crews will reduce tanker accidents and the risks associated with their operation.

b. Potential Demand

In early 1977, the United States imported 9 million barrels of oil per day. According to a recent study by the College of

Marine Studies at the University of Delaware, approximately 70 percent of all the oil that is delivered to the East Coast moves by water up the Delaware Bay and River.

Despite the high volume of crude oil traffic in the Delaware Bay and the relatively cheaper cost of supertankers vs. smaller tankers for long haul trips, recent studies being done for the State indicate that economics have not yet justified construction of a deepwater port in the Mid-Atlantic region. A 1975 study by the maritime industry oriented Penjerdel Corporation (Oil Port Update) of the feasibility of a deepwater port in the Delaware Bay concluded that a port-pipeline system, sepecially if modest in size, was not economically competitve with a lightering operation.

Rapidly rising construction costs have dissipated the advantages a deepwater port may have enjoyed in past years. The costs of a port inside Delaware Bay range from $193 million to more than $400 million. Moreover, the estimated direct cost of dredging some 15 million to 20 million cubic yards of Bay bottom for a channel to handle 250,000 dwt tankers is estimated at an additional $40 million.

In 1971, the Delaware Bay Transportation Company calculated that oil could be transferred through its proposed port for 12 cents a barrel. At 1975's inflated construction costs, the price would have been 25 cents, even without imposition of a State tax. By comparison, the 1975 lightering charge was between 8 and 11 cents per barrel.

Only large supertankers on the longest trips between the Persian Gulf and the Mid-Atlantic region could take economic advantage of the port at such inflated prices. For tankers less than 100,000 dwt, lightering would be cheaper. Since most oil imported in the Delaware Valley is not brought from long haul distances, a deepwater port today would seem to be economically untenable.

If future oil imports to the Mid-Atlantic region increase dramatically, or if the source of imports changes, there may be greater demand for a deepwater port in the Delaware Bay or off the Atlantic Coast. In the former case oil refinery capacity will have to be sufficiently large to make a port attractive. However, opposition to oil refineries, federal air quality regulations, inflated construction costs, and federal tax policies and import quotas are some of the factors which may deter industry from expanding refinery capacity in the Mid-Atlantic.

On the other hand, if oil consumption increases dramtically, there may be pressure for more refineries, more oil imports, and a

deepwater port. The Federal Energy Administration has, perhaps pessimistically, predicted that oil consumption in New York, New Jersey, Delaware and Pennsylvania will climb from 2.7 million barrels a day in 1975 to 3.8 million barrels a day by 1985. Based on that estimate, the Federal Energy Administration has also predicted that crude oil imports supplied through New York Harbor and the Delaware Bay will increase from 1.2 million barrels a day to 2 million barrels a day. Moreover, a lone deepwater port on the East Coast could attract supertankers which would otherwise head for other eastern harbors. Finally, a large find on the outer continental shelf and a pipeline hook-up to the port might make the port profitable.

Those speculations probably account, in part, for the current interest in a proposed monobuoy port to be located about 30 miles east of the Delaware shore. Still in the planning stages, private industry has contacted Delaware with proposals to operate a fixed monobuoy. Under these proposals, the State would be the licensee of the port and exert direct control over it.

c. Siting Criteria

The least expensive, most versatile, and most likely deepwater port design is the monobuoy. There are different types of monobuoys, but generally they consist of a floating platform anchored to the sea bottom, with a hose which connects to a buried pipeline. During the construction phase of the port, about 20 acres of waterfront land is required for support. Onshore tank farms--typically storing 10 times the port's daily capacity to assure refineries of a continuous crude supply in the event of a bad weather induced port shutdown--could require an additional 125 acres to 300 acres.

New refineries, of course, would need still more space. Several years ago, the Delaware Bay Transportation Company purchased 1,800 acres of coastal land at Big Stone Beach for storage tanks, landside headquarters, and a supply base for a deepwater port which the company had hoped would be sited in the Delaware Bay.

The economic advantages of a Bay site include the relative proximity to energy consumers and processors, as well as shelter from high seas; the chief advantage of a deep ocean site is the lack of dredging requirements.

Bad weather can temporarily close an ocean offshore port because seas higher than 6 to 8 feet make tanker mooring operations impossible. Only on rare occasions does weather stop tanker

traffic in the Delaware Bay and off-loading in the Bay is restricted only on an average of 30 days per year.

The reported depth of the channel in the Delaware River and Bay varies according to the source and location reported. It is clear, however, that the channel is not deep enough to justify a port near the refineries on either side of the Delaware River. The estimated cost of dredging the 40 foot authorized River channel to 45 feet has been estimated at $300 million, 50 feet would cost $750 million. Moreover, maintenance costs, spoil disposal and salt water intrusion into fresh water aquifers all present additional difficulties.

Portions of the Delaware Bay north of Cape Henlopen are between 58 and 65 feet deep in places. One study concludes that with some dredging an area from Cape Henlopen approximately 12 miles long and one mile wide could sustain operating depths of 70 to 80 feet. However, it would be expensive. A 1969 feasibility study by the United States Coast Guard estimated that the then annual direct cost for deepening the Bay as far as Big Stone Beach to a 72 foot depth would be in excess of $13 million.

Finally, other important deepwater port siting considerations are its possible effect on navigation, on national defense, or on other uses of the sea.

d. Impact on Resources

The Deepwater Port Act requires that the ports be constructed and operated "using best available technology, so as to prevent or minimize adverse impact on the marine environment." U. S. Coast Guard regulations, however, do not specify standards for site selection with criteria such as water depth, dredging requirements, proximity to spawning areas, or sea bottom characteristics. Nor do the regulations include requirements for specialized tanker design to reduce the risk of oil spills. Absent those provisions and probably even with them, the most serious threats to resources posed by deepwater ports are oil spills, dredging operations, and onshore support activities.

Most oil spilled in the ocean floats long enough for wind and water forces to distribute the petroleum hydrocarbons into the water column, sediments, atmosphere, and organisms. The immediate and lethal effects of large oil spills have been demonstrated repeatedly.

In some cases, marine communities can recover remarkably fast. For instance, the biological recovery after a year and a half of the Santa Barbara oil spill was just about complete.

However, the Santa Barbara spill was in an open ocean channel and never reached wetlands.

Both Delaware and New Jersey contain miles and miles of wetlands which are located immediately behind the Bay sand beaches. Access to the wetlands is through small creeks and rivers, which are more plentiful on the Delaware side of the Bay. Moved by tides and winds through those waterways, a massive oil spill would be disastrous.

Oil spills kill birds in several ways. The natural buoyancy and insulation provided by feathers are removed by oil, causing hapless birds to freeze and drown. The Torrey Canyon oil tanker spill reportedly killed 40,000 to 100,000 birds, a tragedy compounded by the slow capacity of birds to recoup population losses. The Wildlife section of this document describes the very large number of waterfowl that rely on clean Delaware wetland and waters.

The number of people relying on Delaware beaches for recreational enjoyment is also described in this document. The impact of a spill near beaches was illustrated in a supertanker spill close to Chilean beaches. In that spill, oil, sand and pebbles combined to make something that resembled asphalt paving on 40 miles of beaches. One remedy for that type of disaster, utilization of detergents, introduces into the environment chemicals frequently more toxic than the oil itself.

It is not clear, of course, that the oil spill threat posed by deepwater ports is graver than the lightering threat. Indeed, the higher probability of total oil spillage of the latter's operations would seem to indicate the opposite. Several considerations, however, detract from a Delaware Bay deepwater port vis-a-vis lightering. One, despite probability analysis to the contrary, there have been no reported serious accidental spills in the Delaware Bay from lightering since its inception in 1959 although some minor spills have occurred. Two, the potential impact of a grounding, collision, or other accident by a barge or small tanker does not compare to that of a 225,000 ton capacity supertanker. Three, any deepwater port site on the Delaware side of the Bay would have to be in close proximity to valuable wetlands and/or beaches. A large spill in that area would be catastrophic. Four, a deepwater port in the Delaware Bay would likely result in an increase of the total volume of oil entering the Bay's fragile ecosystem. Thus, while the spillage might theoretically be less for a port than for an equal amount of lightered imports, a port could in fact mean more total spillage due to the higher volume of oil imports generated by a port.

5.D.3.

A deepwater port in the ocean fares better by comparison. The likelihood of collision is probably less, but the greatest advantage is that a supertanker accident 20 or 30 miles offshore would be easier on coastal resources than a Bay port. Even if spilled oil reached shore from that distance, its toxicity would be substantially reduced. A report to the National Science Foundation estimates that whatever oil from a 30,000 ton spill 20 miles off the Delaware coast reached the Bay would be roughly one-sixth as concentrated as it would be were it spilled directly in the Bay. Moreover, oil spill models indicate that oil slick trajectories would disperse much of the oil in the ocean, an unlikely result in the confined Delaware Bay. As the report of the Delaware Bay Oil Transport Committee to a former Governor puts it, "A massive spill of 100,000 or more barrels of crude oil would remain in the Bay for several weeks. The general counterclockwise circulation pattern would distribute the oil throughout the Bay..." That result is very unlikely with a port 20 or 30 miles offshore. Closer to shore, the spills have a more likely chance of reaching the beaches and possibly wetland.

The adverse impact of dredging operations also gives ocean ports a considerable environmental advantage over Bay alternatives. The Council on Environmental Quality reports:

> "the dredge spoil for a nearshore Delaware Bay location at Cape May, New Jersey, would amount to 150 to 200 million cubic yards--enough to cover 10 square miles to a depth of 14.5 to 19 feet...
>
> In all likelihood repeated dredging would also be necessary to keep a Delaware Bay channel and port open. An important direct effect of dredging would be the destruction of sea floor (or benthic) creatures, which are food for the valuable finfish of the Bay. Indirectly, dredging new deep channels could lead to higher salinity farther up the Bay, inviting such salt water predators as the oyster drill to the southern edge of the Cape May flat, which is one of the finest oyster setting areas in the United States."

Although the Delaware side of the Bay would require less dredging than the Cape May site, a Governor's Task Force on Marine and Coastal Affairs has concluded that the potential environmental harm is "incalculable."

Even eight miles offshore in the Atlantic Ocean, a fair amount of dredging would be necessary. As much as 8 to 10 miles of surf clam habitat would be affected in the building and maintenance of a deepwater port at such a site. Farther out, 20 miles offshore where the water is more than 90 feet deep, no dredging would be necessary.

Regardless of where the terminal is built, nearly everyone seems to agree that impacts induced by suppot activities would be very substantial. One scientist expects a deepwater port to produce:

> "enormous secondary environmental effects which perhaps would dwarf primary ones (construction, single massive spill, regular low level spills). Probably the minimum amount of onshore development would be extensive tracts of tank farms in the lower bay area."

The Delaware Bay Oil Transport Committee report concurs:

> "The Committee believes that the most serious consideration from Delaware's point of view is the potential for uncontrolled development of refineries and other heavy industry in the Coastal Zone."

Still another study conducted by Arthur D. Little, Inc. in 1973 concludes:

> "Whether a deepwater terminal in the Delaware Bay handles a low-level or high-level crude import volume, the effect upon the Mid-Atlantic Belt will be specific and noticeable, not only from an economic standpoint, but from visual psychological and physical standpoints as well."

The same study envisioned a port in the Delaware Bay transferring approximately 6.6 million barrels per day to new refineries in Cumberland and Cape May Counties of New Jersey. The study said that 14 square miles of the counties--now devoted to farming and resort activities much like southern Delaware--would be required for at least 9 new refineries and 13 new petrochemcial plants. As a result of the port and associated industries, the two counties would become "a new industrial center" with employment doubling to 300,000 workers by the year 2000.

The Delaware Bay Transportation Company proposal was more modest, with a planned 2 million barrel per day capacity. Nonetheless one new refinery, expansion of existing refineries, and other onshore facilities, mentioned above, were anticipated.

One method for alleviating onshore impacts in developed areas is to run the pipeline directly to existing storage and refinery facilities. Such a pipeline already connects the Raritan Bay-New York Bay region with southern refineries along the Delaware River. Thus, those two Bays have been considered "logical possible locations for the importation of large crude volumes via VLCC (very large crude carriers)." Another possiblity, discussed below, is construction of a new pipeline either up the Delaware Bay or on either side of it.

e. Deepwater Ports in Delaware

3. DEEPWATER PORTS ON THE DELAWARE SIDE OF THE DELAWARE RIVER AND BAY ARE PROHIBITED BY THE COASTAL MANAGEMENT PROGRAM. SUCH PORTS ARE ALSO PROHIBITED WITHIN DELAWARE'S THREE MILE JURISDICTION ALONG THE ATLANTIC OCEAN.

The program recognizes that deepwater ports may serve the national interest under certain economic and environmental conditions. At present, however, those conditions do not exist in the Delaware Bay.

Not only does there appear to be no current economic justification for a Bay port, but the environmental problems seem insurmountable. The Delaware Bay already receives more than twice as much crude oil as all the other East Coast bays, rivers, harbors, and ports combined. A deepwater port would probably increase the Bay's imports substantially, placing a grossly disproportionate share of the burden on the region, and possibly, through sheer volume, raising the probability of an oil spill.

That spill, because of the enormity of today's supertankers could be catastrophic. The long and clean "track record" of lightering in the Bay raises additional doubts about a substitute method. Finally, there is no guarantee that a deepwater port in the Bay would preclude lightering.

All those factors take on added significance when the critical and fragile Bay environment is considered. The national interest in wetlands, wildlife, beaches, and other resources--detailed in other sections of the Management Program deserve as much protection as can be reasonably afforded. Although the Nation is assured that oil will

reach the refineries on the Delaware River without a deep-water port, it is not assured that some of its most productive, but dwindling, coastal resources can tolerate the blow such a port could deliver.

At the State level, the geographic boundaries of Delaware are of such small proportions that a coastal disaster is much more difficult to bear than is the case in larger states, the federal Coastal Energy Impact Program notwithstanding. Delaware's situation is substantially dissimilar from that of Texas or Louisiana.

The Coastal Management Program prohibition of a Delaware Bay deepwater port also takes into account that other sites appear more suitable. As one author puts it, "Based on environmental criteria, a (Delaware) bay site would be the worst place for a deepwater port." For its part, the Council on Environmental Quality, after a course of research on superports that involved five university reports, special Coast Guard studies, work with the Department of Transporation, and a comprehensive report on shoreside effects from a private contractor, evolved two principles for siting deepwater ports: "keep them away from shore and disperse them in a number of locations." The first of those principles has to do with protection of the coastal environment from oil spills and dredging operations; the second concerns social, economic, and environmental stresses onshore due to oil-related development.

4. NOTWITHSTANDING THE COASTAL MANAGEMENT PROGRAM OBJECTIONS TO A DELAWARE BAY DEEPWATER PORT, THE PROGRAM SUPPORTS THE CONCEPT OF A PORT OFFSHORE THE ATLANTIC COAST, PROVIDED IT MEETS CERTAIN ENVIRONMENTAL STANDARDS INCLUDING A LOCATION FAR ENOUGH OFF SHORE TO MINIMIZE OIL SPILL THREATS TO THE COAST AND TO OBVIATE DREDGING REQUIREMENTS; STRINGENT CONSTRUCTION AND OPERATION SAFEGUARDS; A DEMONSTRATED REDUCTION OF TANKER TRAFFIC AND LIGHTERING IN THE BAY; AND ASSURANCES THAT STATE FINANCIAL INTERESTS ARE PROTECTED.

An offshore port 20 or 30 miles off the coast could handle supertankers that a Bay port could not. Hopefully, the economies of scale would offset the additional transportation costs occasioned by a more distant site, however the CMP recognizes that economic considerations may constrain the development of such a facility in the near future and that such far offshore facilities have to overcome significant problems associated with their exposure to severe weather and sea conditions encountered in the open ocean. The coastal resource savings, although difficult to quantify, are more certain.

The Congress intended that coastal states be given a clear and loud voice in deepwater port siting decisions. Under the Deepwater Port Act, it is conceivable that a coastal state Governor could veto a deepwater port in federal waters offshore from that state. It is not conceivable that the Congress would abrogate that authority for sites within state waters and in close proximity to its valuable and vulnerable coastal resources. Thus, it is apparent, at least from the perspective of the Nation's legislative body, that the national interest in deepwater ports does not necessarily over-ride the national interest in coastal resources.

3. OCS Oil and Gas Support Facilities

a. The National Interest

The national interest in OCS development can be inferred in large part from the prior discussion of energy and the national interest.

With the country's onshore oil and gas supplies dwindling, there are only four ways to satisfy national energy demands: (1) reduce consumption; (2) switch to other energy sources; (3) import oil and gas from foreign countries; or (4) develop new national sources. The first two alternatives are not expected to solve projected short-term energy shortages, the third choice is unattractive politically and economically. Indeed, as the U. S. Department of Interior's OCS Office has informed the Delaware Coastal Management Program, the primary objective of the national OCS development program-- the fourth option--is to decrease dependency on oil imports.

No one knows for certain whether any recoverable oil and gas lies off the Atlantic Coast, however, the U. S. Geological Survey has estimated that between 5 and 14 trillion cubic feet of recoverable gas resources have been estimated at nearly one-third of total U. S. oil reserves and oil and gas development may reach 2-4 million barrels a day in 10 or 15 years, a substantial increase from the one million barrels a day now produced. With the Nation already using about 18 million barrels of oil daily, half of it imported, the OCS contribution will not by itself make the United States energy independent. It can, however, reduce the degree of dependency.

Some feel that it is important to develop the OCS resources as quickly as possible. For example, in its 6th Annual Report, the National Advisory Committee on Oceans and Atmosphere advises the President and the Congress that worldwide energy trends

have made the exploration and development of OCS oil and gas an urgent element in a national energy program, and that "delay could turn out to be a grave mistake." The Report also says that "concerns about the environment and about possible adverse impacts on the coastal States" may cause such delay.

Evidently, the President did not share the Committee's view, for the National Energy Plan (1977) states:

> "it is essential that they (OCS resources) be developed in an orderly manner, consistent with national energy and environmental policies. The Congress is now considering amendments to the OCS Lands Act, which would provide additional authorities to ensure that OCS development proceeds with full consideration of environmental effects and in consultation with States and communities . . . The Administration strongly supports passage of this legislation.

The lead time for major offshore oil and gas development is long enough to enable proper planning for the inevitable OCS development impacts, provided the President's advice is heeded.

Amendments in 1978 to the Outer Continental Shelf Lands Act establishing a new section to the Coastal Energy Impact Program have set-up a system, including up to 80 percent federal grants, to assist coastal states in meeting their administrative costs of participating in OCS energy resources management and development policy and planning decision. For five fiscal years beginning in FY 1979 these OCS grants are authorized at a 5 million per year with each affected coastal state to receive a minimum annual grant not exceeding $100,000. Unfortunately, for fiscal 1979 The Congress has appropriated no grant money. Nevertheless, assuming that this program does receive authorized funding in future years, the OCS State Participation program will encourage improved cooperation and coordination between federal agencies and state governments, and provide an important role for states to participate in formulating the OCS leasing program, reviewing federal actions affecting OCS development, making recommendations regarding development and production plans, and having access to OCS oil and gas information provided by the Secretary of the Interior, among other things. This new CEIP 308(c)(2) program is a practical step forward furthering the National interest in offshore energy production while providing a means for coastal states to express their concerns and have a meaningful input to the leasing, development and production programs.

5.D.3.

Apart from the national interest in supplementing national oil and gas supplies with minimal environmental damage, OCS development is in the national interest because of the revenue it generates. Offshore oil and gas royalties of approximately $848 million made up the bulk of revenues collected in fiscal 1977 from mineral operations on federal land.

b. Potential Demand

OCS development related facilities may include oil and gas platforms, fabrication yards, pipeline coating yards, storage depots, crew and supply bases, pipelines, and tank farms.

The potential demand for the first of these--oil and gas platforms--is a function of where the oil and gas may be recovered. Although there are no known economically recoverable quantities of oil and gas onshore in Delaware, there is a fairly good possibility that there may be natural gas in Delaware's offshore lands.

The potential demand for Delaware facilities to support OCS operations depends on five factors: (1) the quantity of production estimated from exploratory drilling results; (2) the composition of the find--all oil, all gas or a mixture; (3) the rate of production; (4) the suitability of Delaware sites; and (5) the availability of alternative sites.

The first of those factors, estimated production, is presently the most important unknown in the entire Atlantic OCS development equation. A very large strike will create demand for many support facilities. If nothing is found, onshore support facilities will not be needed.

Exploratory oil drilling in the lease sale #40 area off the southern New Jersey coast as of February 1979 has produced little evidence of significant hydrocarbons. One company's test well found some natural gas; six other test wells of various oil companies have come-up dry. Other test wells are being drilled and lease sale #49 for tracts off the Delaware, Maryland, and Virginia coasts is scheduled for late February 1979.

Despite initial disappointing test drilling results Delaware's proxmity to promising lease tracts makes the State a possible location for a variety of onshore support facilities.

c. Siting Criteria

Absent guidance from State and local government, oil producers ordinarily make their siting decision on the basis of least cost. Oil industry representatives state a strong preference to locate their onshore bases as close as possible to their lease tracts because of transportation costs. Thus, while some OCS support facilities are not absolutely coastal dependent, the coast is usually a preferred site.

Pipe coating yards generally use less space than platform fabrication yards, but still require from 100 to 150 acres of waterfront land. A marginal wharf of 750 feet on water 20 to 30 feet deep; 150,000 gallons of water per day; and one million kilowatt hours of energy are also typically needed. Pipe coating yards are in demand for relatively short periods of time, thus a site easily adapted to another use at the termination of the pipe coating activity is indicated. Access to rail and major highways is desirable for transporting cement and other supplies.

The siting of a new fabrication yard depends on a significant oil or gas discovery because platforms can be towed from the Gulf region at less cost if many platforms are not required. If the find is of sufficient size to warrant new fabrication facilities, industry spokesmen believe only one fabrication yard will be needed on the East Coast.

Two sites in the Chesapeake Bay area are under consideration. One is on Sparrows Point in Baltimore City, the other is a 1000 acre site acquired by Brown and Root Company north of Cape Charles, Virginia. The combined land and waterfront requirements of the facilities make Delaware an unlikely site particularly since Brown and Root has recently announced a curtailment of their plans.

Storage depots also benefit from nearby transportation networks. They vary in size according to the operation requiring support, the facilities available, and the materials requiring storage. The typical area occupied by a storage depot used only to store pipes may be between 10 and 20 acres; a large number of such depots could reult in a cumulative land requirement which would be difficult to meet in Delaware's coastal strip.

5.D.3.

The OCS operations base also generally includes facilities used for the storage, handling, and shipment of supplies whose next and final destination is at the site of the OCS operation. Temporary bases are used during exploratory drilling and require limited acreage--usually existing facilities are leased. A 15-20 foot channel, uncongested harbor and easy ocean access are desirable port characteriestics.

Permanent service bases are used during the OCS development stage. They are larger, typically utilizing between 25 to 50 acres; a 200 foot wharf, with 15-20 feet of water depth at the pier; and 8.2 million gallons of water per platform per year. As with temporary service bases, the location is influenced by distance, cost, land availablity, harbor facilities, and even entertainment facilities. The facility may include storage warehouses, open storage yards, oil storage tanks, limited construction facilities, oil spill containment equipment, crew boats, supply barges, and a heliport. In Lousiana, where over 400 helicopters service the Louisiana offshore area, a single helicopter base occupies over 200 acres by itself.

Repair and maintenance yards may be associated with the operations base. Many firms use these areas to provide repair services for vessels and equipment. Fast and efficient service by highly skilled labor are primary requirements of the oil industry for this type of work. Depending on the vessel type, flotation barge, mobile lift, haul out, or slideway facilities may be required. Quick access to road, rail, and air transport is necessary for fast delivery of supplies and parts.

Steel platform and pipeline installation bases require approximately five acres of waterfront land, with 200 feet of wharf space and a water depth of 15-20 feet at the pier. Distance is the most important siting consideration once those requirements are satisfied.

The marine pipelines themselves generally use a landfall site closest to the production area. The offshore route likewise follows the shortest path possible, but may be modified by anchorages, active faults, shifting bottom sediments, rock outcrops, environmentally sensitive areas or other features. A gently sloping sand or shingle shore approach is preferred, and shifting currents and sediments are avoided if possible. For gas, proximity to the nearest transmission line is important. For oil piped for transshipment, the landfall site will be influenced by the availability of a terminal and tank farm site.

The marine terminal typically includes a berthing system for vessels; loading and unloading equipment; storage tanks; terminal control and safety equipment; and navigational facilities.

Transshipment terminals load crude oil received by pipeline from offshore platforms onto tankers for refining elsewhere. Crude oil receiving terminals receive crude from tankers for delivery to a nearby refinery, with off loading facilities either or onshore depending on depth requirements of the crude carriers.

If oil produced offshore is loaded directly onto tankers or barges, a new marine terminal is unlikely in the Mid-Atlantic region because existing facilities can accommodate such oil. Even with a pipeline, a new marine terminal is usually not needed unless new refineries are planned or the distance to the refineries is very far, as in Alaska, for example. Neither exception currently applies in the Mid-Atlantic region.

The size of a terminal depends on the throughput from offshore, the number of berths at the terminal, the size and frequency of tankers, and the extra storage required for loading downtime. For a 250,000 barrel per day throughput with a storage capacity of one million barrels, the site would need approximately 30 waterfront acres--mostly for the storage tanks, 50 to 60 feet of sheltered water at a mid-depth pier or mooring buoy; and roughly 11 million kilowatt hours per year of energy.

d. Impact on Resources

Offshore exploration development, and production may impact commercial fishing, navigation, defense facilities, long-term ecosystem equilibrium, aesthetics, and so on.

Offshore exploration drillships, and development and production platforms use an area between two and five acres although semi-submersibles require much larger areas.

There are three major potential sources of water pollution: (1) drill cuttings and muds: (2) water brines; and (3) oil spillage caused by blowouts, fires, explosions, or transportation accidents. Offshore oil production contributes only a small percentage of ocean oil pollution. Gas well blowouts and other gas mishaps do not generally pollute water.

Drill cuttings are produced when the wells are drilled, and contain pulverized rock, sediment, and--possibly--harmful metals. Drilling muds are circulated through the wellbore to provide pressure control, lubrication of the drill bit, and removal of drill cuttings from the hole.

5.D.3.

When oil and gas are produced, waters associated with oil and gas pools are often produced also. Those waters are characterized by mineral contamination and require treatment under the Federal Water Pollution Control Act before they can be discharged back into receiving waters.

Relative to the likely impacts of these OCS characteristics, at least in the areas leased offshore in OCS Sale 40, EPA has determined that there will be no significant impacts. The State remains concerned about the likely impacts of such activities in shallow areas, particularly relative to impacts on shellfish beds and intertidal areas of particular value as spawning and nursery areas.

Despite the potential for offshore impact problems, the major environmental impacts of OCS development occur onshore from the construction and operation of the support facilities. Most of those use waterfront sites, the construction or improvement of which may impact wetlands, marine biota, water quality, air quality, beaches, and so forth. If dredging is required, the impact on marine organisms in the dredge area or at the spoils disposal site may be extensive.

Air emissions in platform fabrication yards can result from pipe and metal cleaning by sand blasting; painting; and the transportation emissions of cranes, trucks, trains, tugs, barges, and automobiles. Because of the large land requirements, sedimentation and runoff, problems may be substantial. Soil compaction caused by the constant movement of heavy equipment may decrease groundwater recharge. Wastewater contaminants--from cooling water, process water, and sewage--include heavy metals, and may be lethal to animal and plant life. Moreover, fabrication yards produce large quantities of solid waste, some of which is contaminated with hazardous substances. Noise pollution generated by heavy machinery may be noticeable by communities more than one-half mile from the site. Finally, 24 hour lighting and 200 foot high platforms cause aesthetic impacts.

The impacts of pipe coating yards and fabrication yards are similar. Air emissions from the former include carbon monoxide, sulfur oxides, nitrogen oxides, hydrocarbons, and particulates. Wastewater contaminants consist of thermal effluent, anti-fouling chemicals, and a variety of polluted process waters. Noise generally presents less difficulty than with fabrication yards, but solid waste and aesthetic problems do exist.

5.D.3.

Temporary service bases have much less impact than any of the foregoing facilities, especially if the bases are located at or near existing facilities. Air emissions include hydrocarbons from fuel storage tanks and vehicle operations. Wastewater contaminants from bilge and ballast water consist of hydrocarbons and heavy metals. Twenty-four hour noise and up to 6 tons per day of solid waste cause additional impacts. Platform and pipeline installation service bases have about the same impacts as a temporary service base.

Permanent service bases have the same types of impacts, but on a larger scale. The land requirements for the larger service bases impose substantial impacts if undeveloped land is chosen.

Offshore pipelines are buried, except in very deep waters. The trenching method used removes sediments under the pipeline and causes temporary localized increases in turbidity which may affect benthic organisms. Impacts are greater near industrial areas where sediments are polluted. At the shore approach and landfall, site special construction procedures are necessary to protect the integrity of beaches and wetlands.

Onshore pipeline construction temporarily disrupts soil, vegetation, and animal habitats and can permanently disrupt natural drainage systems. According to the Office of Technology Assessment "...most biologists and other scientists agree that pipelines should be routed to avoid marshlands..." The same agency reports that pipeline networks have not been subject to stringent regulatory standards in the past. U. S. Coast Guard pollution incident records on oil spills in 1974, show that a major source of spills was pipelines. Pipelines can leak because of faulty pipe seams, external corrosion, damage from other sources, and improper operation by personnel.

Secondary impacts from pipelines may be the most significant. As the Delaware Bay Oil Transport Committee has explained, "A pipeline running through Delaware would have the highest potential for changing land use." According to another report:

> "a large onshore crude oil storage facility would presumably be erected close by the point where the pipelines come ashore... because of the economies involved, industry would wish to locate new refining or refinery-related processing facilities as close to the storage area as possible."

Although that reasoning may be somewhat circular, a pipeline terminus far from existing storage and refining facilities may stimulate heavy industrial development at the terminus or at the terminals of lateral pipelines fed from the main lines.

If storage tanks are built near the pipeline outfall, the inducement to add refineries may be irresistible. Even where present regulatory prohibitions exist, the law-making authority may yield to the combined pressures of industry, management and labor unions, real estate operators, and others.

A storage tank facility, by itself, can cause serious environmental harm. In 1970, for example, onshore storage tanks were the principle source of oil spills. Oil spill impacts in coastal areas are described in the previous deepwater ports discussion.

The land requirements for storage tank facilities, as mentioned above, can be substantial. The impact of site alteration depends on the characteristics of the site and the surrounding area prior to alterations. Drainage, runoff and erosion patterns are likely to be affected. Moreover, the welding, riveting, sand blasting, and other metal fabrication required in building the storage facilities may contaminate runoff with heavy metals. The day-to-day operations of a marine terminal may also generate the following types of wastewater: domestic; bilge water; ballast water; cooling water; boiler water; process water; and stormwater runoff.

If associated with transshipment facilities, the site may require channel dredging and maintenance. Those activities impact marine biota, and may change coastal water circulation and sediment supply--thereby affecting shoreline and beach erosion and accretion patterns.

Air emissions from storage tanks are caused by evaporation. Estimated leakage from one proposed storage facility with a capacity of more than one million barrels of crude oil was 115.3 tons per year. Evaporative emissions also result when oil is transferred from a tanker to the storage tank. The impact of hydrocarbons on air quality is substantial. Here, it is sufficient to note that they are partially responsible for photochemical smog and directly affect human health.

There are also other problems. Although small fires can usually be contained, the heat may cause explosions of adjacent stored oil. Highly toxic chemical wastes are found in the large quantities of sludge associated with storage facilities. Finally,

marked visual deterioration of the area around the site cannot be avoided in flat open areas with little industrial development, which are common in most of Delaware.

e. OCS Oil and Gas Facilities in Delaware

5. THE CMP GENERALLY SUPPORTS OCS DEVELOPMENT FACILTIIES DUE TO THE COMPELLING NATIONAL INTEREST AND LACK OF VIABLE ALTERNATIVES.

The Coastal Management Program recognizes the importance of OCS development to the Nation, the Mid-Atlantic region, the State and local communities. It acknowledges that the potential for adverse environmental impact is, in some instances, comparable with that of facilities which the program is less inclined to support--although the potential impact of OCS development facilities is not as catastrophic as some other facilities.

The Coastal Management Program supports OCS development for two additional reasons. One, such development affords the State and the Mid-Atlantic coastal region an opportunity to contribute to the national supply of vital energy resources which the State and region use, but heretofore have been unable to produce. Two, with proper coordination--among State, federal and local governments, as well as industry--and vigorous environmental safeguards, most of the problems associated with OCS development can be overcome. Coastal Managment Program coordination efforts as they relate to OCS development are described elsewhere in the program document, and subscribe to the President's recommendation to the Congress that federal consultation with states and communities improve "to assure that they have a real role in decisions which affect them."

Although demand for a Delaware platform fabrication or pipeline yard is unlikely, the Coastal Management Program provides for their consideration. Because those facilities are land extensive, require locations near the State's most important coastal resources, may cause severe and unacceptable effects, and may be sited in other coastal regions with less serious effects, the Coastal Management Program provides for review of proposed sites on a case-by-case basis. Approval of the sites is conditioned on meeting State environmental standards as well as local zoning approval. In addition, the following criteria are used to judge the suitability of the site: (1) applicable county and municipal comprehensive plans; (2) the effect on neighboring land uses; (3) the number and type of supporting public facilities and services required and their effects; (4) the economic effect; (5) environmental effects; and (6) aesthetic considerations. In addition, no major onshore facilities are allowed in wetlands for reasons explained elsewhere in the program document.

5.D.3.

Storage depots and service bases are permitted provided State environmental standards and local zoning codes are complied with. There appears to be little potential demand for Delaware service bases during exploratory drilling operations. American Petroleum Institute members informed the Coastal Management Program that the Davisville, Rhode Island facility would probably be used exclusively for exploratory operations in the Mid-Atlantic.

Both State and Sussex County officials are actively promoting Lewes as a supply base. Lewes is the primary location of active industry in coastal Sussex County. About 12 industrial firms occupy 75 acres of land in and around Lewes, which is the closest Delaware port to the OCS activity. However, the water depth at the port may not be adequate to accommodate supply boats without dredging. Moreover, New Jersey locations--especially Atlantic City--appear to enjoy the closest proximity to the OCS activity in the Mid-Atlantic and Industry spokesmen have previously expressed a preference for the Atlantic City area should commercial quantities of oil and gas be discovered. Rising real estate costs, a shift in the location of OCS activity, and inadequate facilities may make the Atlantic City site less attractive.

In that case Lewes or other Delaware sites such as the Port of Wilmington may be selected. Wilmington has the capability of handling large quantities of supplies; is served by major rail, airport, and highway facilities; can provide public and commercial services; has a skilled labor force which may be needed for quick repair operations; and is the closest port to much of the OCS activity that can provide all these services. State and city officials are also promoting the Port as a possible supply base and industry has expressed interest.

The Coastal Management Program encourages the siting of supply bases at Wilmington, Lewes or wherever else they are compatible with (1) the preservation of environmental resources in accordance with the resource protection measures described in the document, and (2) any legal constraints established by the State or local governments.

A wide array of federal, State, and local measures provide pollution controls for OCS development operations. The Outer Continental Shelf Lands Act and the Federal Water Pollution Control Act allow the federal government to impose strict offshore operation standards. The Underwater Lands Act, Environmental Protection Act, and other Delaware statutes give the

State similar powers to control offshore and onshore operations in Delaware territory. Local zoning ordinances, building codes, and other devices can protect local interests, although--as the program document explains--those devices cannot be used to arbitrarily exclude OCS development support facilities.

6. THE COASTAL MANAGEMENT PROGRAM PERMITS OFFSHORE OIL AND GAS EXPLORATION AND DEVELOPMENT IN DELAWARE WATERS, ON A CASE-BY-CASE BASIS, PROVIDED ADHERENCE TO STRICT ENVIRONMENTAL SAFEGUARDS IS ASSURED.

A wide array of federal, state and local measures provide pollution safeguards for OCS operations. The OCS Lands Act and the Federal Water Pollution Control Act provide for strictly imposed federal standards. The State's Environmental Protection Act, Underwater Lands Act and other statutes give the State control over many OCS related activities both in the water and on land. The extensive array of authorities has been documented in a report done by Delaware for the Federal Energy Administration.

The following criteria are among those to be used in the siting of offshore drillships and platforms in Delaware Waters: (1) the number and size of the facilities should be as small as possible; (2) sensitive environmental areas, such as important fishery habitat, should be avoided whenever possible; (3) coordination shall be pursued with New Jersey officials responsible for fishery management, the Mid-Atlantic Fisheries Resources Council, the National Marine Fisheries Service, and the U.S. Department of the Interior; and (4) the desirability and availability of alternative sites must be considered, as well as the probability of oil or gas recovery.

7. OFFSHORE AND ONSHORE PIPELINES ARE PERMITTED BY THE CMP, PROVIDED THAT STATE AND LOCAL ENVIRONMENTAL CONTROL AND LAND USE STANDARDS ARE MET AND THAT STATE-DESIGNATED WETLANDS ARE AVOIDED WHERE EVER PRACTICAL. HOWEVER, THE TERMINUS OF OFFSHORE PIPELINES FROM BOTH OCS OPERATIONS AND DEEPWATER PORTS IS PROHIBITED IN THE COASTAL STRIP.

The Delaware Coastal Zone Act (7 Delaware Code, Chapter 70) prohibits offshore bulk product transfer facilities in the coastal strip unless they are located in the Port of Wilmington or unless the facility serves a single industrial or manufacturing facility for which a permit is granted or which is a nonconforming use. Offshore pipelines have been defined as an "offshore bulk product transfer facility" under prior permit applications and Attorney General's opinions. Such facilities (offshore pipelines) which merely cross (transit) the strip, however, are not subject to prohibition if they have no terminus within the coastal strip.

The discussion of deepwater ports explains some of the problems associated with pipelines landfalls in the coastal strip and the rationale for exclusion. In any event, the refineries and associated industries likely to be serviced by a Delaware pipeline are in Delaware City and Pennsylvania and the Coastal Management Program prohibition, therefore, is unlikely to create a problem.

Neither offshore nor onshore pipelines are likely to confront insurmountable regulatory obstacles. Unlike many coastal states, Delaware has a mechanism for leasing its offshore lands for pipeline right-of-way. The State Division of Highways procedures for granting onshore right-of-ways are clear, inexpensive, and expeditious. Further, State law provides condemnation powers to oil and gas corporations to acquire private property for the purpose of transporting oil and gas, if necessary. Finally, some local officials appear enthusiastic about an OCS pipeline.

The State, of course, is also interested in an OCS pipeline possibility. State representatives are working with the College of Marine Studies, University of Delaware, to identify sensitive Bay areas unlikely to be impacted by oil spills at specified locations and seasons. That work may be used to define low risk areas where pipelines would be acceptable environmentally.

8. NEW STORAGE TANKS CONNECTED TO OCS FACILITIES ARE PERMITTED OUTSIDE THE COASTAL STRIP PROVIDED STATE AND LOCAL ENVIRONMENTAL AND LAND USE STANDARDS ARE MET.

The inland siting of storage tanks is encouraged to avoid impacts on sensitive coastal/environmental areas and the possibility of induced impacts, as discussed previously. New storage tanks in the southern portion of Delaware's coastal strip could, for example, generate political and economic pressure for oil refineries or petrochemical plants. If pipelines are not used to transport OCS resources, dredging would likely be required to provide access to a coastal located storage facility.

Due to the potentially severe environmental impacts, both direct and induced, new storage tanks connected to offshore bulk cargo transfer facilities are not permitted in the coastal strip, with two exceptions. One, the Port of Wilmington (the entire river shoreline of the city) is exempt from the prohibition. Two, bulk cargo transfer-related tanks are also allowed in the coastal strip if they serve only a single industrial facility. Transshipment facilities are not included in the exception.

With the exception of oil storage facilities in Seaford, Delaware's storage facilities are located in the northern part

of the State near the Delaware Valley refineries. The siting of new oil storage tanks to accommodate OCS production will not be needed if such production merely replaces foreign imports, and may be unnecessary in any case.

4. Gas Plants

a. The National Interest

Crude oil production is usually associated with the production of substantial quantities of natural gas. Gas processing plants are designed to recover liquefiable hydrocarbons not removed by normal separation methods from the raw gas stream before it enters commercial transmission lines. Gas treatment plants are designed to remove impurities, such as sulfur, from the gas. Any one facility may include processing and treatment plants.

Gas plant products are liquefied petroleum gases; including propane, butanes, and propane-butane mixtures; natural gasolines; ethane; plant condensate; and small amounts of other hydrocarbon mixtures. The Nation's dependence on gas products is noted previously in the discussion of national energy needs and supply.

b. Potential Demand

According to a 1977 U. S. Bureau of Mines Report, there were 768 gas processing plants in the United States in 1974, with a total capacity of 73,874 million cubic feet per day. Only three of those plants were in East Coast states--two in Pennsylvania and one in Florida. Two coastal states, Louisiana and Texas, produced roughly three-quarters of the marketed natural gas production in 1974, and 40 of the lower 48 states consumed more natural gas than they produced.

The eastern states, particularly those in colder climates, are heavily dependent on natural gas. Should large amounts of natural gas be available from the Atlantic outer continental shelf, nearby onshore gasification plants will probably become cost effective, since the price of shipping gas west for processing and then transporting it back east for consumption is prohibitive.

The level of gas production, if there is any, from the Atlantic OCS is highly uncertain inspite of recent evidence of natural gas fround in OCS exploration efforts in the Mid-Atlantic. If, however, gas is produced at an offshore platform, it likely will be separated from the oil and water contained in the well stream; piped to shore; treated at a gas plant to remove impurities and processed to recover valuable liquid hydrocarbons;

and delivered to a commercial gas transmission line at a specified pressure and quality. The pipeline, if there is one, may dictate where the gas plant(s) is needed. Pipeline siting in Delaware is discussed in the deepwater port and OCS activity parts of this section.

c. Siting Criteria

Gas processing plants, like oil refineries, are not absolutely dependent on a coastal location. Gas company representatives have indicated that such facilities can be located as far as 10 miles from an OCS gas pipeline landfall. Difficulties arise at greater distances because of pipeline construction costs; the interference with telemetrics, which enable onshore control of offshore production wells; and the cooling of gas as it passes through the line from production to shore, which causes liquids to form in the pipelines. On the other hand, the high cost of some coastal land may outweight the advantages of a coastal site. Assuming, however, that a gas processing plant is needed in Delaware because of OCS development, a coastal location obviously would be the closest point to the gas field.

There are no standard designs or sizes for gas plants, each plant is specifically designed for the particular gas stream that it processes. The amount of land required is related but not directly proportional to throughput capacity. A typical billion cubic foot per day plant may require 75 acres of land, of which 20 may be used for building and structures. For planning purposes, a 50 to 75 acre site would be required for a gas plant processing between 200 and 1,000 million cubic feet per day.

The land, preferably flat and well-drained, is needed for buildings, storage facilities, pipes, towers, compressors, buffer zones, and parking lots.

Onshore partial processing facilities may be used to process natural gas or oil. A combined partial processing facility requires approximately 15 acres of land per 100,000 barrels of oil and associated gas processed.

Gas plant products are transported by rail, truck, pipeline, or barge, according to the transportation available and the location of markets for a particular product. Small plants may have products shipped by truck, but pipelines or rail are usually more economical for large product volumes.

Most gas processing plants use less than 200,000 gallons of water daily, but water demand can range from zero to 750,000

gallons depending on the cooling process used. A modern design would probably utilize an air cooled system with miminal water requirements.

d. Impact on Resources

Gas plants generally pollute the environment less than oil refineries. Accidents occur more frequently in natural gas operations than in corresponding crude oil operations, but gas operation accidents usually cause far less environmental damage. For example, water pollution resulting from pipeline leaks or other malfunctions is less severe than for similar oil mishaps.

Wastewater contaminants include sulfuric acid, chromium, zinc, and chlorine from cooling water; phosphates, sulfite, and bases from boiler water; and dissolved hydrocarbons from diverse sources. Lubricating oils and caustics may also be discharged in the course of plant operations. In addition, the U. S. Department of Energy has pointed out that gas processing plants may cause thermal pollution by lowering or raising the water temperature several degrees before the water is returned to its source.

Substances concentrated in the effluent and heat, according to a comprehensive report by the New England Basin Commission, "can produce serious impacts on the receiving waters." The same report states that the chemicals added to the cooling stream to reduce corrosion and fouling within the condensor system may be "extremely toxic to aquatic organisms." Finally, the report points out that "If a waterfront location is chosen, environmental disturbances due to dredging, filling, channel alteration, and spoil disposal may result. If an inland location is chosen, such disturbances would be non-existent or minimal. Since a wide selection of potential inland sites is usually available, environmentally sensitive regions can be avoided."

Sources of air emissions at gas plants include: processing, evaporation, flares, and combustion from machinery and vehicles. Major air emissions are noxious smelling hydrogen sulfide, sulfur oxides, and hydrocarbons. Nitrogen oxides may also be significant. The estimated, though disputed, process emissions from one plant with a 1.3 billion cubic feet per day throughput was 6.63 tons per day of sulfur dioxide and 1.65 tons per day of hydrogen sulfide. The magnitude of impacts from such emissions is determined by ambient air conditions at and near the site.

Noise can also be a problem. Gas plant compressors, boilers, scrubbers, and flare stacks are all 24-hour noise makers. In developed areas, noise from a gas plant can be serious. A flare stack emitting 81 decibels of noise, for example, exceeds ambient noise levels as far as .7 mile from the stack.

Aside from environmental effects, gas plants are visually unattractive with their tall smokestacks, 24-hour lighting, and denuded landscape. Adequate landscaping in a buffer zone can mitigate that problem.

Finally, solid wastes generated by a gas plant include scale and sludge from boiler and cooling tower cleanouts; tank cleaning sludge; spent dessicants; filtration media and oil absorbents. Also included are hazardous materials, which are defined in the Federal Water Pollution Control Act as:

> "such elements and compounds which, when discharged in any quantity into or upon the navigable waters of the United States or adjoining shorelines or the waters of the contiguous zone, present an imminent and substantial danger to the public health and welfare, including, but not limited to fish, shellfish, wildlife, shorelines, and beaches."

Hazardous waste materials from gas plants may include accidentally spilled liquid gas or other hydrocarbons, and processed sludge containing chemicals and residuals from brine evaporation.

e. Gas Plants in Delaware

9. THE ENVIRONMENTAL IMPACT OF GAS PLANTS IS SUCH THAT THE CMP PROHIBITS THEM IN WETLANDS AND THE COASTAL STRIP. INLAND LOCATIONS ARE ACCEPTABLE ON A CASE-BY-CASE BASIS PROVIDED ALL STATE AND LOCAL ENVIRONMENTAL AND LAND USE STANDARDS ARE MET.

The Delaware Coastal Management Program, for regulatory purposes, treats gas plants like oil refineries. Although the real and potential impacts of the former are generally less severe than those of refineries, they are, nonetheless, serious enough to warrant exclusion from the coastal strip and all wetlands.

The Coastal Management Program recognizes that many of the environmental problems associated with gas processing plants can be overcome with proper planning, careful waste treatment, and strict operational standards. Unfortunately, human error, at diverse levels, often defeats the best laid plans and intentions. To minimize the possible implications of such error for coastal recreation, natural habitat, and other unique values in the coastal strip, the Coastal Management Program allows gasification plants only outside of that area.

5. LNG Facilities

a. National Interest

Liquefied natural gas (LNG) is formed by cooling natural gas to -260 degrees Fahrenheit, to reduce it to one six-hundredth of its original volume, enabling large volumes of gas to be transported by tankers especially designed to handle LNG.

An LNG export-import system includes the following components: a source of natural gas; transportation from the source to the liquefication plant; the liquefication plant; storage, loading, and port facilities at the exporting site; transportatin by ocean tanker; a regasification plant; and transmission facilities from the regasification plant to a major pipeline. Given the gas demand and supply situation of the Delaware region, only LNG import facility sites are within the scope of this paper.

As noted above, that demand-supply situation is uncertain. Because of its clean-burning and handling characteristics, natural gas demand in the United States and the Delaware region may outstrip natural gas supply. The world's greatest gas reserves lie overseas, which for purposes of gas transport, can be reached economically only by LNG tankers. For that reason, LNG facilities are essential if the Nation is to receive substantial help towards meeting its gas needs from overseas.

Imported LNG accounted for about one-twentieth of one percent of the natural gas consumed in this country during 1977, but LNG is expected in some quarters to make up between 5 and 15 percent of the total U. S. natural gas consumption in 1985. If a pipeline is used to transport Alaskan gas to the continental United States, the percentage will probably be in the lower range of that estimate.

It is important to note, however significant the contribution of LNG may prove to be, that it is not a new source of energy which will allow unrestrained use of natural gas or solve the long-term national or regional gas supply problems. LNG could satisfy a portion of the U. S. energy demand for at least the next 20 years, but the world's limited natural gas supply serves as an uncompromising constraint on continued utilization.

Rather, LNG is seen--even by its proponents as a "stop-gap" measure. The Federal Power Commission, for example, has stated that LNG projects:

> "must be operational soon to assure smooth transition from a petroleum and natural gas economy to an economy operating at its full conservation potential and under alternate energy technologies." (emphasis supplied)

That view is consistent with the National Energy Plan, which says:

> "Due to its extremely high costs and safety problems, LNG is not a long-term secure substitute for domestic natural gas. It can, however, be an important supply option through the mid-1980's and beyond, until additional gas supplies may become available."

The "extremely high costs" to which the Plan refers are attributed to the gas price, royalties, taxes and other payments in the exporting country; production, transmission, liquefication, storage, and loading costs in the exporting country; tanker transportation costs from the exporting country to the United States; and unloading, storage, revaporization, and transmission costs in the United States. Energy conversion inefficiencies also tend to drive the cost upward. The liquefication, storage and vaporization of natural gas requires about 23 percent of the energy of the gas, with liquefication alone consuming 17 percent. A study prepared for the U. S. Energy Research and Development Administration concludes that "their (LNG) imports will be very costly, perhaps more than $4 per million Btu...and their...cost will be reflected in the ultimate price paid by the consumer."

The study also points out, in 1976, that "The importation of natural gas, like that of oil is counter to the national policy of energy independence." Although current national policy seems to be drifting away from the principle of energy independence, the dangers of dependence are as real as ever. Economic drain and the ever present threat of a crippling embargo are salient and alarming features of substantial reliance on foreign imports.

That the national interest in promoting LNG is unclear, was underscored in a December 1977 report by the U. S. General Accounting Office. The report charges that the President's LNG policy falls short of what is needed on several grounds, including the following: (1) the LNG policy is not related to "the over-all national energy plan so as to identify LNG import goals;" (2) the policy "does not adequately address the concerns of vulnerability"--that is, criteria defining "overdependence" are not established; and (3) the policy contains "numerous

obscure statements which only add to the confusion regarding LNG's future role in supplying U. S. energy needs."

b. Potential Demand

Uncertainties make it difficult to evaluate the potential demand for LNG facilities in Delaware. Potential safety hazards and low economic returns, as well as uncertainties in the market, here and abroad, make investment risky. In 1973, when the Nation imported 4 billion cubic feet of LNG, the Federal Power Commission estimated there would be a 1500-fold increase in the amount of LNG imported into the United States between 1973 and 1980. In 1974, the Commission reported zero LNG imports, and importation has continued to lag behind the projection. A 1976 study concludes that uncertainties make it difficult to estimate LNG imports, if any, to the Northeast in 1985 and 2000, and that the year 2000 supply can be estimated "only in the crudest way." The quantity of imports, of course, is also largely a function of the capacity of facilities to receive it. Thus, utilizing LNG supply projections to determine the potential demand for facilities is a non sequitor in some respects.

Another factor laden with uncertainty and bearing on the demand for LNG facility sites is regulatory attitudes. Under the Department of Energy Organization Act, the Federal Energy Regulatory Commission now has the lead federal role in LNG facility siting. Uncertain federal policy, already discussed, clouds the predictability of the Commission's actions.

In 1973, the Federal Power Commission identified 19 potential LNG receiving areas based on at least some of the criteria discussed below. One of those areas was along the Delaware River, where several sites are in high gas demand areas and also near major transmission lines. Two New Jersey sites near the Delaware River not far from Philadelphia (oil refineries and power plants) were proposed. The Federal Power Commission's environmental staff recently concluded, however, that there were "unacceptable risks" in carrying LNG by tanker up the crowded Delaware River, and recommended that approval be denied.

The report, however, emphasized safety hazards that are less prominent southward along the River and Bay. Should the New Jersey sites be abandoned, the southward areas might be considered potential sites for meeting the demand evidently present near Philadelphia. On the other hand, those areas might also be too distant from the metropolitan markets to the north.

5.D.3.

Some, if not all, of the regional demand can be met by the new import facility at Cove Point, Maryland, which went into operation in late 1977. The Cove Point terminal has two tanker berths, four storage tanks and several process areas. The initial operating plans call for about 140 ship arrivals per year, delivering the daily equivalent of two-thirds of a billion cubic feet of gas. Other major LNG terminals in the Northeast are located in Everett, Massachusetts and Staten Island, New York.

With all the above caveats in mind, a study by the National Center for Analysis of Energy Systems estimates that imports of LNG into the Virginia to Maine area in 1985 will be from .8 to 1.1 trillion cubic feet per year. Assuming that the terminals complete or nearly complete will be fully operable in 1985, the frequency of deliveries of LNG tankers will be roughly 2 per week per terminal.

c. Siting Criteria

The site selection process for LNG facilities is currently conducted by the company or consortium proposing the project. The company make its application to the federal authority only after it has done as much preliminary work as possible, which includes at least gaining control over, if not outright ownership of, the proposed site. Thus, neither the public nor the federal government becomes involved in the site selection decision until it has already been made by the company. There are no officially adopted federal siting criteria (although FERC and DOT have proposed siting safety standards), and the currently proposed projects are located in a variety of sites, ranging from remote coastal and riverine areas with 1,000-acre buffer zones to as little as a 90-acre site on Staten Island.

Most proposed LNG plant sites occupy at least 200 acres of shorefront land, which include a buffer zone. Larger areas are usually needed to accommodate all the associated facilities. Generally there are three or more storage tanks containing 300,000 to 600,00 barrels at each plant, with each tank surrounded by deep dikes to contain the liquid gas if it spill. Present technology dictates that the tanks be no more than two or three miles from the marine terminal where ships unload, and some of this distance is likely to be over water because terminals may be sited a mile or more from land in order to have deep water anchorage.

Along the Delaware shore the Delaware River and Bay depth is too shallow in most places to accommodate the large, bulky LNG tankers with their 40 foot drafts. Wilmington may be the only exception, but, because of its population density, is not desirable site for an LNG terminal. A recent study, for reasons, discussed below, recommends, that population near proposed sites be "zero or very low" density within a one-mile

radius, and low within a 6-mile radius.

Also recommend is a 450 foot wide, relatively straight and unobstructed approach channel. A turning basin of at least 2000 feet is desirable near the berth. For those reasons LNG facilities need land space near the marine tanker terminal, and the Federal Energy Administration has identified such facilities as absolutely coastal dependent.

Offshore terminals have been suggested as a means of reducing safety risks in populated areas or congested harbors. At the present time, preliminary offshore terminal designs limit site selection to locations with water depth of 60 feet or more.

Onshore LNG terminal sites must be on solid bedrock or other geological formations which will support the facilities. The site should avoid earthquake and climatic hazards and allow year-round operation.

A report prepared for the U. S. Energy Research and Development Administration, says the site

> "should be so located to minimize disruption to the environment of the area during the construction phase. This includes the ability to control runoff erosion and the ability to limit damage to the area wildlife and foliage. As an example, a rocky shoreline or stable sand beach is preferable to a tidal marsh land whose ecology is more susceptible to disruptions. Deep water close to shore is desirable to minimize dredging."

The same report recommends a site where there is little local maritime traffic because such traffic can be expected to be interrupted to insure the safe passage of LNG tankers At the Cove Point, Md. LNG terminals the Coast Guard intends to establish a permanent safety zone to restrict ship movement near the terminal.

Proximity to local utilities is also important in order to support construction and operations activities. Water demand is minimal for operations, but supplies are needed to satisfy fire protection regulations.

The site also should be in proximity to transportation systems, especially an existing major natural gas pipeline. The major line through Delaware is closest to the Delaware

River and Bay at a point in New Castle County, in the Wilmington vicinity. In Sussex County the pipeline is closer to Maryland than it is to the Bay. On the other side of the Delaware Bay, in New Jersey, there is an existing major gas pipeline near Cape May. On neither side, however, do the line approach the shore as closely as several other pipelines elesewhere the East Coast.

An alternative to pipelines, once the LNG is landed, is trucks. As of September, 1977, it was estimated that there were 75 LNG trucks in operation in the United States. Railroads and barges have also been proposed as means for transporting LNG, but have been defeated by economics or opposition.

Such opposition suggests that one of the most important criterion for the siting of LNG facilities should be safety considerations.

d. Impact on Resources

As the Office of Technology Assessment puts it,

> "Postulating an LNG disaster scenario is clearly an almost limitless task. There are countless combinations of events which could lead to an accident...to infer, as most LNG safety reports do, however inadvertently, that all the important possibilities have been "covered," may be short-sighted."

One of the possibilities that has been analyzed involves the result of LNG spillage on water in a large-scale accident. In such a case the water would warm the floating LNG, vaporize it, and form cold, low-lying "gas cloud". The heavy cloud would continue to hug the earth until the gas becomes so dilute as to be no longer flammable, and eventually, warms enough to rise and dispense. Researchers disagree on the shape, size movement. and compositions of the cloud, but it is generally agreed that if the vapor ignites, it would be beyond the capability of existing firefighting methods to extinquish it.

Thus, from a safety perspective, the key issue is how far and how broadly a vapor cloud travels before it ignites.

There has never been a massive LNG spill on water. Estimated distance vary from less than one mile to more than 50 miles, depending on different assumptions. Work by the U. S. Bureau of

Mines has indicated that a 25,000 cubic meter spill--the contents of one the cargo tanks in a big LNG tanker-- could produce a 1500 foot long plume, the major part of it is highly flammable. With stable weather conditions and a steady wind of about 7 miles and hour, the plume could theoretically travel some 19 to 38 miles according to the BLM study. More recent studies by the Coast Guard suggest that the impacted area would be from 1.25 to 3.2 miles under normal weather conditions and no more than 10.5 miles under extreme conditions. As one commentator points out, however, "it is highly probable that the cloud would encounter a source of ignition soon after touching land, if not before." In Delaware that land could well be a densely populated area if an accident were to occur in the upper Delaware Bay or the Delaware River.

The Naval Weapons Center at China Lake, California is researching the hazard from an LNG pool fire, which some experts believe is worse than a vapor cloud. The Council on Environmental Quality describes the danger:

> The characteristics of these fires on water, like the behavior of vapor clouds, are subject to great uncertainties and estimates of the safe distance from their intense radiant heat vary significantly. According to a recent FPC (Federal Power Commission) analysis, a generally safe distance from a 25,000-cubic-meter pool fire would be about 8,300 feet or 1.6 miles. People standing 3,600 feet away would blister in 5 seconds, and exposure for longer times-perhaps 10 seconds -- would be fatal. Estimates based on Bureau of Mines figures indicate that the danger might extend farther. According to these figures, on a windless day when thermal radiation is greatest, unsheltered people at a distance of 9,600 feet, or nearly 2 miles, could suffer fatal burns."

The world's worst LNG accident occurred in 1944 when a storage tank in Cleveland ruptured, spilling 6,200 cubic meters of LNG into adjacent streets, sewers, and storm basements. In those confined spaces vapor and air combined in an explosive mixture which ignited and demolished sizeable buildings. Intensely hot fire burst into 2,800 foot flames, and combustible material 1000 feet away caught fire by radiation. The accident resulted in 130 deaths, between 200 and 400 injuries. and approxi-

mately $10 million is property damage. It is recognized that this accident did not involve an import facility nor was the technology fully developed at that period to prevent the widespread damage which occurred.

In 1973, a second signigicant accident occurred at a Staten Island LNG storage facility, where 40 workmen repairing and "empty" LNG tank were killed.

The hazards of LNG operations call for extremely strict safety controls. In some respects, the LNG industry and government have successfully met the challenge. LNG tankers are now equipped with double bottom hulls, special navigation equipment, and other safety features not normally present on other ships; dikes are used to contain the LNG in the event a storage tank ruptures; and better materials are used in all LNG handling equipment.

Many problems remain, however. A major one, already discussed, is the "countless combinations of events which could lead to an accident." Coupled with the uncertainty about whether all the "important possibilities have been covered", doubt emerges.

Despite years of planning and utilization of the best technology available, the proposed terminal sites in New Jersey were considered "unacceptable risks" by members of the Federal Power Commission. Part of the conclusion was based on the location of the shipping channel and the history of tanker accidents near the site.

A standard LNG tanker is a high-powered ship, with an optimum service speed in the 20-knot range--about five knots faster than most oil tankers--and a capacity so large that an 8-story building could fit inside each of its five cargo tanks. By the end of 1975, there had been only 31 LNG shipments to the United States. At that time, there were only 34 LNG tankers in operation worldwide, a minuscule number compared with the 6800 oil tankers in service. Thus, experience with transporting and unloading the behemoth tankers is not extensive, and researchers do not have enough data with which to predict the likelihood that a major LNG spill will occur, how the spilled liquid and resulting vapors will behave, or what impacts will result.

Historically, oil tankers' casualty data have indicated a need for improved marine traffic safety in U.S. ports and waterways. The Delaware River handles 5000 ships per year. By comparison, Boston Harbor handles only 1500 ships per year, while 4000 ships visit

Chesapeake waters yearly. Most of those ships are not equipped with special navigational aids or with crew versed in the LNG threat. Although the U.S. Coast Guard has proposed regulations setting minimum standards for persons employed on United States flag LNG carriers, foreign flag ships entering United States harbors are not subject to the regulations. The U.S. Office of Technology Assessment, accordingly, has questioned the training and competence of foreign crews.

The Council on Environmental Quality has pointed out that there are no formal safety criteria for LNG facility siting and that no broad programmatic environmental impact statements have been prepared for LNG terminals or storage facilities. Those deficiencies led, in 1976, to a petition by Delaware, New York, New Jersey, Pennsylvania, and others for a court order directing the Federal Power Commission to develop uniform and comprehensive standards for site selection and operation of LNG facilities. As of September, 1977, the petition was set for hearing and the standards were not in force.

Other evidence of the continuing national concern and uncertainty over the safety of LNG facilities and adequate measures to control their siting and operations is found in The Congress. A number of bills were introduced in 1978 to establish improved regulation of LNG facilities; the testimony of the bills' sponsors in the Congressional Record emphasizes safety considerations.

Representative Mario Biaggi (D-N.Y.) introduced a bill to amend the Ports and Waterways Safety Act to improve safety regulation of LNG import terminals, storage facilities and reclassification plants. Specific safety considerations in Mr. Biaggi's bill included (among other things):

(1) required buffer zones around terminal facilities;
(2) maximum population density standards for areas around LNG facilities;
(3) consideration of safe navigation in onshore terminal siting;
(4) consideration of synergistic risks in locating LNG facilities adjacent to other hazardous activities or natural hazards; and
(5) adequacy of local firefighting and other disaster services.

The bill included a provision for a Governor's veto over siting an offshore LNG terminal adjacent to his state.

In the 1978 Congress the House subcommittee on energy and power heard testimony that there is no clear, written, coordinated Federal regulation policy toward LNG facilities. The subcommittee chairman, John D. Dingell (D-Mich.) expressed concern over vessel collisions and explosions in the vicinty of LNG terminals and difficulties in providing and enforcing vessel traffic restricted zones around busy LNG terminals such as the Cove Point, MD., terminal.

Representative John M. Murphy (D-N.Y.) also proposed in 1978 to amend the Ports and Waterways Safety Act to establish strict controls over LNG facility siting and operations in order to protect public health, safety and property, and the environment from "unique threats" posed by this highly volatile and explosive fuel. The Secretary of Transportation would be required to set minimum standards for LNG facility design, construction and operations taking into consideration, among other things:

(1) alternative more remote terminal sites;
(2) minimum distances from terminal sites and residential areas, power plants, and recreational areas; and
(3) site meteorological, topographic, and other natural features.

Regulatory emphasis would be on preventing and containing discharges of liquified gas. Each affected state with an approved Coastal Management Program would have the primary role in determining LNG siting, once the Department of Transportation issues minimum (Federal) standards for siting and licensing, States would have the authority to supercede these Federal standards.

In the U.S. Senate, Senator John A. Durkin (D-N.H.) expressed concern over the hazards of LNG (and LPG) facilities and present inadequate regulation of these and he sponsored a bill in the 1978 session titled the Comprehensive Liquified Energy Siting Safety and Liability Act. In addition to describing the flammable and explosive hazards of LNG and the difficulties of safely transporting and handling it, Senator Durkin noted the vulnerability of LNG facilities to sabotage.

This enumeration of expressions of Congressional concern over LNG facilities could go on, but these few examples emphasize the concern at the Federal level over the potential for catastrophic consequences of siting and operating LNG faciltiies and the need for severely strict regulation of LNG operations by government at all levels.

Although human safety hazards pose the pre-eminent LNG facilities "impact" problem, resource impact may also be significant. Approximately 800 to 1200 acres of land may be necessary for docks, storage, and vaporization facilities, depending on the terminal's daily capacity. Land mass compaction can re-route aquifers and underwater streams. Onsite wetlands, wildlife and wildlife habitat, historical and archaeological areas, agricultural land, forest, and so on may all be destroyed or damaged. Pipeline corridors can have similar impact, at least temporarily.

The effect of dredging, fill and waste disposal upon the aquatic environment may be a problem. In addition, movement of LNG carriers in shallow areas may disturb bottom life both from the turbulence generated by propellors and the ship's wake. Water circulated through the revaporization plant at 300,000 gallons per minute catches fish in its flow and kills them at intake streams, much in the same manner as power plants. Biocides, used to kill small organisms that pass through the screens, may also kill organisms outside the screen. Thermal pollution--water returned to the water supply source comes out 12 degrees colder than it came in--is still another source of disturbance to aquatic life.

Air and noise problems are usually minimal after construction of the terminal is completed, but aesthetic considerations and the safety hazard may drive surrounding property values down.

e. **LNG Facilities in Delaware**

The Draft Environmental Impact Statement contained a policy prohibiting LNG facilities in Delaware. The Federal Energy Regulatory Commission (FERC) objected to the prohibition particularly as derived from the siting criteria developed by the CMP. Accordingly, siting criteria supplied by FERC were applied to Delaware. These criteria included: 1) Population - location which provides a buffer between the facility and residential areas; 2) Climate - well sheltered site with a minimum of adverse climate conditions; 3) Navigational Suitability for Tanker Traffic - shortest practical approach channel, avoidance of interference with navigation at any time, minimum depth of 40' for smaller tankers and greater depths for large LNG carriers, minimum concentrations of other vessel traffic, and well established traffic safety systems; 4) Seismic Considerations - avoidance of areas subject to ground movement or subsidence; 5) Topographic Conditions - minimal slopes and well drained lands are desired;

6) Foundation Conditions - stable soils and subsurface, avoidance of wet, marsh soils; 7) Terminal Area - areas with at least 40 foot depths or more if subject to wave action, shortest distance to shore, protection from waves and strong currents; 8) Anchorage Suitability - available anchorage in the vicinity of the terminal site and away from vessel maneuvering areas or channels; 9) Land Use Conflicts - locations should avoid severe conflicts with nearby existing or planned industrial, recreational or conservation-oriented land uses; 10) Existing Environment - avoid rare or endangered species habitats and/or breeding grounds, unique ecosystems, productive marshlands, biologically sensitive areas, wildlife sanctuaries, or high quality habitats; 11) New Pipeline Requirements and Righ-of-Way Availability - minimize new pipeline construction; and 12) Sea-water Exchange Systems - seek opportunities to combine LNG vaporization facilities with power plants or other industries to minimize the effects of thermal pollution.

These siting criteria were applied throughout Delaware's coastal area in conformance with the provisions and policies set forth in the appropriate sections.

The State's best transportation systems, including a major natural gas pipeline, occur near its highest area of population density--Wilmington. The undeveloped shorefront is vulnerable to storm damage in many places, soft-bottomed in nearly all places, and much of it is geologically unstable. Finally, the closest point of the main shipping channel to Delaware's shore, which might be suitable for LNG tankers, lies near Wilmington - a Port with considerable ship traffic and within a major population center.

The main shipping channel up the Delaware River and Bay also passes, in places, within a mile or two, of Lewes, and not much farther from Rehoboth Beach--both densely populated in the summer. A tanker accident near either city could spell disaster. The U.S. Energy Research and Development Administration informed the Coastal Management Program that its environmental and safety programs are mandated by the requirement that the Nation's energy be provided in a way that is safe, clean, adequate, and acceptable to society. The Coastal Management Progarm concurs with that requirement, and finds that Delaware sites are neither safe nor acceptable.

Further, the land requirements of LNG facilities, coupled with their tendency to induce additional development, make LNG facilities unsuitable for the area they would otherwise occupy--the Delaware coastal zone. The CMP's discussion of oil refineries, as it pertains to the balancing of the need to protect coastal resources with the need for the facility also applies here.

10. THE CMP FINDS THAT THERE IS NO SITE IN DELAWARE SUITABLE FOR THE LOCATION OF ANY LNG IMPORT-EXPORT FACILITY.

6. Electric Power Plants

a. The National Interest

The first subsection discusses the Nation's reliance on energy and dependence on foreign energy resources, as well as the national importance of providing a continuous supply of energy with as little foreign assistance as possible. Power plants and their associated facilities can contribute significantly to that objective because electricity can meet a great variety of energy needs without necessarily consuming oil or gas.

Ninety percent of the Nation's conventional energy reserves are coal, a fuel which can be used to generate electricity but which currently accounts for only 18 percent of the country's energy consumption. The National Energy Plan urges that the use of coal be increased to maintain economic growth, reduce the quantity of oil imports, and save gas for residential use. Although coal is used to generate nearly half of the Nation's electricity, new or expanded coal-fueled power plants can further promote essential national energy policies.

Nuclear power plants also decrease reliance on oil imports. Nuclear energy accounts for only 3 percent of all the energy used by the Nation and less than 10 percent of the electricity. New nuclear facilities are expected to increase the latter figure to as much as 26 percent by 1985. If the risks associated with nuclear facilities can be reduced by new technology, the contribution of nuclear power plants may become more significant.

Finally, geothermal facilities can produce electricity from previously untapped natural resources. The national interest in utilizing such resources--as well as coal and nuclear fuel--with the siting and construction of new power plants and associated facilities is underscored in the next part.

b. Potential Demand

Electric power consumption in the United States has grown much more rapidly than total energy consumption during the last several years. The national demand for electricity--now more than 20 quadrillion Btu annually-may double by 1990, and some projections indicate that electricity production will account for 40 percent of total United States energy consumption by the year 2000. On the other hand, most recent consumption patterns show that the rate is slowing down. As a result, long-term projections of the average annual electric demand growth have declined steadily in each of the recent years.

5.D.3.

The Federal Energy Administration has informed the Delaware Coastal Management Program that "there does not appear to be a significant probability of a capacity shortage through 1980 on a national basis." Indeed, the Federal Power Commission has reported that the total United States generating capacity reserve will be 22 percent in 1986 and 20 percent in 1995.

Such projections, of course, assume several new plants will be constructed before those dates. In 1976, the Federal Power Commission reported that 905 new units with a total 328,204 megawatt capacity had been proposed for addition to United States' electric generating facilities between 1976 and 1985.

Most of the utility companies in the Mid-Atlantic region operate in a coordinated power pool, known as the Pennsylvania-New Jersey-Maryland Interconnection (PJM). The PJM is supervised by the federal government and operates according to a plan which is updated every ten years. The plan specifies how much electricity each utility company will provide, but the companies decide individually how to meet their shares. Thus, the plan does not address facility siting planning as such.

The planning unit of the pool is called the PJM Interconnection, and is comprised of 11 member utilities and 3 Associated Utilities. The Delmarva Power and Light Co. is the utility company member from Delaware. The MAAC projected reserve capacity for the Mid-Atlantic region, at an annual average of 25 percent for the 1986-1995 period, is higher than the national average. As of 1976, 49 new PJM units, with a 23,972 megawatt capacity, were proposed for the period between 1976 and 1985.

A survey of MAAC and the non-member companies indicates that they would like the nuclear fuel share of electricity generation to increase from 15 percent in 1975 to 44 percent in 1985, while allowing the coal-fueled share to drop from 59 percent to 42 percent during the same period. In 1976 there were 13 nuclear plants under construction in the Mid-Atlantic region. Although the industry has demonstrated a strong preference for nuclear power, spirited public and private opposition may alter its plans.

In Delaware, the Delmarva Power and Light Co. recently postponed plans for a nuclear power plant at Summit until after 1989 in part due to a greatly reduced rate of growth in both energy and peak demand. The projected State energy demands appear to be execessive in light of this postponement and the Company's own recently revised forecasts. The Environmental Action Foundation recently reported that excess generating capacity in the State was nearly 28 percent in 1976, ranking it among the top 10 in the Nation.

The Delmarva Power and Light Co. contends that their excess capacity is prudent and is required as a reserve.

Company officials have also recently estimated that no new electric plants will be needed in Delaware until 1989 although a new coal-fired facility is planned for Maryland in 1987. The site selection process for the new plant will begin around 1980, and the Summit site will be given serious consideration whether the new plant is nuclear or fossil fueled. The Company is also adding a fourth generating unit, now under construction, to its plant at Indian River in Sussex County. The new unit is scheduled to go into operation in 1980 and will give the State another 400,000 kilowatts of coal-fired generation.

The Delmarva Power and Light Co. estimates that its electric generating facilities and transmission lines within the State of Delaware export about as much energy from the State as is imported. When Dover City electric power generation is added, facilities within the State are probably producing more electricity than Delaware residents use.

c. Siting Criteria

The Summit location is still regarded by the Delmarva Power and Light Co. as the best site in Delaware for a new plant. The site can be readily served by railroad, barge, and nearby transmission lines. The land is relatively cheap and unpopulated, yet it is close to major population centers, meaning that transmission line losses are low. Perhaps most important, Summit is near a large water source which is needed for cooling and other requirements.

The siting methodology used by the State's largest utility company, presented below in a very abbreviated form, offers additional insight into power plant siting criteria.

The Delmarva Power and Light Co. methodology identifies promising sites more or less by the process of elimination. First it eliminates population centers, which are especially unsuitable in the case of nuclear power plants. Next, areas not reasonably close to major transportation networks--and fuel availability--are rejected, as are lands far from a large water source.

Also eliminated are lands preserved by the federal or State government--such as the Bombay Hook Wildlife Refuge and wetlands areas. Company officials have informed the Coastal Management Program that due to the environmentally sensitive nature of wetlands, the utility would not seek to site a power plant in wetlands although some transmission facilities may have to pass

through wetlands due to routing problems. The Regulations adopted under the Wetlands Act recognize the need to locate transmission lines and provide access to them in wetland areas. Of course, the foundation requirements of power plants are not well served by wetlands in any case.

Other areas with poor foundation qualities or geologic hazards are eliminated. Also avoided, if possible, are floodplains and lands especially vulnerable to coastal processes, such as low-lying beaches. Finally, the potential for groundwater and other types of pollution is examined. Many of the power company's criteria correspond with State environmental concerns for obvious reasons.

There are many advantages and disadvantages of coastal locations. Cooling water supply makes such areas attractive from that perspective, but potential difficulties with population, fragile environment, coastal processes and salt water must also be overcome. On the other hand, the U.S. Nuclear Regulatory Commission has pointed out to the Coastal Management Program that coastal locations offer one safety feature absent at inland sites, namely that 50 percent of the downwind directions on the coast are away from people. Offsetting that advantage somewhat is the threat of hurricanes, seismic seawaves, and LNG tanker and terminal accidents.

According to the Commission, the disadvantages of siting nuclear plants offshore include shipping hazards and the lack of proven technology. The lack of foundation problems and water discharge problems, as well as the relatively few number of competing uses, are advantages of offshore sites. Delmarva Power and Light Co. officials believe offshore power plants may be a good idea, but because Summit is a good site and because they would prefer to see someone else "work the bugs out," they have not considered the possibility "seriously."

Regardless of which type of power plant is built, the siting of transmission lines is important. In 1975, it was estimated that there were more than 40,000 miles of overhead transmission lines utilizing about 4 million acres of land for right-of-way, and about 2,000 miles of underground transmission cables in the United States.

Shortest distance is usually the goal in siting transmission facilities, but several factors--the price of real estate, environmentally sensitive areas, conflicting uses, and so forth--can compel alternative routes. The use of ultrahigh voltage and more intensive utilization of underground transmission lines are being researched to reduce environmental losses and right-of-way costs.

d. Impacts on Resources

Power plants and associated facilities affect the land, water and air. As such, the facilities may adversely affect any or all of the resources discussed in the CMP.

The land requirements for fossil fueled power plants are typically greater than nuclear plants due to the need for fuel storage and fuel transportation. For example, a 300 megawatt fossil fuel plant might require 1200 acres of land, compared to a 400 acre nuclear facility with a similar capacity. The impact of the land use on resources--such as forests, agricultural lands, wildlife, etc.--obviously depends on where the structure is built. The Office of Coastal Zone Management has declared that "The land areas least suitable from an environmental viewpoint for the construction of power plant facility components would be coastal wetlands and mangrove swamps, dunes and flood prone areas."

Water impacts are due mostly to the use of large quantities of cooling water to condense spent steam. At intake pipes small fish can be pulled into screens used to protect cooling systems from damage caused by floating and suspended debris. Referred to as "impingement," this has resulted in some major fish kills. "Entrainment," the process by which organisms too small to be captured by the intake screen pass through the cooling system, may result in the death of some organisms. Survival is entirely species dependent; younger life stages of local commercially important species can be included as entrained organisms. Chemical and thermal pollution of receiving waters may be responsible for the death of more aquatic life. One beneficial effect, however, is that during the winter some fish seem to thrive on the warmer water.

Generally though the areas around enclosed waters--such as estuaries, bays, lagoons, tidal rivers, grass beds, and reefs--which serve as habitat for the fishery, are the worst sites for power plants from an effects perspective. Nuclear power plants typically require more cooling water than fossil fuel plants to produce the same amount of electricty, thus their water-related effects are usually more severe than those of fossil fuel plants.

As the Air Quality Section of the CMP indicates, fossil fueled plants do not fare so well with air emissions. According to the Office of Coastal Zone Management, fossil fueled power plants account for 50 percent of the sulfur dioxide, 25 percent of the nitrogen oxides and 25 percent of the particulate matter discharged into the atmosphere. Because health can be seriously affected by such emissions, a site away from population centers is indicated.

However the Clean Air Act allows an offset policy for the siting of additional sources of emissions within non-attainment areas if offsetting decreases can be securred from existing sources. Incremental additions to ambient air pollutant concentrations are permitted in attainment areas.

According to a study by the U.S. Nuclear Regulatory Commission, the nuclear fuel cycle "is considerably less harmful to man than the coal fuel cycle. However, the Council on Environmental Quality has indicated that radioactive wastes are:

> "a significant potential environmental hazard. They mst be isolated from the biosphere for hundreds of thousands of years. The wastes contain both highly radioactive but "shorter lived" wastes, with half-lives of tens to hundreds of years, and less radioactive but longer-lived species, such as plutonium, which has a half-life of about 25,000 years. The half-life of a radioactive element is the time required for a given quantity of the element to decay or disintegrate into one-half of the original quantity. Isolated storage over many half-lives is necessary before most wastes become harmless.
>
> The lack of permanent, safe storage or disposal for high-level radioactive wastes from nuclear reactors has become a major concern in recent years."

Other concerns common to all power plants include noise, aesthetics, the problem of "drift," and impacts from transmission lines. The first are the obvious products of any large industrial facility. Drift is caused by evaporation of water from cooling towers, which transmits salt into the atmosphere. As the vapor travels downwind, salts fall out, and may enter groundwater systems or kill vegetation.

One of the primary envionmental impacts of overhead transmission and distribution lines is aesthetic. Towers, poles, and their associated cables are not pleasing sights to most people, especially in forests, across open waters, or through scenic areas. The extensive use of land, of course, also impacts resources and can cause soil erosion problems, among other things. Finally, high voltage lines are frequently deadly to wildlife, particularly birds. Also, very high voltage lines are considered by some scientists to be serious health hazards for humans living or working in their vicinity. The effects of very high voltage lines are currently under investigation by various organizations, including the Electric Power Research Institute.

The impacts of geothermal plants are unique in some respects. Although they use about the same amount of land as a coal plant, the land is used much less intensively. Further, noises at geothermal plants are not much above those found in relatively quiet residential neighborhoods. Still another advantage is that reinjection of the water into the earth does not appear to contaminate surface water.

Although geothermal facilities are threatened by blowouts, the major drawback is sulfur emissions. A 1000 megawatt plant emits approximately 110 tons of sulfur daily, much more than coal. The health and odor problems associated with sulfur are well known, but there is hope that technology can do more to reduce the sulfur emissions from geothermal facilities than it has with conventional power sources.

e. Power Plants in Delaware:

11. THE CMP PERMITS POWER PLANTS INLAND AND IN THE COASTAL STRIP PROVIDED THAT STATE AND LOCAL STANDARDS ARE MET.

Criteria used to determine the suitability of sites include: (1) applicable county and municipal plans and zoning; (2) the effect on neighboring land uses; (3) the number and type of public and private supporting facilities required and their impacts; (4) the economic effects; (5) the environmental impacts; and (6) aesthetic effects. Those criteria were applied to the Edgemoor and Indian River plant additions in recent years.

Many of the same siting regulatory considerations discussed in other parts of the CMP apply equally to power plants. Power plants are permitted only where compatible with the State environmental laws, although that policy will be reviewed carefully if and when the Congress relaxes air qualtiy standards for coal fueled power plants. Both air and water quality in Delaware are generally good, giving the utilities some alternatives in this small State. Wetlands may not be filled to construct power plants because there are better alternatives and because the resource is so valuable and limited; however, with State approval certain transmission facilities and associated activities are permissible under the Wetlands Regulations adopted pursuant to Title 7, Chapter 66, Delaware Code.

Existing electric generating facilities in Delaware are located at Edgemoor, Delaware City, Indian River, and Dover. The facilities provide slightly more electricity than the State is using, and the reserve capacity is more than in most states. No new plants are expected until 1989.

12. THE COASTAL MANAGEMENT PROGRAM RECOGNIZES THE NATIONAL INTEREST IN THE USE OF COAL FUELED POWER PLANTS AND ENCOURAGES THE SITING OF SUCH PLANTS OVER OTHERS WHEN AIR QUALITY STANDARDS CAN BE MET.

There are no nuclear or geothermal plants in Delaware and only the Indian River addition under construction is designed to run on coal exclusively. Under the Energy Supply and Environmental Coordination Act, the Federal Energy Administration has preliminarily ordered the Edgemoor Station to convert from oil to coal. The U.S. Environmental Protection Agency has completed its review and certified the plant for conversion with the installation of particulate controls.

13. THE COASTAL MANAGEMENT PROGRAM ALSO PERMITS NUCLEAR POWER GENERATION FACILITIES BUT RECOMMENDS ALTERNATIVE FUELS WHEN FEASIBLE BECAUSE OF SAFETY CONCERNS AND THE UNRESOLVED PROBLEMS OF NUCLEAR WASTE TRANSFER, STORAGE AND DISPOSAL.

The Summit facility had received local approval and partial State approval before its postponement. Final State approval will be contingent on a nuclear power plant fully complying with all State environmental quality and other State regulations including the requirements of Title 16, Chapter 74, Delaware Code, which relate to nuclear fuel transportation, temporary storage, and disposal of spent fuel. Also, plans for any nuclear power plant will be expected to include detailed descriptions of measures that will be taken by the utility to deactivate and dismantle the facility upon termination of power plant operations. The CMP recommends that a utility company desiring to construct a power plant (nuclear or conventional fuels) consult with the State's Energy Facility Siting Liaison Committee (described later in this section) early in the project development stages to identify and resolve potential regulatory issues and concerns.

7. Uranium Enrichment and Nuclear Fuel Processing Facilities:

The need for facilities for uranium enrichment and nuclear fuel processing result from the requirement of the nuclear fuel cycle. Uranium ore is the starting point of this cycle. After mining and milling (to remove impurities) the natural uranium ore is converted to uranium hexaflouride; it is then enriched in order to increase the proportion of the fissionable isotope uranium - 235 to about 3% (from less than 1%) for nuclear reactor fuel. After use in power plant nuclear reactors the spent fuel rods are temporarily stored at the plant site then transported either to a nuclear fuel reprocessing plant or (theoretically) to a permanent spent fuel storage facility. Theoretically, because for commercial reactor spent fuels there are no such permanent storage facilities as yet.

In the mid-1970's there were three uranium enrichment facilities in the United States in Tennessee, Kentucky and Ohio. At present, there appears to be no need for additional such facilities. Peak demand for enriched uranium is not expected until the 1980's. Even then no new facilities may be required if the plutonium breeder reactor program progresses to a point where it supplies a substantial part of nuclear fuel needs, eliminating the need for an equivalent amount of enriched uranium-235 fuel.

The Delaware coastal management program has not been able to identify any need or plans for uranium enrichment facilities in this State for the foreseeable future. If Delaware should, at some future time, be faced with a management decision on siting a uranium enrichment facility it will be a difficult decision. Enormous amounts of electric power are required for gas diffusion enrichment plants; for three existing plants use about 3% of all electric power annually produced in the United States. Such plants also are heavy users of water, requiring millions of gallons daily. Also, existing uranium enrichment facilities are heavy air polluters, discharging large amounts of carbon dioxide, sulfur dioxide, and particulates from use of low grade coal. Each uranium enrichment plant would cost billions of dollars and would entirely or largely financed from federal funds. Thus, the Federal government would have a very substantial financial as well as policy interest in the siting of a nuclear fuel enrichment plant.

Nuclear fuel reprocessing plants chemically obtain reusable plutonium and uranium from spent nuclear fuel rods obtained from nuclear reactors. The recovered plutonium and uranium then go to purification and to fuel fabrication facilities for re-use in the form of nuclear fuel rods (or in the form of nuclear bombs). Each large light water reactor (all current U.S. commercial nuclear power plants use light water reactors) produces 400 to 600 pounds of plutonium each year. This highly radioactive material can be reprocessed as outlined above.

However, present U.S. reprocessing facilities are limited and raise many serious problems. One such plant in upper New York State (West Valley) experienced a variety of serious problems, was a financial loss, and was abandoned by the operating company; an attempt to re-open the plant was refused by State officals due to unsolved problems including unsafe uranium-plutonium storage. A reprocessing plant at Morris, Illinois experienced a variety of serious operating problems causing numerous shutdowns. A large new reprocessing plant built by the Federal government near Barnwell, South Carolina has not yet gone into full commercial operation. The Barnwell plant will receive over 500 railroad shipments of spent nuclear fuel per year, some from as far away as the Pacific Coast. It will store the radioactive spent fuels

from 50 nuclear reactor plants per year in underground tanks. A catastrophe such as an earthquake, tornado, or sabotage causing only one percent of this stored spent nuclear fuel to escape could cause damages of over $10 billion plus permanent (thousands of years) radioactive poisoning of over 33,000 square miles of land. It is interesting to note that Nulcear Regulatory Commission regulations on siting nuclear power plants in earthquake zones do not apply to nuclear fuel reprocessing plants.

Any need or future prospects for a nuclear fuel reprocessing plant in Delaware is unknown to the coastal management program. The national need for new reprocessing facilities appears to depend on the availability of high grade uranium ore at a reasonable price and the political fate of the fast breeder reactor program. If high grade uranium ore becomes less available even at very high prices and the breeder reactor program does not go forward or meets with serious technological difficulties, there will be a demand for new spent fuel reprocessing facilities. This assumes that future national energy policy continues its present commitment to increased use of nuclear energy, it is a very "iffy" situation

The uncertainties of the issue of siting uranium enrichment or nuclear fuel reprocessing facilities in Delaware make it impossible to say anything more than that CMP policy is to examine siting of such facilities on a case-by-case basis. The national interest in these facilities is recognized, and the Delaware Energy Facility Siting Liaison Committee will assist in the siting decision if necessary. However, all applicable State and local environmental, health, and safety laws and regulations will be strictly enforced and the national necessity to site such facilities in Delaware will have to be clearly and conclusively stated. In particular, the storage of radioactive waste material will be regulated by Title 16, Chapter 74 of the Delaware Code, Section 7417, which requires that:

> 1) no spent nuclear fuel elements or radioactive waste material originating outside of Delaware can be stored in this State; 2) radioactive waste material originating in Delaware can be temporarily stored in this State for no longer than five years; and 3) approval by the Authority on Radiation Protection will be required for any facility in Delaware for the deposit, storage, reprocessing, or disposal of spent nuclear fuel elements or high level radioactive waste material.

REVIEW AND AMENDMENT OF ENERGY POLICIES

The national regional, State, and local interests in energy facilities may change for many reasons. The CMP will, therefore, employ several measures to ensure that the energy policies remain relevant to changing circumstances. Nearly all of these are

designed to review the soundness of the policies. In the event that such review indicates that a policy is no longer tenable, means are provided for amending it.

Many parts of the document, including the following subsection, describe the program's public participation process. That participation will continue during the program approval and implementation stages, and will play an important part in program policy formulation. It is anticipated that the energy policies will receive a substantial amount of public attention because they are usually more restrictive than those of other policies. OMBP (the designated lead agency for coastal management), of course, plans to evaluate any and all comments received on the energy policies carefully. Three sources of input will be especially important. First, federal agencies representing energy development interests and resource preservation interests will have an opportunity to express their views on energy facility siting. All federal commenters will receive written responses which demonstrate deliberation of pertinent energy facility siting concerns raised by the agencies. Federal participation should be particularly useful in the periodic program review of the national interest in facilities and resources described in section 5.E. of the document. Among other things, that review will evaluate the policies on energy facilities from the national, regional, State, and local perspectives. The analysis in Working Paper No. 7 will be reviewed to ascertain its continued applicability, if any. Federal comments addressing such applicability will be weighed.

A second important source of input in the review of the energy policies will be the Energy Facilities Siting Liaison Committee. That Committee consists mostly of Cabinet-level officials, including the Director of OMBP, who are responsible for implementing the program policies. The Committee advises the Governor, the General Assembly and OMBP on energy facility siting issues. It also considers facility siting proposals from public or private organizations, one recent example was an offshore deepwater oil terminal. Although such organizations are welcome to meet with OMBP directly, they are encouraged to contact the Committee if they have proposals. The Committee is a State policy making group, capable of initiating modification on the CMP with respect to policies on energy facility siting. In that regard the Delaware Energy Act of 1978 requires the Committee to propose regulatory and legislative remedies to energy facility siting problems. This is not intended to suggest that the Committee will necessarily seek legislative action sought by a private organization. However, any party seeking permission to locate an energy facility in Delaware is encouraged to seek the advice of the Committee regarding options, statutory and other limitations, and possibilities for favorable State consideration.

If it is determined that any of the energy policies require modification, the CMP provides a procedure for altering them. Significant policy changes will require a formal amendment to the program, with all the opportunities for public participation provided by that process. Further, such policy changes in all likelihood will entail legislative action, which will foster additional public input.

Significant energy facility siting policies include those discussed previously in this section, and related to whether specified new facilities are prohibited within certain coastal areas. Any policy change which expressly prohibits facilities which are now permitted or which expressly permits facilities presently forbidden will normally require a formal amendment of the CMP. For the most part, such policy changes will be easily identified because a statutory or regulatory amendment will be needed to implement the change. For example, if the policy prohibiting deepwater oil terminals in the Delaware Bay were reversed, an amendment to the Delaware Coastal Zone Act would be required. In some cases, however, a change in regulations will suffice to require a change to an energy policy. For instance, a modification of the regulations which implement the Wetlands Act could be enough to allow previously prohibited facilities on wetlands. In either case the federal Office of Coastal Zone Management would be consulted relative to a formal program amendment.

Other program policies may affect energy facility siting, even if not expressly. Some of these "minor" policies are discussed below in subsection E., entitled "Site Suitability Analysis." Local zoning ordinances and air quality regulations are examples of authorities used to implement such policies. The modification of these policies will not normally require a formal amendment to the CMP. It will, however, be reviewed by OMBP to ensure that consideration is given to the national, regional, State, and local interest in energy facility and resource preservation needs. Moreover, the public--including interested federal agencies--will be notified of the proposed change and will be afforded an opportunity to express its views prior to any policy change.

COORDINATION

The CMP includes a process for coordination between State, federal, local and interstate agencies, as well as private industry, involved in energy facility planning or siting. That process includes procedures for: (1) assessing supply/demand projections; (2) allocating facilities to coastal or inland locations; (3) identifying possible coastal impacts; and (4) determining site suitability of alternative locations for particular facilities.

5.D.3.

Pursuant to the Delaware Energy Act of 1978, it is State policy

> "To cooperate with and assist departments and other agencies or instrumentalities of federal, state, and local government, as well as regional, metropolitan, county, municipal or other local or private agencies in the development, implementation and coordination of energy policies and programs."

The Energy Office, the Energy Facility Siting Liaison Committee, and OMBP share the responsibility for implementing that policy.

The Energy Office acts as a repository and clearinghouse for energy information relevant to the State. It also prepares an annual State energy supply and demand forecast. Most importantly, the Delaware Energy Act authorizes the Energy Office to:

> "act as the lead planning agency to represent the State before the federal government, local governments, other state and local governments, regional or inter-state agencies, and other appropriate public agencies in all energy and energy resources matters."

To be specific, the Act gives the Energy Office the responsibility for carrying out "energy related administrative and program functions and activities established by Federal law..." and delegated to the State and its political subdivisions. Such programs, of course, include preparation and implementation of the Delaware Energy Conservation Plan which provides for inter-governmental coordination between local, State, and federal energy conservation programs. Although it is too early to determine what procedures the Energy Office will use to carry out its responsibilities, it is obvious that the Office will coordinate State energy policies, particularly with the federal energy agencies, prepare assessments of energy supply demand projections, and provide for public information, review and input into the development of energy policies and recommendations.

The Energy Facilities Siting Liaison Committee will coordinate State programs which may affect energy facility siting decisions. Members of the Committee include the Director of the Energy Office; the Secretary of the Department of Natural Resources and Environmental Control; the Director of the Office of Management, Budget, and Planning; the State Geologist; the

Secretary of the Department of Community Affairs and Economic Development; and the Chairman of the Public Service Commission. The Committee meets about once a month. Its responsibilities include the following: review of energy facility siting proposals or inquiries presented to the Committee or any of its members by representatives of the federal government, other states, or industry; evaluation of potential coastal impacts from proposed energy facilities; and formulation of long-term plans for energy facility siting in the State. These last two functions include determining the site suitability of alternative locations for particular facilities, as well as allocating facilities to coastal or inland locations.

The Director of OMBP, of course, serves on the Committee and coordinates program policy with other committee members. Executive Order No. 60 requires OMBP to monitor the management of the State's coastal resources by State agencies and local governments. It also requires all State agencies to cooperate to the extent possible with OMBP. Moreover, Executive Order No. 61 requires all State agencies to enforce the goals, policies, and objectives of the CMP. In addition, Executive Order No. 61 requires that OMBP be notified of all proposed changes in State rules or regulations which interfere with the enforcement of CMP policies.

OMBP will keep abreast of actions by local government which may influence energy facility siting actions by virtue of the Delaware Land Use Planning Act. The Act requires that, before any local unit of government takes a land use planning action having a significant impact upon more than one local jurisdiction, it must notify the Office of Management, Budget, and Planning. The Office of Management, Budget, and Planning then notifies all State agencies and interested regional and federal agencies of the proposed action. The local jurisdiction must hold a hearing prior to the action, if the Office of Management, Budget, and Planning so requests, and must in any event delay its decision until all parties have had an opportunity to express their views.

The Delaware Geological Survey monitors federal and industrial activities related to OCS development for the CMP. Federal regulations require that industries, which explore or develop OCS tracts, to notify the affected states of where their activities will take place, what onshore facilities they plan to use for support purposes, and possible environmental impacts. In addition,

federal agencies--most notably the U.S. Department of the Interior--supply coastal states with information about their operations, such as tract nominations and selections, lease stipulations, development plan approval, and so on. With a grant from the CMP, the Delaware Geological Survey receives and evaluates this information, and furnishes OMBP with monthly written reports on OCS developments. The State Geologist also keeps other members of the Energy Facility Siting Liaison Committee informed at their meetings.

Another member of the Committee, the Secretary of the Department of Natural Resources and Environmental Control (DNREC) represents the State on the Mid-Atlantic Regional OCS Advisory Board and the National OCS Advisory Board. The former--comprised of representatives from Delaware, Pennsylvania, Maryland, Virginia, North Carolina, New Jersey, and New York--is a component of the latter. It was established in October 1975 to provide liaison on OCS policy matters among the coastal states, federal agencies, and private organizations.

Still another OCS development coordinative mechanism is furnished by the National Environmental Policy Act's environmental impact statement (EIS). The EIS is prepared by the U.S. Department of the Interior for OCS leases and will also be prepared for some OCS development plans. Among other things, the EIS explains what activities will take place on the shelf and onshore, where they will take place, what the environmental impacts are likely to be, and what the alternatives are. Inasmuch as development plans must include detailed information on what onshore support facilities will be used, how the oil or gas will be transported, and so forth, the EIS will be an important source of information to the coastal states. The EIS process provides all interested parties an opportunity to voice objections or otherwise inform the federal agency how they or their energy facility siting plans may be affected.

Finally, DNREC regulations which apply to the use of public subaqueous lands will serve to coordinate the review of any OCS pipelines or offshore oil or gas platforms in Delaware waters. The regulations require prior to DNREC approval of such projects that there be

> "review by the appropriate State and Federal agencies having jurisdiction or interest in matters pertaining to water pollution, public health, fish and wildlife, planning, geology, or navigation. Conditions imposed upon the applicant in the approval certificate shall reflect the comments of such agencies..."

Federal agencies, of course, coordinate with DNREC on other permit decisions of that agency which may affect energy facility siting. In addition, federal agencies coordinate with the State

agencies through other planning programs which are related to the CMP. The HUD land use planning program is one example.

Finally, the CMP uses the federal consistency provisions of the CZMA and the "A-95 review process" to invite further federal participation and coordination. An appendix dealing with federal consistency provisions, and section 5.E. of this document, discuss these and other coordinative procedures , including regional coordination. The most important energy-related regional coordinative mechanisms are the Mid-Atlantic OCS Advisory Board,described earlier the Mid-Atlantic Governors Coastal Resources Council (Section 5.E.) and the PJM power pool (Section 5.D.3.).

SITE SUITABILITY ANALYSIS

The CMP procedure for assessing the suitability of specific sites for energy facilities adopts one of the approaches suggested by the federal regulations which implement the Coastal Zone Management Act. This approach excludes particular types of facilities in selected coastal zone locations and establishes performance standards which energy facilities must meet in those coastal zone locations where they are permitted.

The exclusion of facilities in particular locations is based on anticipated adverse environmental impact to sensitive and important resources. Working Paper No. 7 provides the details of the CMP analysis which led to exclusion. Coastal locations were determined unsuitable for certain energy facilities only after weighing the need for the facilities and the interest in preserving resources which the facility may adversely impact. The national interest in the facility and resource preservation was evaluated with the help of federal agencies and others. Subsection C. and Section 5.E. explain how the policies excluding particular energy facilities from specific coastal locations will be reviewed periodically to assure that the program continues to balance the need for energy facilities with the need for resource preservation, and to consider the national interest in energy facility siting and conservation.

For those areas where particular energy facilities are not excluded--generally everywhere except the coastal strip and wetlands--the process used to anticipate and manage the impacts of energy facilities is a combination of permit application procedures. Permits are required for the construction of energy facilities everywhere in the State, and are not issued unless specified standards can be attained. For the most part these standards appear in the regulations which implement State environmental laws. The CMP has reviewed these laws and regulations--

and in some cases initiated changes to them--to ensure that they balance the need for energy facilities and resource preservation.

A report prepared for the State Planning Office (now OMBP), entitled Delaware and Outer Continental Shelf Development: Roles and Systems at Various Levels of Government, explains in detail what energy activities are regulated by State and local government, and the criteria and procedures used to procure permission to construct energy production or transportation facilities. Following Page 17 of Appendix E is an excerpt from the report and illustrates how transportation facilities for oil and gas are regulated in a manner which will anticipate and manage their impacts.

Facilities which discharge air or water contaminants, such as power plants, have to meet standards established by DNREC regulations. These standards, as well as others which implement the Beach Preservation Act, Underwater Lands Act, Wetlands Act, Erosion and Sediment Control Act, and other State statutes, specify the locational conditions that would either constrain or lead to the siting of particular facilities in specific locations. They also give the CMP the ability to evaluate the suitability of alternative sites. For example, DNREC's air quality regulations set limits on the permissible concentration of sulfur dioxide in any region of the State. These limitations would be used to evaluate the suitability of specific sites for a proposed oil refinery once the anticipated sulfur dioxide emissions of the refinery and the quantity of sulfur dioxide at the proposed sites were determined. If the standards established by the regulations could be met, the air emission permit would be issued. The permit decision is predictable because the standards are pre-established; emissions from a proposed facility are predictable, based on an evaluation of the equipment used to control emissions; and the air quality at the sites under consideration can be measured.

The predictability of local zoning decisions, of course, is not so easily assured. The CMP recognizes that energy facilities can result in significant impacts on local communities; in many cases it can completely change their character. For that reason and others explained in Working Paper No. 7, the program delegates substantial energy facility siting authority to local units of government. The program does not attempt to impose energy facilities on communities that do not want them, but it does require political subdivisions of the State to consider the national, regional and State need for facilities in their decision-making processes. Appendix E. discusses this requirement in detail.

5.D.3.

There is, of course, a good deal of predictability inherent in local zoning processes. It is unlikely, for instance, that a county would re-zone an area already zoned for industrial use if the area is partially developed of if the rationale for the original zoning scheme still exists--which is probable.

There is no doubt that the CMP procedure for analyzing the suitability of sites for energy facilities leaves much to be desired from the perspective of the developer. During program development, more than one representative of energy industries asked for CMP policies which would clearly identify specific sites as acceptable by State and local officials for particular energy facilities.

The CMP does not designate specific sites for energy facilities for several reasons, all of which underscore the complexity of most energy facility siting decisions. The procedures used by the program to determine the suitability of specific sites for energy facilities allow the flexibility which is necessary to respond to changing needs and attitudes. For example, a community which opposes an oil refinery today may want it in the future. The CMP will always be influenced by the opinions of local zoning authorities. This would be difficult to do if sites were designated in advance of their need. Further, it is difficult for communities to give consideration to hypothetical facilities. The CMP affirms the right of those citizens of Delaware who will be most impacted by the siting of energy facilities to weigh the advantages and disadvantages of such siting, and to determine the desirability of the facility based on that consideration.

Likewise, the often time-consuming procedures for obtaining permits required for the siting and operation of energy facilities serve an important function. They allow for the participation of interested parties, while guaranteeing that resource preservation measures will be followed. Even if sites could be designated in advance of need for particular facilities, the same analysis of the construction design, effluent treatment, and so on, would have to precede construction and operation of the facility. Thus the time saved by the designation of the sites for particular facilities would not be as great as might be imagined. Moreover, the diversity of facilities, the different possible configurations of each facility, and technological change indicate adoption of a siting procedure which responds to specific proposals, rather than anticipation of all types of proposals.

5.D.3.

Finally, the designation of sites in advance would greatly reduce the number of sites available to industry. In some cases undesignated sites might be the most desirable ones from industry's viewpoint. The CMP siting procedures afford industry an opportunity to convince the appropriate decision-makers of the suitability of most, not a few, locations in the State.

To assist industry to find its way through the regulatory procedures which comprise the energy facility siting process, the Energy Facilities Siting Liaison Committee is compiling all federal, State, and local statutes, regulations and permit requirements which affect the site selection, construction and operation of energy facilities in Delaware. This inventory, when completed, will be used to eliminate duplication and outline the steps which must be followed in order to comply with the federal, State and local requirements. Most of the State and local requiements can be found in the State Planning Office report referenced above and the program document. Detailed information is presented in the State and local regulations, too lengthy to reproduce herein, but referenced in the State Planning Office report and Appendix E.

AUTHORITIES TABLE

Policy Number	Authority
1	7 Delaware Code 7001 and 7003
3	7 Delaware Code 7001 and 7003
6	7 Delaware Code, Chapter 60, Chapter 61, Chapter 69, and Chapter 70.
7	7 Delaware Code 7001, 7002(f) and 7003
9	7 Delaware Code 7001,7002(e) and 7003
11	7 Delaware Code 7002(e), 7004 and appeal to CZA Case No.4
12	7 Delaware Code, Chapter 60 (Section 6003)
13	16 Delaware Code, 7414 and A.G. opinion dated April 3, 1974

5.D.3.

Selected References: Energy Facilities

1. Accommodating National Energy Needs in Coastal Zone Management Planning, Federal Power Commission, Washington, DC 1974

2. A Perspective on the Energy Future of the Northeast United States, Brookhaven National Laboratory, National Center for Analysis of Energy Systems, Upton, New York, June 1976

3. Delaware and Outer Continental Shelf Development: Rules and Systems at Various Levels of Government, Delaware State Planning Office (OMBP), Dover, June 1976

4. Coastal Facility Guidelines, U.S. Department of Commerce, Office of Coastal Zone Management, Washington, DC, August 1976

5. Coastal Effect of Offshore Energy Systems, U.S. Office of Technology Assessment, Washington, DC, April 1976

6. Energy Facility Siting in Coastal Areas, National Oceans Policy Study, prepared at the request of Congress, December 1975

7. Energy, Oil and the State of Delaware, Delaware Bay Oil Transport Committee, 1973, published by the College of Marine Studies, University of Delaware, Newark

8. Factbook: Onshore Facilities Related to Offshore Oil and Gas Development, New England River Basin Commission, Boston, Mass., November 1976

9. Identification and Analysis of Mid-Atlantic Onshore OCS Impacts, Resource Planning Associates, Inc., Cambridge, Mass. 1976

10. National Energy Outlook: 1976 Executive Summary, Federal Energy Administration, Washington, DC, 1976

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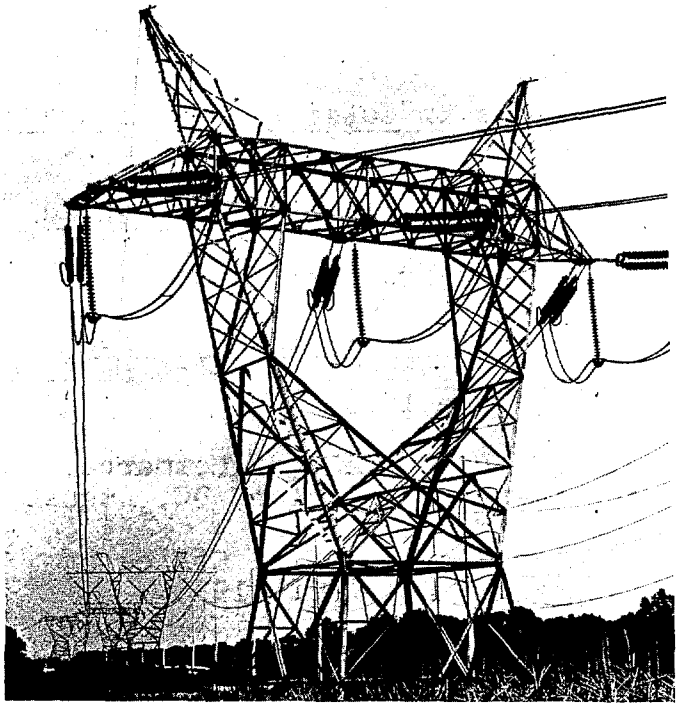
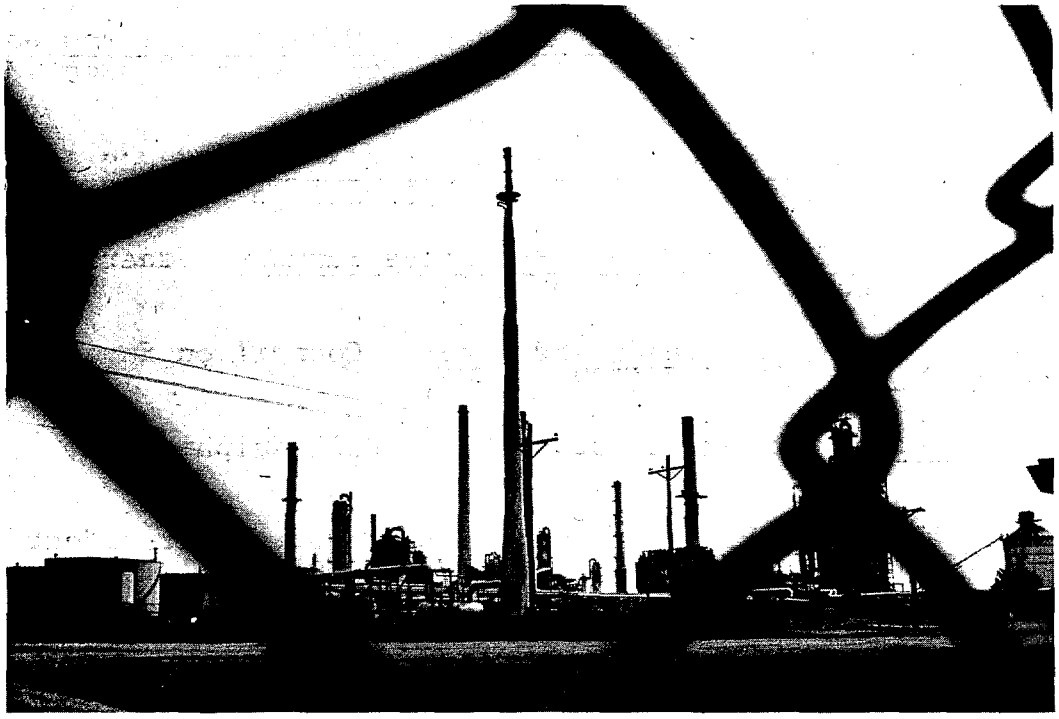
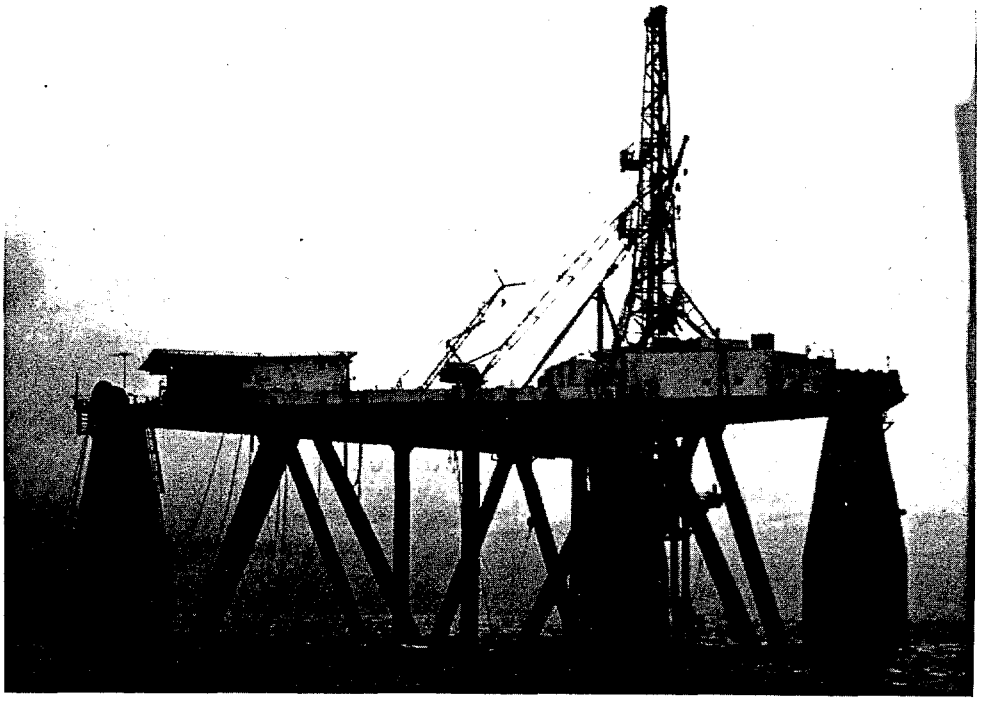
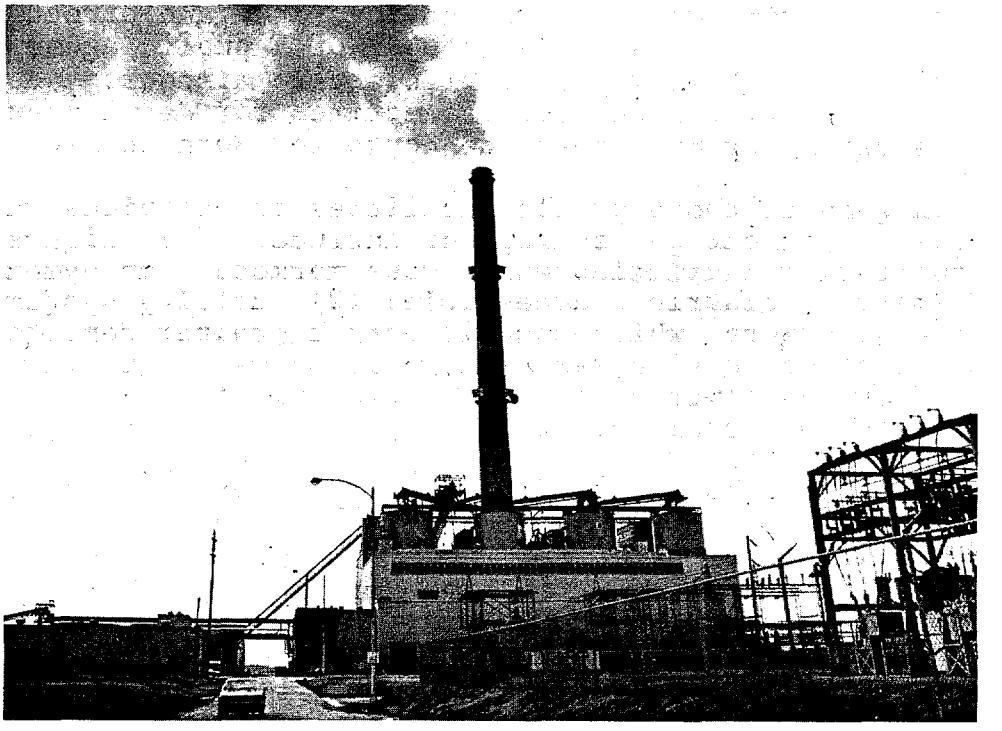
13. The National Energy Plan, Executive Office of the President, Energy Policy and Planning, Washington, DC, April 1977









PUBLIC INVESTMENT CONSIDERATIONS

SIGNIFICANCE AND VALUE

The selection of areas where development will occur is frequently influenced by the availability of public services and facilities. This portion of the program document addresses an important element in management of Delaware's land and water resources, i.e., the policies relating to planning, construction, and maintenance of public capital investments which have a significant impact on economic and population growth. It deals with public facilities such as transportation and utility systems, as well as those investments which are directly related to coastal issues, such as beach erosion control works.

It should be understood that the provision of one or even many public services and facilities may not directly influence development since market demand, the availability of construction or mortgage funds, and the general condition of the economy determine whether development will take place. Nevertheless, properly designed and timed public facilities can encourage clustered development instead of sprawl. The timing and sizing of public facilities can either encourage or discourage development. The extension of certain services, such as sewers, into one area but not into another may allow a developer a greater density of development in the serviced area and direct his project to that area. Likewise, the refusal of a public agency to provide a service in an area may be sufficient to discourage development, in particular if the service is required for development to occur and the developer must bear the costs for such service.

In general those public facilities and services which tend to guide or encourage development include: (1) highways and other transportation facilities which make markets, employment centers, or commercial districts accessible; (2) utility systems, in particular sewers, which usually permit greater densities, and may offset certain on-site waste disposal or water quality problems that otherwise limit or preclude development; (3) public recreation areas, such as local parks, which may increase the attractiveness of an area for residential development; and (4) public institutions, in particular schools, which add to the appeal of an area.

Because Delaware is a small state, the role of State government in public finance in constrast to county or local government, has always been substantial. In recent years the State government has assumed an increasing share of the cost of public services and now days most of the cost of social welfare, public health, transportation, public recreation, public safety, and criminal justice

services and facilities. The State shares responsibility for public education with local school districts on a 60%/40% basis (60% State) while assuming the entire burden of the public contribution to higher education (private support comes to the State's three higher education institutions, but political subdivisions of the State usually have not contributed local revenues to the construction or operation of these facilities).

The State operates a system of parks, forests and wildlife areas which constitutes 70% of the non-federal public lands in Delaware. The most heavily used are the State owned Atlantic Ocean beaches which are maintained by user fees and State operating and capital improvement monies.

Public housing for the elderly and low income families is an increasing State responsibility even though Wilmington, Newark, Dover and several other municipalities, as well as New Castle County, have their own housing authorities. Likewise, the acquisition and maintenance of historic and cultural sites is largely a State responsibility although private philanthropic interests have a role in this area.

PUBLIC INVESTMENT MANAGEMENT CONCERNS

Because public capital facilities have both direct and derived impacts consideration must be given to ways in which State supported infrastructure can be used to aid management of the State's resources. There are some obvious questions of equity (e.g., will State dollars be used to support local projects?), and financial practice (e.g., will capital improvement bonds be used to match the expected life of capital projects?), but particular issues need to be addressed in each of the categories of capital improvements. They are discussed below.

A. Land Acquisition and Development

As discussed earlier, the State acquires land through the Department of Natural Resources and Environmental Control (public parks, fish and wildlife areas); the Department of Agriculture (state forests); the Department of State (historic sites); the Department of Public Instruction and the three higher education institutions (public areas associated with schools and colleges); and other agencies. Most of these properties are used for recreation and conservation purposes. The issues in public land acquisition and development are essentially:

(1) How much land should be acquired and where?

(2) How will existing and future land holdings be developed for public recreation?

Land acquisition (or management under long term lease hold) may present problems of siting, terms of sale, grandfather rights to existing owners/tenants (if any), restrictive convenants on future use, and responsibility for continued management (whether by a public agency or under contract to private concessioners) particularly where parcels are small, scattered, inaccessible, or oddly shaped.

Development of existing or future land holdings may present problems of visitor density, seasonal usage, maintenance, State participation in education/recreation programs, ancillary support facilities (accommodations, security, etc.) and policies relating to admission charges for different user groups.

B. Sewer Construction

With funding from the Department of Housing and Urban Development and, more recently, the Environmental Protection Agency (EPA), the State of Delaware and its local governments have embarked upon an ambitious program to clean up the State's waterways through the provision of public sewage systems.

Experience with this program over the last decade or so, however, has uncovered some serious problems. The problems center around three basic concerns regarding the location and magnitude of sewage systems that, heretofore, have not been adequately considered in the decision making process. These problems are:

(1) The use of long-range economic and population projections (in some cases up to 50 years into the future) to size and lay out facilities;

(2) The induced scattering of new development with its concommitant effects on the cost of public services and other environmental factors; and

(3) The cost to individual users and owners of vacant land in the service district should the projections turn out to be overly optimistic.

Fundamental to the existence of these problems has been the rapid progress of 201 (facilities) planning which has undercut the effectiveness of 208 (areawide water quality management) planning.

Another problem which impacts on sewer construction is the proliferation of septic systems throughout the State as well as a number of improperly managed "packaged" treatment plants. When these fail, the solution is all too often to replace them with expensive sewer systems. The 208 planning processes now being conducted throughout the State are examining this highly complex problem. It is hoped that a cost effective solution to septic systems and package treatment plants can be found which may offer a compromise to the construction of expensive sewer systems.

C. Solid Waste Disposal

Closely allied with the liquid waste issue is the problem of solid waste. Solid waste disposal has become a problem in densely populated areas where proximity to residential areas and the threat of aquifer contamination make traditional land fill operations difficult and expensive.

D. Highway Construction

Improved roadways into existing or future areas of residential, commercial and recreational development bring with them the problems of traffic density, limited vs. unlimited highway access, roads abutting critical areas, and means of financing them (toll vs. free). Perhaps as much or more than sewers do, unplanned roads bring with them unforeseen and often undesirable side effects.

At issue too is the emphasis placed upon upgrading and maintaining existing roadways, in contrast to the acquisition of land for new road alignments. Much of the existing Delaware road system is not now eligible for federal support (by virtue of a limited supply of federal dollars for rural, low density roads), and State funds for new highway programs are limited. Hence, amount of development which takes place will undoubtedly depend upon proper maintenance of existing highways as opposed to construction of new ones.

The nature of 208 planning is to provide a comprehensive framework upon which the more specific, hardware oriented facilities (201) planning can be developed. Unfortunately, in Delaware, as is the case throughout the country, 201 planning has preceded 208 planning. Congress originally intended 208 to guide 201 planning, not the reverse.

Another factor that some feel contributes to the problem of overextention of sewerage facilities is the cost share formula for such programs.

Sewerage interceptors and treatment facilities are constructed by local governments, although their cost is heavily subsidized by the Federal government (75 percent) and State government (10 percent). Thus, the risk exists that this 85 percent subsidization may tend to preclude local incentive to control costs and to opt for facilities with capacities in excess of reasonable needs.

The proportion of excess capacity in some recently constructed or planned sewer systems in Delaware is significantly greater than presently required capacity. There are several reasons for this. One reason is that engineering consultants and public works officials hold to the assumption that it is better to build all of the interceptors at once for maximum capacity. This assumption is based upon their experience with constantly escalating construction costs as well as the availability of 85 percent funding.

A major difficulty, of course, is anticipating what future populations will exist in the sewer service area and what land use patterns and policies will be.

On the one hand, it may be economically prudent to build now for future needs rather than to wait. Constantly escalating construction costs as well as the currently available 85 percent subsidization are major reasons for the "build now" theory.

On the other hand if future populations fail to materialize, the result is an uneconomical expenditure of capital funds and an undue fiscal burden on the existing population.

Hopefully, the 208 process along with improved local land use planning and population projection techniques will mitigate future problems of this nature.

E. Other State Facilities

For purposes of discussion State supported facilities will include all State administrative buildings, institutions, schools and colleges, and State supported public housing. At issue here are several questions:

(1) Demand for new facilities;

(2) Location of new facilities;

(3) Desired mix of public/private facility development and service delivery.

These facilities may directly influence the type and pattern of development either by making an area more or less attractive for residential or other uses. For example, schools generally have a positive influence on residential development patterns while prisons have a negative impact. The timing of facilities in particular, where demands exceed the ability of government to finance them, frequently affects both the pattern and progression of development. In some cases the lack of facilities serves as a temporary brake on development of areas which cannot be immediately served.

Moreover, State facilities compete for land with the private sector. Because much of the planning and financial arrangements for such facilities are public decisions made over an extended period, the mere announcement of a new facility location often results in the escalation of land values. In some cases competitive uses preempt the desired site since private financing and development decisions can frequently be made more quickly.

GENERAL CMP PUBLIC INVESTMENT POLICIES

Many of the following policies deal with public investment concerns which are broader than the scope of Cosatal Management Programs. Nevertheless, they are included in order to show how facility investment policies relate to the State's overall resource management strategy. It must be recognized that investment (or more properly public finance) policies promulgated by the Executive Branch are subject to amendment by legislative action. To the extent these policies are not constrained by legislative determinations, State agencies are required to comply with the stated policies pursuant to Executive Order 61.

5.D.4.

A. Public Investment Generally

1. NEW STATE GENERAL OBLIGATION BOND AUTHORIZATIONS SHALL NOT EXCEED SEVENTY-FIVE PERCENT (75%) OF THE PREVIOUS FISCAL YEAR'S REPAYMENT OF PRINCIPAL.

This formula was established by law in 1976 (Volume 60, Chapter 709, Delaware Code) and effectively limits State capital expenditures for the next seven years as shown below:

FY 1980 (July 1979 - June 1980)	$32.4 million
FY 1981 (July 1980 - June 1981)	$33.2 million
FY 1982 (July 1981 - June 1982)	$33.6 million
FY 1983 (July 1982 - June 1983)	$35.7 million
FY 1984 (July 1983 - June 1984)	$35.2 million
FY 1985 (July 1984 - June 1985)	$35.4 million
FY 1986 (July 1985 - June 1986)	$35.6 million

The practical impact of this policy will be to severely limit construction far below the previous 7 years' average of $56.4 million in new authorizations. Long-term maintenance of existing structures and transportation systems, prison construction, upgrading of deteriorating state buildings, and economically necessary energy conservation improvements will be the highest priority projects in the foreseeable future.

The administration has taken a position opposing any change in this statute, and has made commitments to the State's investment bankers to build at a rate which will limit long-term borrowing and gradually reduce the percentage of the State's general fund budget devoted to debt service. The Governor's Capital Management Plan administered by the Office of Managemnet, Budget, and Planning is committed to achieving these goals.

2. THE FEDERAL REVENUE SHARING FUND SHOULD BE USED TO ACCELERATE THE RETIREMENT OF THE UNFUNDED LIABILITY OF THE STATE PENSION PLAN.

Withholding this money from other State programs will tend to slow the growth in government, and State-supported or induced development.

B. Land Acquisition and Development

3. PARTLY AS A RESULT OF COMPETITION FOR SCARCE CAPITAL, ADDITIONAL LARGE LAND ACQUISITIONS BY STATE AGENCIES ARE DISCOURAGED. FUNDING PRIORITY WILL BE GIVEN TO ACQUISITION OF INHOLDINGS NATURAL AREAS, PUBLIC ACCESS SITES OR OTHER TRACTS OF PARTICULAR VALUE. ACQUISITION BY DONATION, EXCHANGE OR OTHER NON-CASH METHODS IS ENCOURAGED.

5.D.4.

Unused land acquisition funds from prior capital authorizations were recently cancelled and new capital authorizations (FY 1978 and FY 1979) contain only limited acquisition money. This policy is contrary to the large land acquisition programs during the early 1970's, and conflicts to some extent with recreation, tourism, and other policies. However it is not intended that all land purchases cease. For example, an unusual opportunity arose recently to acquire 3903 acres of Delaware Wildlands property, valued at $3.5 million, at a cost to the State of only $570,000. Approval for this acquisition was granted by the Delaware General Assembly. Unusual conditions may exist when special purpose federal grant allocations become available to the State for acquisition purposes. Acquisition of areas for protection as nature preserves and as locations for public access to coastal waters and beaches are encouraged.

Deviations from this policy may also occur when small parcels within existing parks are offered for sale, but these purchases should be undertaken only to complete the parks.

An important consideration regarding land acquisitions is the attendant cost of annual upkeep. An intergovernmental task force established by the Governor (Executive Order No. 23) has drafted a preliminary report, which acknowledges growing maintenance costs, and has called for cessation of additional park acquisition. The State is making the Land and Water Conservation Fund available to county and local governments. The State plans to use this fund at the State level only for those acquisition and development projects that either protect the integrity of State facilities or meet heavy use demands. Particular emphasis will be placed on the maintenance of developed areas and the protection of State owned lands and resources from deterioration. It is clear that construction of new facilities is a poor practice when present facilities cannot be properly maintained. This policy has been incorporated in both the FY 1978 and FY 1979 capital budgets.

Likewise, the Secretary of Agriculture has stated that the State's existing forest land is adequate for the foreseeable future (except for acquisition of access roads and inholdings) and the Secretary of State has opposed the acquisition of any additional museums. The Governor in his State of the State message of January 18, 1978 emphasized the need to capitalize on existing recreational and tourist attractions away from the popular Atlantic beach areas. (See also Section 5.D.5. Recreation and Tourism).

Private conservation of land will be encouraged by legislation recently enacted by the General Assembly (Senate Bill 222, Natural Areas) Which is designed to give private owners an added incentive to register land for protection against future development. These areas will become part of the State's open space system and selected sites could be acquired for nature preserves.

C. Sewer Construction

4. COMPLETION AND IMPLEMENTATION OF WATER QUALITY MANAGEMENT PROGRAMS STATEWIDE (PURSUANT TO SECTION 208 OF WATER POLLUTION CONTROL ACT) ARE ENCOURAGED IN ORDER TO SOLVE POINT AND NON-POINT SOURCE POLLUTION PROBLEMS.

5. EXPENDITURES FOR CONSTRUCTION OF SEWAGE TREATMENT AND TRANSMISSION FACILITIES SHOULD BE BASED ON CAREFUL ANALYSIS OF ALTERNATIVES, CONSIDERATION OF THE IMPACTS ON GROWTH PATTERNS WITH PARTICULAR CONSIDERATION GIVEN TO THE RISKS OF OVER-EXTENSION AND OVER-DESIGN, AND AN UNDERSTANDING OF THE LAW OF DIMINISHING RETURNS RELATED TO THE NET IMPROVEMENT OF WATER QUALITY FROM ADDITIONAL CAPITAL EXPENDITURES.

Many of the problems associated with the design and construction of sewerage systems are being addressed through the New Castle and statewide water quality management (208) programs. Jointly sponsored studies of rural wastewater problems and of recent shellfish closures in the inland bays are being developed with CMP and 208 staff and financial assistance. Overlapping memberships on technical and policy committees, coordinated project and permit reviews, and informal participation in the development of work programs and grant applications are also being used (and will continue to be used) to ensure close CMP-208 interaction. Given these efforts, the CMP incorporates the following criteria and will work with the 208 agencies to see that they are included in sewer facility planning:

(1) Adhere strictly to EPA guidelines which discourage the construction of "growth" sewers;

(2) Continue to insist on a 15% local contribution to the cost of a project;

(3) Encourage the establishment of urban service areas as part of the planning and land development process undertaken at the local level;

(4) Expand the program of training and licensing treatment plant operators;

(5) Improve the regulatory process relating to the conduct of percolation tests, the issuance of permits for septic systems, and the qualifications of permit-issuing personnel;

(6) Use statistical methods approved by the Bureau of the Census and the Delaware Population Consortium for predicting population

growth, and check these predictions against actual population growth to improve predictive methods. These estimates and assessments must be prepared for sufficiently small areas so that overcapacity and overdesign issues are readily identified; and

(7) Recognize the relationship among the law of diminishing returns, water quality objectives, and State bonded indebtedness. The extension of sewers to outlying subdivisions as well as designed excess capacity provide a very small improvement in water quality in relation to the capital investment involved. Recognition of the fiscal impracticability of providing zero pollutant discharge by 1985, as sought by the EPA, is essential (i.e. a certain amount of pollution will have to be tolerated). It is common for sewer extensions to outlying developments to cost $10,000 and up per household. New Castle County's 208 Program has recommended that EPA defer this goal indefinately because of the poor marginal return on investment from additional pollution control systems. New Castle County, through its 208 Program, is also examining the problems associated with septic systems and has recommended revisions in the County's regulations, and also improved monitoring and enforcement in problem areas. The County's program, conducted under an agreement (June 30, 1974) with the State, is implemented by the Department of Development and Licensing. The recommended changes will be considered by the County Council in the near future along with revisions to policies that previously have encouraged septic system useage. The State, through its Kent and Non-Coastal Sussex 208 Program is also addressing problems associated with septic tanks.

D. Solid Waste Disposal

6. REGULATIONS DEALING WITH THE CONSTRUCTION AND OPERATION OF LANDFILLS SHALL BE ENFORCED.

7. DEVELOPMENT OF RECYCLING AND RECOVERY SYSTEMS IS ENCOURAGED, BY THE DEVELOPMENT OF THE STATE'S RECLAMATION FACILITY, BY ESTABLISHMENT OF A RECYCLING PROGRAM FOR STATE AGENCIES TO REDUCE THE VOLUME OF SOLID WASTE GOING INTO LANDFILLS, AND BY ENCOURAGEMENT OF RESEARCH INTO AND USE OF SOLID WASTE AS FUEL OR RAW MATERIAL FOR NEW PRODUCTS.

Solid waste disposal has evolved from the open dumps to landfills and incineration and then to reclamation, as Americans recognize the problems inherent in older methods and the value of the materials that were previously lost. Water pollution problems associated with some former landfill operations are classic examples of the problems that can be encountered. In New Castle County where landfill problems are prevalent, the 208 Program has recommended that the County be designated as a solid waste management area pursuant to the Resource Conservation and Recovery Act of 1976 (P.L. 940580).

5.D.4.

State regulations have been adopted which regulate the location and operation of landfills in operation after December 31, 1974. The State also uses the proposed EPA guidelines on solid waste disposal (43 CFR 4942-4955, February 8, 1978) and will similarly use the EPA criteria when they become final. The State has also begun a program to develop alternative solid waste disposal methods and legislation was adopted in October, 1975 establishing a Solid Waste Authority. The DSWA was given independent authority to design, construct and operate a solid waste reclamation facility and to develop and operate disposal facilities throughout the State. A recent project of the Authority includes construction of an electric generating facility using refuse derived fuel to supply power for the reclamation project. A subsidiary benefit of this project includes production and sale of low pressure steam for industrial heating and processing needs.

E. Highway Construction

8. HIGHEST PRIORITY SHOULD BE GIVEN TO MAINTENANCE AND SAFETY IMPROVEMENTS TO THE EXISTING HIGHWAY SYSTEM, AND IN PARTICULAR THE CORRECTION OF SERIOUSLY DETERIORATED AND SUBSTANDARD CONDITIONS.

9. COMPLETION OF URBAN SERVING FACILITIES SUCH AS ROUTE 141 AND THE DOWNTOWN WILMINGTON CONNECTOR IS ENCOURAGED IN ORDER TO MEET URBAN AREA DEMANDS.

10. PRIVATE DEVELOPMENT SHOULD BEAR THE COSTS OF HIGHWAY IMPROVEMENTS WHERE EXISTING AND PROGRAMMED ROADS WILL NOT BE ABLE TO CARRY THE ADDITIONAL TRAFFIC GENERATED BY THE PROPOSED DEVELOPMENT. IN THIS REGARD, LARGE TRAFFIC GENERATORS (SHOPPING CENTERS, INDUSTRIES, INSTITUTIONS, RESIDENTIAL COMPLEXES) SHOULD BE DISCOURAGED IN AREAS WHERE SERIOUS TRAFFIC OR SAFETY PROBLEMS PREVAIL.

Highway Construction is one of the largest uses of public funds, with $160 million in State money authorized since 1970. New highway projects, however, are often funded in response to new development or political pressure while the existing roads are neglected. During the 1950's and 1960's, extensive growth in population led to much of the road construction throughout the country and dominated most of the highway planning (Transportation issues are discussed in Section 5.D.7).

The highway system in Delaware is essentially inplace and few new projects are contemplated except in urban areas. In the face of rising construction costs, limited State resources will generate fewer miles of new roads and emphasize the need for careful management of the money that is available. Many projects have been cancelled in order to reduce design expenditures and construction - related bond sales. Capital project authorizations

for fiscal years 1978 and 1979 are in accordance with these policies and expand the commitment to repair, maintenance, and paving projects ($5.6 million) and of fund important corridor and urban projects ($11.3 million).

F. Other State Facilities

11. STATE EMPLOYMENT SHOULD BE REDUCED WHERE THE VOLUME OF WORK NO LONGER DEMANDS THE PREVIOUS NUMBER OF EMPLOYEES AND IN ORDER TO REDUCE THE NEED FOR NEW OFFICE AND OTHER STATE BUILDINGS. IN ADDITION MAXIMUM USE SHOULD BE MADE OF THE NEW WILMINGTON STATE OFFICE BUILDING IN ORDER TO REDUCE THE NEED FOR RENTAL SPACE.

12. REUSE OF EXISTING PRIMARY AND SECONDARY SCHOOLS IS ENCOURAGED. NEW SCHOOL CONSTRUCTION SHOULD BE DISCOURAGED AND RENOVATION AND REUSE OF EXISTING BUILDINGS FOR EDUCATIONAL AND OTHER PURPOSES SHOULD BE ENCOURAGED.

13. THE CONCEPT OF AN ENROLLMENT CEILING IS ENCOURAGED IN EVALUATING NEEDS FOR NEW HIGHER EDUCATION FACILITIES. CURTAILMENT OF CERTAIN PROGRAMS AND GREATER COOPERATION BETWEEN THE SEPARATE INSTITUTIONS IN CURRICULUM DEVELOPMENT SHOULD BE UNDERTAKEN IN ORDER TO REDUCE DUPLICATE FACILITY REQUIREMENTS.

14. THE CONSTRUCTION OF PUBLIC HOUSING (UNDER THE STATE HOUSING DEVELOPMENT FUND) IS ENCOURAGED: 1) WHEN IT IS LOCATED IN EXISTING SETTLED AREAS; 2) WHERE IT CAN BE SERVICED BY EXISTING FACILITIES; AND 3) WHERE IT WILL PROVIDE READY ACCESS TO STORES, TRANSPORTATION, HEALTH CARE, AND OTHER SERVICES. PROJECTS WHICH DO NOT MEET THESE CRITERIA SHOULD NOT BE SUPPORTED BY STATE MONEY; AND

15. CONSOLIDATION OF AGENCIES AND LEVELS OF GOVERNMENT, REDISTRIBUTION OF DUTIES AND RESPONSIBILITIES AMONG AGENCIES AND OTHER APPROACHES WHICH WILL REDUCE THE DUPLICATION AND OVERLAP AMONG GOVERNMENTS ARE ENCOURAGED TO REDUCE THE COST OF GOVERNMENT AT ALL LEVELS.

The location and timing of State facilities such as schools, hospitals, or public offices can influence location and timing of private development. These facilities can also divert public money from other needs which can either slow urban development or delay correction of problems created by previous development. For example, prison construction is costly and in a period of reduced public revenue it undoubtedly will constrain public expenditures for new park development or other uses.

5.D.4.

Analysis of programs, construction and land acquisition proposals and the added administrative burdens they will create is important. The State, through the State Clearinghouse Committee (which reviews federal grant applications), the Office of Management, Budget, and Planning and various task groups has the responsibility for this analysis. Moreover, the Intergovernmental Task Force is examining the roles and responsibilities of State and local governments and their agencies to determine ways to reduce duplication of work, increase the quality of services, and reduce the cost of government.

Many tradeoffs are necessary where fiscal limitations prevent the satisfaction of all needs. The intent of the programs and methods used to implement the public investment policies is not to stop development, but rather to direct that growth in a manner which allows for efficient and effective delivery of public services.

Implementation methods are discussed in Section 5.D.10.

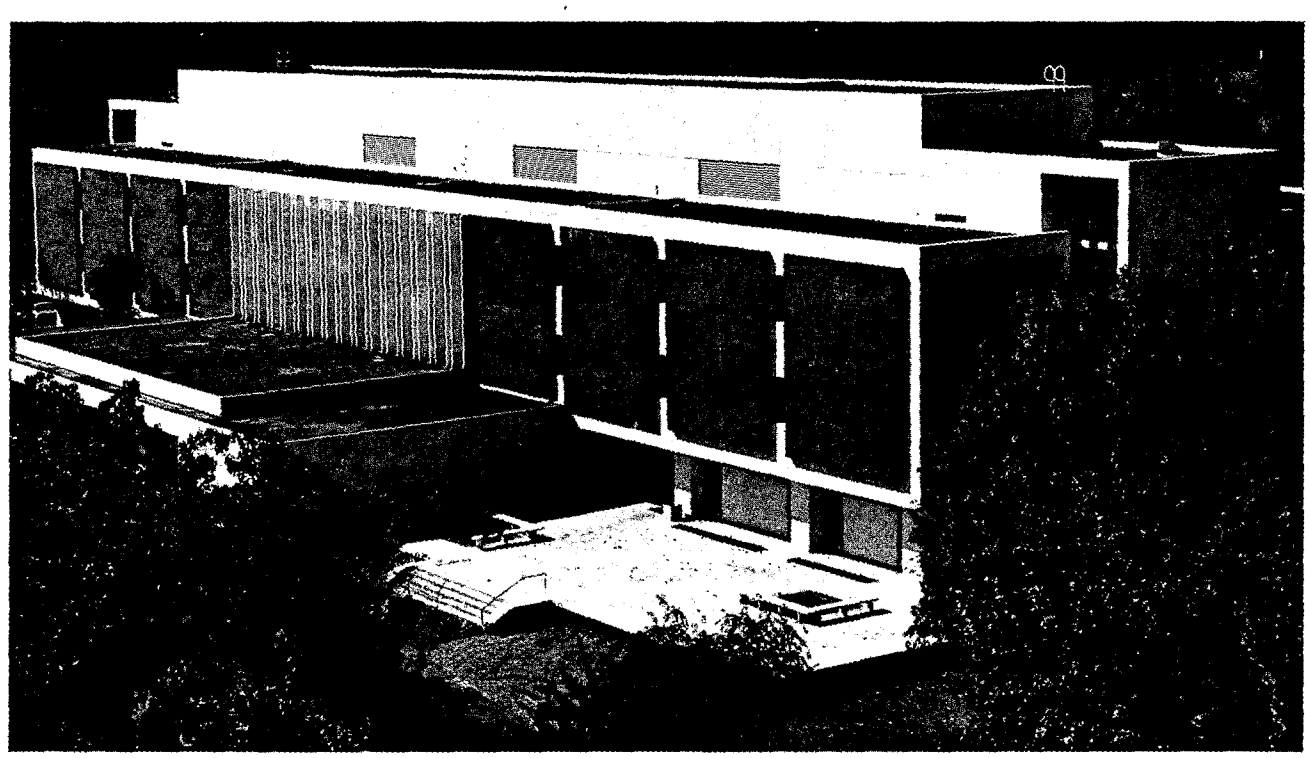
Selected References: Public Investment Considerations

1. An Analysis of Changes in the Delaware Tax Code, 1960-1974, Division of Urban Affairs, University of Delaware, September 1974

2. Capital Improvements Program and Budget, State of Delaware (various years), Office of Management, Budget, and Planning Dover

3. Comparison of Revenue Sources and Rates in Other States, Division of Urban Affairs, University of Delaware, February 1975

4. Final Report of the Delaware Tomorrow Commission to Governor Sherman W. Tribbitt, January 1976 (Published by the Office of Management, Budget, and Planning, Dover). See also the report of the Cost of Public Services Committee to the Delaware Tomorrow Commission, April 1975.



5.D.5.

RECREATION AND TOURISM

SIGNIFICANCE AND VALUE

The value of the coastal zone for recreation and tourism has been recognized by all levels of government. At the national level, the Congress declared in the Coastal Zone Management Act of 1972 that "The coastal zone is rich in ... recreational ... resources of immediate and potential value to the present and future well-being of the Nation."

The National Outdoor Recreation Plan published in 1973 ("Outdoor Recreation -- a Legacy for America") has summarized the national interest in all recreational facilities:

> "Recreation yields three basic types of benefits: (1) direct satisfaction to the individual; (2) enhancement of the overall mental and physical quality of the individual -- an investment in human capital adding to the productivity of the individual and society; (3) important third party benefits such as increased business and property values. Therefore, recreation, like education, yields benefits of both a monetary and non-monetary nature."

Recreational benefits have also been described by Congress and the President. The Land and Water Conservation Fund Act of 1965 states that the purpose of the Act is to:

> "assist in preserving, developing and assuring accessibility to all citizens of the United States of America of present and future generations and visitors who are lawfully present within the boundaries of the United States of America such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation in such recreation and to strengthen and health and vitality of the citizens of the United States."

The national interest in recreation is also indicated by the number and quality of federal programs designed to increase the recreational benefits of the Nation's resources. By the end of 1972, over 80 federal agencies, commissions, committees, and councils were engaged in over 300 outdoor recreation-related programs. These programs ranged from management of

parklands to general advisory functions and included programs for technical and financial assistance, planning, research, resource use regulation, and coordination. (See Working Paper No. 7 for a detailed description of the National Interest).

The Heritage Conservation and Recreation Service* is the federal agency responsible for recreation planning and policy. It is responsible for developing and updating the National Outdoor Recreation Plan, which serves as a guide for federal, State, and local governments, and the private sector in identifying and meeting future recreation demands of America.

The Land and Water Conservation Fund Program administered by the Heritage Conservation and Recreation Service is one of the largest outdoor recreation grant programs. The program provides for the acquisition of lands for federal recreation areas. It also provides sizeable matching grants for State recreation planning, as well as State and local land acquisition and development. To be eligible for the grants the State must develop a Statewide Comprehensive Outdoor Recreation Plan (SCORP) and update it periodically.

The Delaware SCORP describes ways by which the State will help satisfy recreation needs at all levels of government. It also identifies priorities for acquiring, developing, and protecting all types of outdoor recreation resources within the planning area. The Delaware SCORP also encourages local units of government and citizens to take part in their State's outdoor recreation and environmental planning programs. Recreation facilities -- such as bicycle trails, roadside picnic stops, and swimming pools -- are eligible for money if they meet the high priority recreation needs identified in the plan. The SCORP was updated in 1976 and again in 1978.

The State has always been interested in recreation and tourism. In Delaware the 24½ mile ocean coast is the primary attraction for a tourist trade worth about $200,000,000 per year, making tourism the State's third largest industry. Demand for recreation and tourist facilities has been accelerating in recent years. Increased mobility, affluence, leisure time, are offering more and more Americans the opportunity for recreation. The demand for beach recreation is exacerbated by limited, accessible shorelines within a few hours driving time of the Washington and Baltimore metropolitan areas. The limited supply coupled with an increasing demand creates pressure for more recreational facilities and services and consequently stresses the natural resources of the coastal area.

*Formerly the Bureau of Outdoor Recreation

Demands for associated tourist facilities (lodging, food, transportation, entertainment, etc.) raise planning and public facility issues as well.*

The Governor's Task Force on Marine and Coastal Affairs documented the importance of recreation and tourism to the State and nation, and analyzed conflicts between recreation and other uses of coastal resources. The recommendations of this body culminated in passage of the Coastal Zone Act, which declares that it is "public policy of the State of Delaware to control the location, extent, and type of industrial development in Delaware's coastal areas. In so doing, the State can better protect the natural environment of its bay and coastal areas and safeguard their use primarily for recreation and tourism." (emphasis added)

Delaware has 381 miles of tidal shoreline, including the Atlantic Ocean, the Delaware Bay, and a few large "interior" bays. Ocean frontage extends from the mouth of the Delaware Bay to the Maryland border at Fenwick Island. Of the State's 2057 square miles, 79 square miles are inland water. Delaware has many small streams and about 80 fresh water ponds. There are recreational facilities at about one-third of these ponds.

Delaware's State Park System includes 5 parks in New Castle County -- Bellevue, Brandywine Creek, Lums Pond, Walter S. Carpenter Jr., and Fort Delaware; 1 park in Kent County -- Killens Pond; and 4 parks in Sussex County -- Delaware Seashore, Cape Henlopen, Trap Pond, and Holts Landing. These facilities are described in detail in the Statewide Comprehensive Outdoor Recreation Plan.

The combined acreage of the parks will be roughly 8800 acres when acquisition plans are complete. The number of State-owned acres of parklands nationwide in 1970 was more than 8,5000,000. These figures suggest that the State's per capita acreage of parkland is considerably less than the nations. Despite a 60 percent increase in State park acreage from 1960 to 1970, there were only 11 acres of such lands in Delaware for every 1000 residents, whereas there were 42 acres per 1000 people nationwide. Delaware's neighbors were not much better off. Every 1000 Maryland residents had 12 acres of State parklands, Pennsylvania citizens had 23 acres, and New Jersey residents had 32 acres.

*Note: the terms "recreation" and "tourism" often are used interchangeably. Recreation is the use of leisure time for healthful pursuits, such as swimming, fishing, hunting, etc.; tourism is the economic component derived from accommodating people while they are pursuing recreation, such as food, automobile services, accommodations, etc.

Delaware municipal and county parklands help offset the relatively small amount of State parklands. In 1970 there were about 5 acres of municipal and county parklands in Delaware for every 1000 state residents, whereas there were 4 acres for the entire Nation, 2 acres for Pennsylvania, 1 acre in New Jersey, and 7 acres in Maryland.

Overall, however, public parklands in Delaware comprise a small area relative to the number of people they must serve.

It is fortunate that all of Delaware's parks are suited for recreationists. These parks feature 12 miles of ocean beaches, saltwater bays, dunes, surf, 3 inland ponds, grassy meadows, streams, rolling hills, and woodlands in picturesque settings. The parks have a total shore frontage of 176,300 feet, including 87,000 feet at the Cape Henlopen and Delaware Seashore State Parks, which front the Atlantic Ocean.

County and municipal waterfront parks have been inventoried and are mapped in Working Paper No. 8. Of particular importance are the municipally controlled beach areas in Rehoboth, Bethany Beach, and Lewes; which consist of 33 acres, 26 acres, and 22.9 acres, respectively.

State and Federal wildlife areas are also important recreational assets in Delaware. The Federal Government administers two National Wildlife Refuges-Bombay Hook (15,135 acres) and Primehook (8,750 acres). The Delaware Division of Fish and Wildlife administers Wildlife Areas, 25 fresh water and 12 tidal water fishing areas comprising 27,170 acres, most of which are located in the coastal area. This includes the Chesapeake and Delaware Canal Wildlife Area owned by the U.S. Corps of Engineers and under license to the Division. The State also owns 6,400 acres of State forest land.

Delaware's location in the central section of the megalopolis extending from Washington to New York places it in an area of intensive recreational demand. On an average summer weekend 70 to 80 percent of the 170,000 people who populate the Sussex County Coastal area from the Prime Hook Wildlife Refuge to the Maryland State line are from out of State. In 1972 non-resident use of the three Coastal State parks comprised nearly 70 percent of the total use. Nearly half of all State park visitors in that year were from out of State, with Pennsylvania and Maryland residents accounting for 19 percent and 15 percent of the total respectively. Overall the State hosts about 11 million travelers annually, many of whom come here for recreation.

During fiscal year 1977 State parks provided recreation for 3,395,117 visitors. Swimming was the most frequent park use, with 596,445 people enjoying swimming at the inland ponds and ocean beaches. Nearly 340,000 visitors participated in fishing and boating, the second most popular activity at the parks.

It is difficult to predict future demand for outdoor recreational facilities. State park visitation from 1965 to 1969 increased tenfold and underscores the possibility of large increases in park useage over a short period of time. This, combined with more leisure time, better transportation, etc., would indicate that future demand might be great. On the other hand park attendance has been constant since 1969 -- although the seashore has become more and more popular.

Many of the most popular recreational areas, of course, are not State parks. The summer weekend population in the Sussex Coastal area is projected to be between 178,330 and 190,324 by 1980; between 189,107 and 201,831 by 1985; between 200,615 and 214,117 by 1990; and 214,084 and 228,531 by 1995. Most of the present summer population is concentrated in the Rehoboth Beach, Bethany Beach, and Fenwick Island areas although there is increasing demand for resort developments around the inland bays and along an undeveloped stretch of beach between Bethany Beach and Indian River Inlet.

While the public sector provides most of the areas' facilities and services for outdoor recreation, the private sector provides lodging, restaurants, shops, and evening entertainment that are a part of the resort atmosphere. It also provides summer jobs for students, contributes to the economy, and produces tax revenue.

MANAGEMENT CONCERNS

Although recreation and tourism are important to the economy of Delaware and important to those who benefit from visits or vacations here, such development is not without its problems. These may include conflicts between recreation and other competing uses and activities, conflicts between different types of recreation, and problems associated with the provision of recreation and tourist facilities and services.

1. Recreation vs. Industry

The recreation demand in the coastal area is high. In addition other uses vie for the small area available. Many industrial complexes render coastal areas' unusable for many types of recreation. The air and water pollution that have been evident in the vicinity of many complexes demonstrate this fact. Oil spills have covered beaches, pilings, and boat hulls and have made the water unfit for boating, swimming, fishing, surfing, diving, or sightseeing.

The concentration of pollution in the Delaware River and the lower reaches of the Brandywine and Christina Rivers makes many recreation activities, such as boating and fishing, less appealing there than in areas to the south. Recreation in the coastal area depends on adequate water quality; this is the element that so often causes conflict between industry and recreation. If industry could be pollution-free, some types of recreation could exist adjacent to it.

2. Recreation vs. Urbanization

One of the greatest problems facing Delaware today in recreation is how the public and private sectors can satisfy the demand for recreation and tourist facilities and yet not destroy the natural resources of the state. Already the specter of overdevelopment has appeared in the Sussex County resort area. Significant portions of the Rehoboth and Indian River Bays are closed to shellfishing because of domestic and industrial pollution resulting from improper development of the shoreline. Most of this development has taken place within the last 25 years. Since 1938 the percentage of developed shoreline along these bays increased from 4.5 percent to about 30 percent. Conflicts between urbanization and recreation are many and include increased water pollution from failing septic systems, package treatment plants and other waste discharges; destruction of shoreline and aquatic habitat; and reduced public shoreline access. Moreover, in resort areas the prime development sites are adjacent to water bodies, which means development will be scattered with its attendant adverse effects on government expenditures for roads, utilities and other services (for detail see Section 5.D.4. Public Investment). In addition recreation subdivisions providing marine access, in particular those using dredged lagoons, place burdens on State expenditures for access channel dredging and spoil disposal that would otherwise be unnecessary. This form of development, along with beachfront development which requires State beach protection projects, from the State's analysis is the most uneconomic form of development on a cost/revenue basis in Delaware.

Perhaps the most volatile development issue in the resort area concerns high-rise condominium construction along the oceanfront. This issue is largely one of aesthetics and overcrowding, although water pollution and natural area destruction issues are also raised. Proponents of this type of recreation-related development point to construction jobs, high land prices, market demand, local property tax revenue (and no school children), and other economic benefits as justification for high-rise construction. Opponents argue that

such structures disrupt the view of the coast, disturb dunes and barrier habitat, contaminate groundwater, create congestion and traffic problems, and severely restrict public use of the beach. They point to Ocean City, Maryland and the New Jersey shore as examples of how not to develop the beach.

3. Recreation vs Recreation

Conflicts in the use of recreation lands also arise among different types of recreation. For example, boating cannot be permitted in proximity to swimming and diving because of the danger to swimmers. The use of any area beyond its capacity often creates pollution from sanitary waste, but in any case results in a reduction in user satisfaction. Aesthetic pollution resulting from ugly structures or facilities, litter, noise, and distracting human activities also may occur.

Resistance to development of recreation facilities stems also from a natural self-interest of local year-round or vacation homeowners who feel threatened by the prospect of sharing recreational space and facilities. Often these are people whose own financial situations are independent of the local recreation and tourism industry. Their point of view is basically a desire to protect property values and comes from genuine alarm at examples of rapid and uncontrolled development of shore areas in other states and a concern over the impact of tourism on expensive local police, fire, and health services (a problem compounded by the seasonal nature of the industry).

4. Cost of Public Recreation Lands

The need for parklands has not always been recognized, and money available to public agencies for land acquisition has seldom been adequate for all needs. In 1939 it was recommended that Delaware acquire additional lands adjacent to the "Indian River Barrier Beach Tract." Estimates of land values were "$4 per acre on the marsh lands and a maximum of $30 per acre on the uplands section." This land was not purchased and today its value probably exceeds $50,000 per acre. The per acre price for undeveloped lands along the Delaware River and Bay has increased twentyfold from 1954 to 1970.

5. Economics of the Industry

From an economic point of view, there are some classic criticisms of the recreation and tourism industry, they are typically seasonal in nature, which leads to fluctuations in employment and causes expensive increases in public services which are necessary only at certain times of the year. The industry is primarily a service industry; thus, it is responsive to fluctuations in the economy. Resort areas in particular are at the mercy of unpredictable variables such as the weather and the availability of leisure time and vacation money. Another element is out-of-state ownership, which causes profits to be transferred out of the State and diminishes the economic benefits of a good season.

There is also a concern that results from a lack of information about the recreation and tourism industry. The economic impact of recreation and travel services in Delaware has never been determined, nor have the government costs and revenues generated by the industry been calculated. The Department of Community Affairs and Economic Development, however, is undertaking a study to determine the costs and benefits of the tourist industry and to make recommendations to remedy some of these problems.

In November 1977 the Governor sponsored a Conference on Tourism and Recreation to investigate the problems with benefits of increasing tourism and recreation in Delaware. The purpose was to:

1. Identify public and private roles in the tourism and recreation industry and identify ways to coordinate public and private efforts;

2. Provide a forum to discuss tourism and recreation issues;

3. Discuss programs for improving the tourism and recreation industry; and

4. Establish working relationships among the conference participants which would facilitate cooperation in tourism matters.

While many of the above problems were mentioned, the conference discussed problems which included coordination, information, communication, attitude and inadequate money for facility development, maintenance and operation.

5.D.5.

CMP POLICIES FOR RECREATION AND TOURISM

1. GOVERNMENT PROMOTION OF RECREATION AND TOURISM, PARTICULARLY IN COASTAL AREAS, SHOULD BE BASED ON A STUDY OF THEIR COSTS AND BENEFITS TO DELAWARE RESIDENTS. RECREATION AND TOURIST DEVELOPMENT THAT RESULTS IN UNNECESSARY OR EXCESSIVE EXPENDITURE OF TAX DOLLARS FOR THE BENEFIT OF A FEW INDIVIDUALS OR GROUPS SHOULD BE DISCOURAGED.

2. YEAR-ROUND RECREATIONAL AND TOURISM PROGRAMS AND FACILITIES ARE ENCOURAGED IN ORDER TO REDUCE THE RELIANCE ON SUMMERTIME RECREATION.

3. RECREATION AND TOURISM PLANNING AND DEVELOPMENT PROGRAMS, SUCH AS THE STATE COMPREHENSIVE OUTDOOR RECREATION PLANNING PROGRAM, ARE TO BE ENCOURAGED.

Most of the measures adopted by the Coastal Management Program to protect the State's physical resources, discussed in earlier sections of the program document, are also intended to promote their enjoyment. Therefore, policies dealing with the effects of new recreation and tourist facilities can be found elsewhere in this document depending on the natural resource that may be affected.

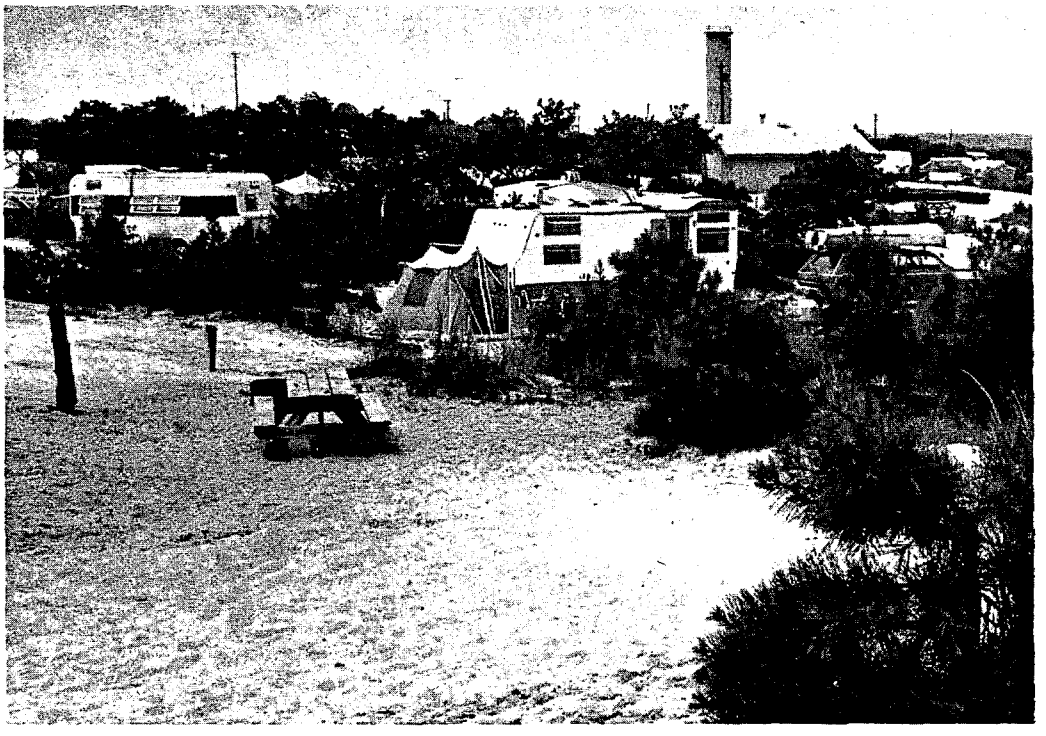
The oceanfront receives particular Coastal Management Program attention. Certain lands near the ocean are designated as a Geographic Area of Particular Concern and special measures, described in the program document (see Sections 5.B.1., Public Lands; 5.A.2., Beaches; and Appendix C). are taken to protect and preserve these areas for future public use. Measures are also included to mitigate beach erosion and provide public access to State beaches.

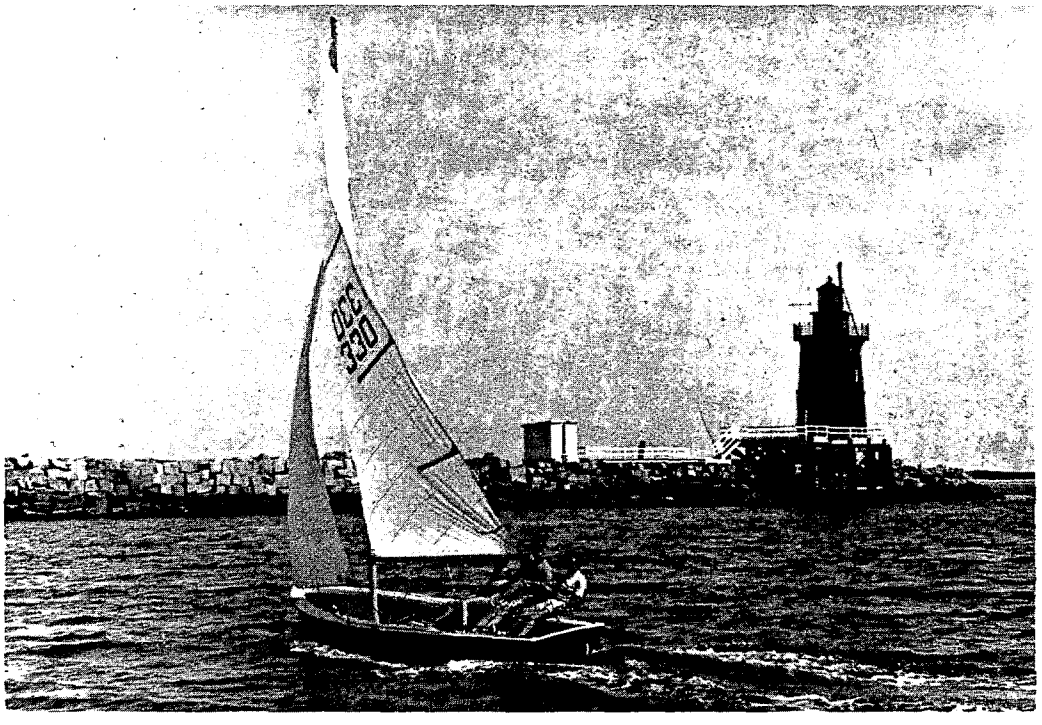
Finally, State and local plans related to recreation facilities are described in Delaware's 1978 State Comprehensive Outdoor Recereation Plan. The Plan is the product of the State's outdoor recreation planning process. The Coastal Management Program endorses that process.

Selected References: Recreation and Tourism

1. Delaware State Comprehensive Outdoor Recreation Plan (SCORP), 1978, Department of Natural Resources and Environmental Control

2. Governor's Conference: Tourism and Recreation in Delaware, November 1977, (published by the College of Marine Studies, University of Delaware)

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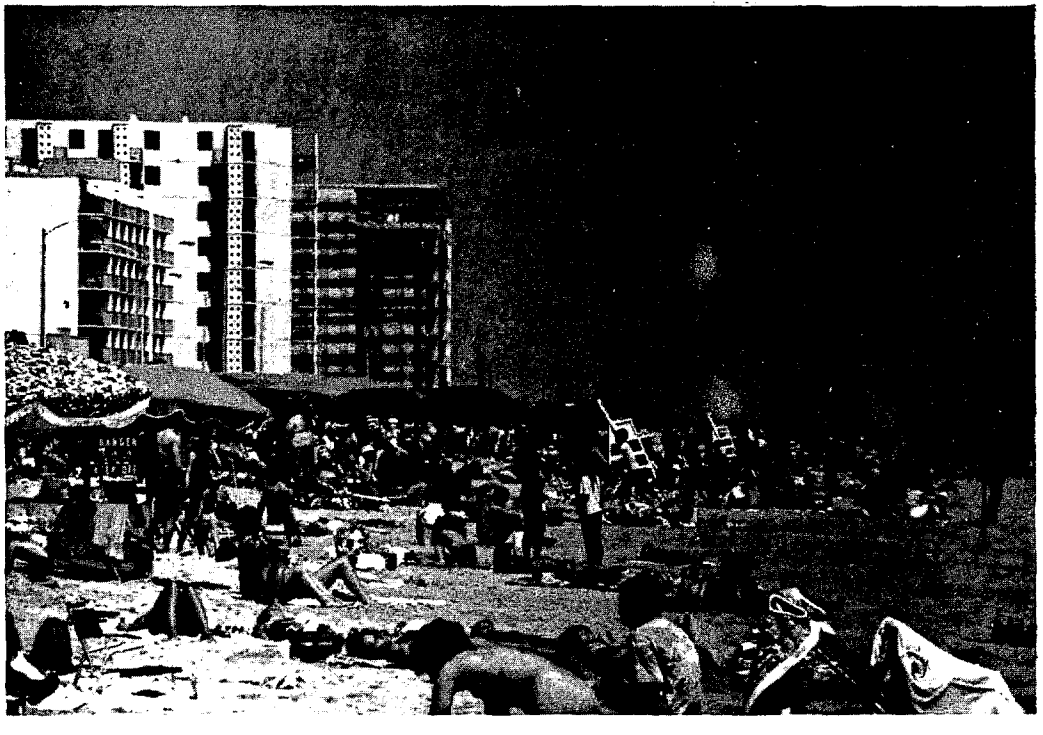


5.D.6.

NATIONAL DEFENSE AND AEROSPACE FACILITIES

SIGNIFICANCE AND VALUE

Defense facilities include military bases and installations, as well as weapon manufacturing plants. These facilities serve the national interest in security.

The Coastal Zone Management Act recognizes the importance of the national defense by providing that specified federal actions inconsistent with approved coastal management programs and the objectives of the Act may be permitted when they are in the interest of national security.

The national interest in defense is also shown by the financial commitment made to it. According to the U.S. Department of Defense, President Carter has presented to Congress a military budget of $111.9 billion for fiscal year 1978, nearly one quarter of the total budget.

Defense installations are often dependent on coastal locations. The Navy and the Marine Corps, which operate the Nation's most expensive defense installations, obviously need to be close to the oceans. In turn, the other military departments require coastal facilities to support and defend Naval facilities.

Aerospace facilities serve diverse national interests. Earth satellites and space crafts, usually launched from aerospace facilities near or in the coastal zone, provide a range of data at low cost. Satellite data is used to monitor changes in land conditions; to determine the extent of non-point sources of water pollution; for watershed inventories which enable states to foresee flood, drought, and water supply problems; to monitor surface water levels; to measure boundaries; and to determine agricultural water requirements, insect infestations, salinity detection, and agricultural land capability.

The National Aeronautics and Space Administration (NASA) claims that space technology can also be used to transmit educational and medical programs to remote places; report on weather conditions and warn against natural hazards; collect information about the earth and the universe; serve commercial communication by overcoming the limitations of submarine cables, land lines, and ground radio stations; tap the energy of the sun; and, due to the advantages of manufacturing in space, reduce the costs of drugs, create new alloys, produce new drugs, and manufacture lenses of unusual purity.

5.D.6.

MANAGEMENT CONCERNS

Although defense and aerospace facilities and weapon manufacturing plants offten require coastal locations, it is important that they not be concentrated in a few coastal areas. As Congress has pointed out,

> "In order to insure productive capacity in the event of ... an attack on the United States, it is the policy of the Congress to encourage the geographical dispersal of the industrial facilities of the United States in the interest of the national defense, and to discourage within limited geographical areas which are vulnerable to attack by an enemy of the United States."

Thus, it is in the national interest that the coastal states apportion the responsibility of meeting defense requirements in the coastal zone.

These facilities typically use large areas of land, generate a lot of traffic, and may cause significant environmental impacts and land use changes. In some cases health, safety, or security reasons can result in restrictions on private uses of surrounding land, water, or air space. Two military facilities in Delaware, the 4,522 acre Dover Air Force Base and the 377 acres Lewes Naval Facility, are important determinents of land usage. The Dover Air Force Base, with its large military and civilian workforce and their dependents, is important to the economy of Dover, Kent County, and the State (The Base had over 5,000 officers and enlisted personnel, 7,500 dependants, and 1,800 civilian employees in 1977).

Military and aerospace facilities are usually exempt from State and local regulatory control, in particular use and development controls imposed on private lands. Military, and other federal lands, are excluded from all but the consistency provisions of the State's Coastal Management Program pursuant to Sections 923.33, 930.30, and 930.52 of the CMP regulations. Since decisions on the location of these facilities can have secondary effects outside of the property boundary, coordination between the property managers, and State and local governments is important.

CMP POLICIES FOR NATIONAL DEFENSE AND AEROSPACE FACILITIES

1. NATIONAL DEFENSE AND NATIONAL SECURITY FACILITES ARE AMONG THE HIGHER PRIORITIES IN THE MANAGEMENT OF THE COASTAL ZONE.

The CMP recognizes the national importance of defense facilities, as well as their substantial contribution to the State and local economies. As in many regions of the country, State statutes and local zoning ordinances preclude intensive development in specified areas. There is, however, ample space available for new or expanded military bases, installations, and manufacturing plants. For instance, a military base, while not permitted in wetlands, would be welcome in other areas where environmental standards can be met. (See also Section 5.A.4., Policy No. 12, page 5.A.4-8, regarding State policy for national defense needs relative to uses of submerged lands).

There are no plans at present to expand military operations in Delaware, but the U.S. Department of the Air Force has asked the Delaware Coastal Management Program to recognize "the potential requirement for new or expanded defense siting requirements on land, in the air, on and under the water, in the coastal zone."

Such requirements presumably include those for weapon manufacturing plants, but there are no U.S. Department of Defense plans to build any of these in Delaware either. Indeed, the general policy of the Department since 1970 has been to let the private sector build these plants in order to lower costs and improve local tax structures.

If an industry or the U.S. Department of Defense selects Delaware as a site for a weapon manufacturing plant or other defense-related facility, it will be given consideration.

2. MILITARY AND AEROSPACE AGENCIES OR FIRMS SHALL COMPLY WITH THOSE REGULATORY AND ENVIRONMENTAL STANDARDS IMPOSED UNDER FEDERAL LAW, AND THEY ARE ENCOURAGED TO COOPERATE WITH STATE AND LOCAL GOVERNMENTS IN PROTECTING AND ENHANCING THE ENVIRONMENT.

Most of the State environmental standards have been established pursuant to federal law -- namely, the Federal Water Pollution Control Act and the Clean Air Act -- and have been incorporated into the Coastal Management Program pursuant to a third federal law, the Coastal Zone Management Act. It is obvious, too, that other national interests are served by protecting the environment -- as described in the resource section of the report -- and that environmental standards do not preclude any particular military use within the State.

State enforcement of these standards is also consistent with Presidential Executive Order 11752 which adopts the following general policy:

> "It is the purpose of this order to assure that the Federal Government, in the design, construction, management, operation, and maintenance of its facilities, shall provide leadership in the nationwide effort to protect and enhance the quality of our air, water, and land resources through compliance with applicable standards for the prevention, control, and abatement of environmental pollution in full cooperation with State and local governments. Compliance by Federal facilities with Federal, State, interstate, and local substantive standards and substantive limitations, will accomplish the objective of providing Federal leadership and cooperation in the prevention of environmental pollution."

Although the Order continues with a statement which seems to exempt federal facilities from State and local pollution laws, it expressly orders construction and operation of such facilities to conform to the following requirements:

> "(1) Federal, State, interstate and local air quality standards and emission limitations adopted in accordance with or effective under the provisions of the Clean Air Act, as amended;
>
> (2) Federal, State, interstate and local water quality standards and effluent limitations respecting the discharge or runoff of pollutants adopted in accordance with or effective under the provisions of the Federal Water Pollution Control Act, as amended;
>
> (3) Federal regulations and guidelines respecting dumping of material into ocean waters adopted in accordance with the Marine Protection, Research, and Sanctuaries Act of 1972, and the Federal Water Pollution Control Act, as amended;
>
> (4) Guidelines for solid waste recovery, collection, storage, separation, and disposal systems issued by the Administrator pursuant to the Solid Waste Disposal Act, as amended;
>
> (5) Federal noise emission standards for products adopted in accordance with provisions of the Noise Control Act of 1972 and State, interstate, and local standards for control and abatement of environmental noise;

(6) Federal guidance on radiation and generally applicable environmental radiation standards promulgated or recommended by the Administrator and adopted in accordance with the Atomic Energy Act, as amended (42. U.S.C. 2011), and rules, regulations, requirements, and guidelines on discharges of radioactivity as prescribed by the Atomic Energy Commission; and

(7) Federal regulations and guidelines respecting manufacture, transportation, purchase, use, storage, and disposal of pesticides promulgated pursuant to the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended by the Federal Environmental Pesticide Control Act of 1972."

Many of the State environmental statutes, which are incorporated into the Coastal Management Program, were passed under the provisions of federal law. Thus, the Federal Executive Order requires that federal facilities be constructed in accordance with such statutes.

It is noteworthy that the Department of Defense ackowledges the importance of the federal environmental programs, whoever may administer them, and, accordingly, complies with the Intergovernmental Coordination Act (A-95), the National Environmental Policy Act (Environmental Impact Statement preparation), as well as the Federal Water Pollution Control Act and the Clean Air Act. It would seem, therefore, that the Coastal Management Program policy will not materially alter the current siting and operation practices of the Department.

This position is consistent with Section 923.33(d) of the regulations adopted pursuant to the federal Coastal Zone Management Act under which this program was prepared.

3. "AIR INSTALLATION COMPATIBLE USED ZONES" SHOULD BE CONSIDERED IN LAND USE PLANNING PROGRAMS IN ORDER TO PROTECT CITIZENS FROM NOISE AND POSSIBLE ACCIDENT HAZARDS ASSOCIATED WITH SUCH FACILITIES.

Delaware's Coastal Management Program recognizes the need for planning and control of land uses in the vicinity of airports, whether used for national defense or for general aviation purposes.

The State has been requested to adopt the Air Installations Compatible Use Zone (AICUZ) study prepared by the Department of Air Force for the Dover Air Force Base. The AICUZ study has established zones intended to protect citizens from noise and

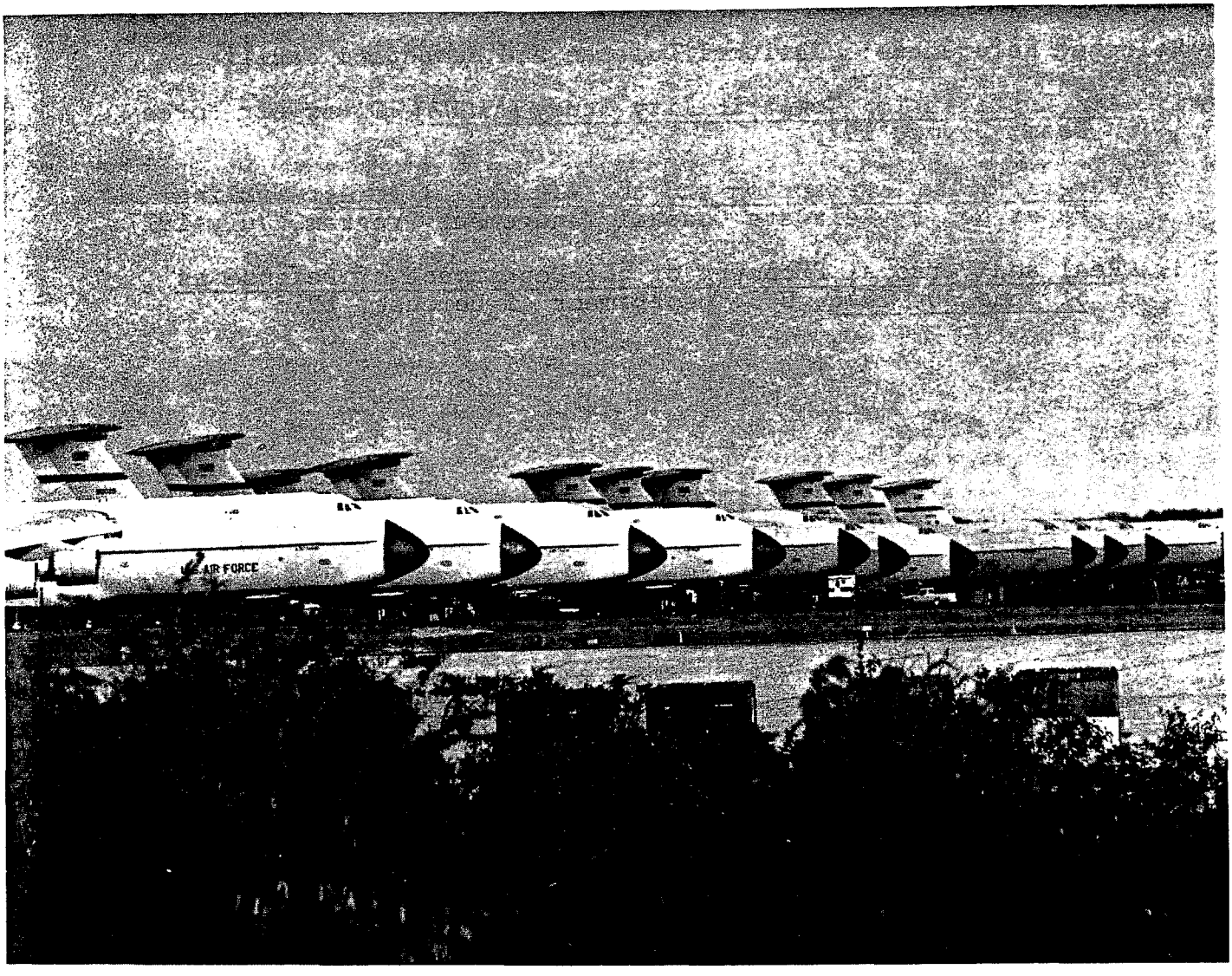
accident hazards associated with airfield operations while also preventing interference with Air Force missions. While no action on that request has been taken, air installation compatible use zones will be considered as part of the critical areas to be defined under the provisions of the Land Use Planning Act (Section 9212).

Selected References: National Defense and Aerospace Facilities

1. Air Installation Compatibility Study (AICUZ), Dover Air Force Base, Dover, 1976

2. Federal-State Interaction and the National Interest Working Paper No. 5, Delaware Coastal Management Program, July 1977

3. Real and Personal Property of the Department of Defense as of June 30, 1976, U.S. Department of Defense, 1976


AIR FORCE

5.D.7.

TRANSPORTATION FACILITIES

SIGNIFICANCE AND VALUE

Transportation systems such as highways, airports, marine ports, railroads, or navigation facilities are essential to the movement of people, goods, and services: (1) to facilitate intrastate, interstate, and international commerce; (2) to allow the extraction and use of the nation's natural resources; (3) to enhance public welfare and national defense; (4) to provide access to recreation and conservation areas; and (5) to maintain communication.

These values have been reflected in statements by Congress declaring that:

> "the general welfare, the economic growth and stability of the Nation and its security require the development of national transportation policies and programs conducive to the provision of fast, safe, efficient, and convenient transportation at the lowest cost consistent therewith and with other national objectives, including the efficient utilization and conservation of the Nation's resources."

The Delaware Coastal Management Program acknowledges that the federal transportation programs serve a national interest and cooperates with such programs to the extent possible.

Some of the transportation facilities which serve the national interst in meeting energy requirements are discussed in detail in Working Paper No. 7. This section considers interstate highways, railroads, airports, ports (see Section 5.B.4. for a discussion of the Port of Wilmington) and aids to navigation, all of which are necessary adjuncts to a balanced transportation system.

A. Highways

There is a tremendous demand for highways in the United States. In 1972 trucks travelled approximately 244.5 billion miles in this country. In 1973, private automobiles traveled more than 1.1 trillion miles. By 1974 the demand for highways was being met by close to 4 million miles of highways, 224,000 miles of which were under federal control. Delaware highways in 1974 exceeded 5,100 miles.

Great sums of money are spent on highways. In 1973 State and local highway disbursements totalled nearly $19 billion, $107 million of which were spent in Delaware. The total unpaid highway debt of State and local governments in 1976 has been estimated at more than $24 billion. Federal payments to State and local governments in 1975 for highways were nearly $5 billion. Delaware received $13 million of this sum.

There are, of course, other interstate highways in the State which are not part of the national system. Of particular importance are U.S. Routes 9, 13 and 113. U.S. 9 is the major East-West connection between the recreational beach areas and the Baltimore/Washington metropolitan areas. U.S. 13 serves the Delmarva Peninsula by connecting Delaware to Maryland and, ultimately, Virginia. U.S. 13 connects northern Delaware, and thus the Philadelphia area, with Delaware Route 1, a four-lane divided highway along the coast. These highways, along with the Interstate system in Delaware carry an average of 108,000 vehicles per day, of which 13% are business, commerce or interstate trade related.

B. Railroads

There are several thousand miles of railroad track in the United States, and these railroads move more domestic intercity freight than trucks or ships. In 1974 the equivalent of more than 1.5 trillion ton-miles of freight was transported by train, generating revenue in excess of $16 billion. Trucks moved approximately one-third of this amount in the same year. Also, in 1974 trains carried 275 million passengers over 10 billion miles, and more than one-half million employees earned about $7.7 billion in the railroad industry.

In the early 1970's much of the Northeast and the Midwest faced the loss of essential rail services because the Penn Central Transportation Company could no longer afford to maintain the railroad lines. With the failure of Penn Central in 1973 Congress enacted the Regional Rail Reorganization Act of 1973. That Act established a Rail Service Continuation Subsidy Program to assist states and localities that might otherwise lose rail service.

Delmarva rail traffic has experienced a decline in volume between 1974 and 1976, corresponding to a national trend partially attributable to a slump in the economy. Volume, however, has reached the point that, if the current usage can be maintained, the Delmarva rail system should remain economic. Continuance of the northern Delaware lines seems certain, but the lines south of the Chesapeake and Delaware Canal have been in jeopardy.

Loss of this service would mean the closing of some manufacturing plants and create economic problems for many Peninsula employees. Through State and local efforts, in particular those of Sussex County, the downstate lines have been upgraded and maintained. Upgrading (to Class I status) of the spur line from Georgetown to Lewes has been completed and assures the continuation of this connection to Lewes for present and future port and industrial users.

C. Airports

In 1974 the United States airlines flew over 4 billion miles, carried more than 3 billion ton-miles of domestic air cargo, transported more than 200 million passengers, and employed 305,000 people. In that year there were 13,062 civil airports in operation in the United States of which only 32 were located in Delaware. Nevertheless, the Delaware airports accounted for 202,000 private aircraft operations (landings and takeoffs) in 1973 of which 47% and 37% were pleasure flying and business flying respectively.

Greater Wilmington Airport, a New Castle County owned and operated facility, is the largest commercial facility in the State providing scheduled and non-scheduled passenger and cargo services. A consultant under contract to the County is updating the Master Plan for this facility. This facility's significance is shown in the State's Aviation and Airport System Plan; almost 40 percent of the State's annual airport operations and 80 percent of the air freight are handled by this facility. The State's other general aviation facilities are important for a variety of business, pleasure, and agricultural uses.

D. Ports and Navigation Facilities

The capacity of ports to handle large amounts of military equipment and personnel serves the national interest in security. For the most part, however, the national interest in port facilities is economic. In 1974 more than 1.7 billion short tons of cargo were waterborne. Four hundred and seventy-four million short tons of this were sent abroad from these ports. Due to relatively low fuel costs and other economic advantages, more than 90 percent of all world trade is moved by ship. In 1975 over 538.5 billion

pounds of cargo were exported from this country by vessel compared to approximately 1.4 billion pounds exported by airplane. In the same year over 855 billion pounds of freight were imported by ship, while only 1.1 billion pounds were brought into the country by plane. The value of the imported cargo at all United States ports in 1974 was more than $68 billion and the value of exports was $56.5 billion.

More of the import traffic is served by Atlantic coast ports than ports in any other region of the Nation. In 1976 the tonnage of waterborne imports at Atlantic ports exceeded the combined tonnage of the Pacific, Gulf, and Great Lakes ports. Ports along the Delaware River and its tributaries handled nearly 110 million short tons of cargo in that year, about one-seventh of the Nation's total and more than any other port including the Port of New York and New Jersey. Waterborne trade is important to Delaware Valley because most of the fuels and raw materials necessary for a vigorous economy come to the Valley via ports along the Delaware River.

To handle the huge tonnage involved in the country's waterborne commerce, the port industry has invested nearly $5 billion in facilities since 1966. This investment produces a "multiplier" effect in the form of employment and income to the port communities. Although it is difficult to isolate the job opportunities and the investment in industrial and commercial development that can be directly attributed to ports, the economic impact of ports is extensive According to a recent study by the Federal Maritime Administration the port industry in 1972 generated over $30 billion in direct dollar income, contributed over $1.1 billion to the balance of payments account, and provided jobs for over 1.2 million people.

An important component of the national and regional port and navigation system is aids to navigation. As of September 1977 the Coast Guard operated 24 aids-to-navigation throughout the State. These facilities are essential to prevent vessel collisions or groundings.

MANAGEMENT ISSUES

Transportation facilities of all types may impact resources, development patterns, and public investment. The last two items were covered in previous sections. Therefore, this section will briefly outline those issues relating to resource impacts.

5.D.7.

A. Highways

One disadvantage to improved highways is that they allow so much mobility that it is convenient for people to go places which they previously considered "not worth the trouble." Thus, a six-lane highway from Philadelphia to Rehoboth would probably increase summer visitors to the beaches enough to exacerbate the environmental problems which usually accompany large numbers of people concentrated in a small area.

The increased use of highways, of course, increases air pollution. Automobile emissions are identified in the air resources section of this report as a significant source of air pollutants. Recent attempts to control the problem with catalytic converters have had mixed results. The U.S. Environmental Protection Agency has discovered that these converters can discharge sulfuric acid and sulphates at concentrations significantly higher than uncontrolled automobiles, and that these emissions can create health problems.

New highways may also raise noise levels; intrude on the visual attractiveness of an area; replace vegetation and displace wildlife; affect historic areas; cause erosion problems; and use land which might otherwise be valuable as forest, farmland, wetland or natural areas.

A long-standing highway issue of concern to Delaware residents and interstate travellers has been the summer traffic to and from the beaches. The Coastal Management Program considered this problem in a Lewes-Rehoboth area study. The study concluded that the highway system is sufficient to carry the existing traffic, if averaged over the entire year, but that summer traffic exceeded highway capacity as measured by its ability to maintain free-flowing traffic at or near the speed limit. The solution to this seasonal problem is being aided by construction projects on U.S. 13 and Route 1 which are nearing completion, but the primary issue is whether the large number of summer visitors generate sufficient tax revenue to offset highway and other costs to accommodate the peak demand. Planned studies of the costs and benefits of recreation and tourism will examine this issue in detail.

B. Railroads

Most of the impacts of railroads are similar to those of highways. Air emissions from trains have been compared to trucks. According to the Delaware State Rail Plan, using an equal amount of diesel fuel, trains emit much less carbon monoxide, more hydrocarbons, the same amount of nitrogen oxides, and more sulfur oxides than trucks but carry considerably more freight. Significant noise can result from train operation, and the coupling and uncoupling of railroad cars (the latter was an issue in Dover recently).

The washing of cars or the cleaning of chemical tanks at train terminals and the spillage of diesel oil can affect air and water quality, as can accidents or leaks during transportation and handling.

The important issues relating to rail service in Delaware, however involve operation and maintenance of lines which are not profitable. Planning and fiscal evaluation is essential to determine whether public support or direct control over a marginal line is justified by the number of users and the jobs associated with them.

C. Airports (Except military facilities)

Airports, like all transportation facilities, have impacts upon resources. Noise is among the more important impacts because of its effects on communities, residences, wildlife, and nearby activities. A new airport usually requires a large area for the facility itself and an adequate noise buffer zone. The natural environment will be disrupted by runways, hangars, offices, passenger terminals, parking lots, access roads, etc. Water quality may be degraded by increased surface water runoff. The operation of the airport will generate wastewater from sewage, aircraft-handling wastes, storm water, and perhaps some industrial wastes. Air pollution from aircraft, automobiles, aircraft, fueling systems, airport heating plants, and fuel storage losses, may make it difficult for a large airport to meet regional air quality standards. Finally, other development could be induced by an airport which may aggravate these problems and create additional difficulties.

Military airports create the same problems and, because of their size and resident population, are significant influences on land development patterns and problems. These facilities are discussed in Section 5.D.6., National Defense.

D. Ports and Other Navigation Facilities

The issues relating to port and navigation facilities in Delaware are associated with the handling of crude oil, especially in the open lower Delaware Bay, and maintenance of channels and harbors. The energy section of this report addresses this problem in detail. In addition vessel collision, grounding, fire, and sinking present obvious hazards to life and property. The effects of ports on coastal environments also create problems of air and water pollution and land disturbance. Environmental problems are caused by facilities which permanently alter the environment, and operations which may result in temporary or permanent effects caused by cargo spillage, waste discharges, and vessel movement.

5.D.7.

The primary problems associated with harbor and channel development are maintenance dredging and spoil disposal. The effects of dredging may include changes in water and groundwater quality, disruption of benthic habitats and resident organisms, and alteration of water circulation patterns. Increased turbidity reduces light penetration, causing a decrease in local photosynthetic oxygen production and interference with the feeding apparatus of filter-feeding species such as clams and oysters. Currents may carry suspended sediments long distances from the dredging area and eventually deposit them on productive bottom areas. The deposition of dredge spoil in water, which is often the practice, further aggravates water and bottom disturbance. Auxiliary structures, including breakwaters, jetties, dikes and locks used to aid vessel maneuvering, may change water circulation and flow patterns, wildlife habitats and may be ugly.

Ports often require substantial space for storage of bulk commodities. Usually this means the displacement of other land uses and significant visual impacts. Also, where large surfaces are paved or otherwise covered, runoff will increase.

As the Corps of Engineers points out in its 1972 study of the environmental and ecological effects of deepwater oil ports, the oil processing facilities near or at the port many generate wastes with more significant environmental impact than any other component of a port system. The Delaware Coastal Zone Act prohibition of offshore oil terminals is based largely on the observation that such facilities attract undesirable industrial development. In addition new growth usually accompanies port development -- increasing the population and demand for housing, roads, sewers, and schools.

The primary problem affecting many smaller, historic ports in Delaware is the maintenance of channel and harbor depths. Most of the older ports (frequently referred to as "landings") are located on shallow tidal rivers with slow flushing rates and which receive large amounts of sediment. Recently, local interests have sought to re-establish waterborne commerce and recreation on the St. Jones, Murderkill, Mispillion and Broadkill Rivers. While these efforts to improve local economies are laudible, the shortage of sites suitable for the disposal of dredged material from initial and future maintenance work makes such proposals questionable. Work is underway through the Delaware Sea Grant Program to sponsor studies of these historic ports to examine their economic development possibilities.

5.D.7.

GENERAL CMP POLICIES FOR TRANSPORTATION FACILITIES

A. Facilities Generally

1. WHEN ESSENTIAL TO THE NATIONAL INTEREST, THE CONSTRUCTION MAINTENANCE AND IMPROVEMENT OF TRANSPORTATION SYSTEMS SHALL PREDOMINATE OVER LESS ESSENTIAL INTERESTS.

2. CONSTRUCTION OF TRANSPORTATION FACILITIES SHALL BE CONSISTENT WITH CMP RESOURCE PROTECTION POLICIES.

Placement of transportation facilities shall be reviewed for compliance with the policies contained in the CMP, in particular those covered in Sections 5.A. and 5.B. Many of these concerns ordinarily will be addressed through environmental and historic impact assessments and project reviews pursuant to federal law and regulations. Nevertheless, highways and other transportation facilities have on occasion been located in sensitive environmental or cultural areas. Because these facilities can directly influence development patterns and density, care should be taken in locating them

3. TRANSPORTATION PLANNING PROGRAMS SHALL PROVIDE FOR ALTERNATIVES TO CONTINUED RELIANCE ON PRIVATE MOTOR VEHICLES WITH THEIR ASSOCIATED HIGHWAY REQUIREMENTS.

Mass transportation (bus, train, van/car pool, etc.) offers savings in energy and reduces the amount of land needed for highways and parking lots required by individual motor vehicles. Similarly, bicycle and pedestrian paths offer alternatives to highway facilities for both business and personal travel. State transportation planning programs include both mass transportation and bicycle/pedestrian components. Many local planning programs, particularly in New Castle County, are also sensitive to alternative transportation opportunities. The CMP encourages an increased emphasis on development of alternatives as urban densities increase to the point where such systems become feasible.

B. Highways

4. THE STATE SHALL UNDERTAKE AN ACCELERATED PROGRAM OF HIGHWAY MAINTENANCE, UPGRADING, AND SAFETY IMPROVEMENTS.

The CMP relies on the Delaware Department of Transportation to implement this policy. The Department monitors traffic patterns and analyzes the need for new or improved highways, including interstate highways. The Department's planning process relies on a great deal of public participation; complies with federal planning requirements, which enables the State to receive 80 percent federal money for highway planning; uses computer models which forecast needs based on population, employment, automobile ownership, etc.; and develops alternative solutions

for meeting the long-range highway transportation needs of the State. The planning process includes coordination with the State Office of Management, Budget, and Planning and Department of Natural Resources and Environmental Control; the agencies primarily responsible for Coastal Management Program planning and implementation.

This planning process is also conducted in conjunction with the regional transportation planning program of Wilmington Metropolitan Area Planning Coordinating Council (a regional agency involving municipal, county and state governments). This process considers not only Delaware's needs, but also those portions of New Jersey and Maryland. Through the WILMAPCO process, highway impact assessments are required for large private development projects and conditions can be attached to approval, including requirements for road improvements, entrance/exit controls, and traffic circulation.

C. Railroads

5. THE MAINTENANCE OF AN ADEQUATE AND EFFICIENT RAILROAD NETWORK SERVING DELAWARE IS ENCOURAGED.

This policy reflects the fact that while new major railroad lines are not needed in the State, many of the lines in Delaware need to be rehabilitated to increase their efficiency and to maintain rail service to industry and agriculture on the Delmarva Peninsula. The Georgetown to Lewes line is one example. The State and County, with federal assistance, have recently upgraded that line and plan to take whatever other steps are necessary to maintain the line in order to facilitate industrial and port development in the Georgetown and Lewes areas.

The Delaware Transportation Authority, with federal assistance and in cooperation with the State Rail Plan Advisory Committee, develops an annual State Rail Plan which must be approved by the Federal Railroad Administration before the State may receive rail service continuation subsidies.

The Plan describes the State's railroad network; summarizes rail concerns and issues; identifies the economic, social and environmental impacts of branch line, rail service changes, as well as rehabilitation alternatives; establishes State railroad policy; and discusses the past, present, and future volume and type of rail usage on the Delmarva Peninsula and on particular lines in Delaware.

D. Airports

6. THE CONSTRUCTION OF AIRPORTS AND THE DEVELOPMENT OF AIR PASSENGER AND FREIGHT SERVICES IS ENCOURAGED, PROVIDED SUCH FACILITIES ADEQUATELY CONSIDER AIR AND WATER QUALITY, NOISE STANDARDS, AND SAFETY IN ORDER TO MINIMIZE IMPACTS ON PRESENT AND FUTURE DEVELOPMENT.

The citizens of the State do not have easy access to the national air transportation system because aviation economics do not permit direct service from locations in Delaware to distant points. Large airports and service by the national air carriers cannot be economically justified by the small amount of air traffic generated in the State. However, if aviation economics ever do require an airport of national or regional importance in Delaware, its location here is encouraged.

The Delaware Department of Transportation has developed the Delaware Aviation and Airport System Plan in compliance with the National Airport System Plan required by the federal Airport and Airway Development Act of 1970. Due to the State's small size and proximity to several large international airports, the Plan concludes that there is no need for Delaware to have more than a very small proportion of the number of airports in the country. Thus, Delaware's public-use airports--the Greater Wilmington Airport, Summit Airport near Middletown, Delaware Airpark near Cheswold, and Sussex County Airport in Georgetown--meet the criteria established in the National Plan to address the national interest in the location of airports.

The State plan contains broad objectives; inventories the aviation system in Delaware; determines the capacity of airports to accommodate air traffic; forecasts aviation demand; evaluates alternatives for accommodating the projected air transportation demand; and makes recommendations for meeting future demand. Federal, State, regional, county, and local planning departments, as well as a Governor's Task Force, participated in the development and review of the plan.

E. Ports

7. THE EXPANSION AND PROMOTION OF THE PORT OF WILMINGTON IS ENCOURAGED.

8. DEEPWATER PORTS USED TO TRANSFER BULK PRODUCTS IN DELAWARE BAY ARE PROHIBITED BECAUSE OF THE ENVIRONMENTAL RISKS ASSOCIATED WITH THEIR DEVELOPMENT AND OPERATION.

9. NEW OR EXPANDED PORTS WHICH INVOLVE EXTENSIVE AND CONTINUAL DREDGING AND SPOIL DISPOSAL IN ORDER TO KEEP THEM USEABLE ARE DISCOURAGED UNLESS IT CAN CLEARLY BE DEMONSTRATED THAT SUCH FACILITIES CAN BE DEVELOPED IN AN ENVIRONMENTALLY SOUND MANNER AND WITHOUT IMPOSING CONTINUING MAINTENANCE COSTS ON ANY LEVEL OF GOVERNMENT OR THE GENERAL PUBLIC.

10. ALTERNATIVES TO THE CONTINUATION OF THE PRESENT LIGHTERING ACTIVITY IN THE BAY ARE ENCOURAGED. STRICT ENFORCEMENT OF OIL SPILL LIABILITY REGULATIONS ARE ALSO ENCOURAGED TO ENSURE THAT ALL TRANSSHIPMENT ACTIVITIES ARE PROPERLY CONDUCTED.

The State does not have a port planning process, since its largest port (Wilmington) is a municipal operation. However, the State has recognized the value of its port and navigation facilities as well as the possibility for future port development. Accordingly, the Port of Wilmington has received special attention (See Subsection 5.B.4. of this document) and the possibilites for the other ports and port-related activities are considered elsewhere in the docuement. (See also Subsection 5.A.3. Coastal Waters and the relevant portions of Section 5.D.)

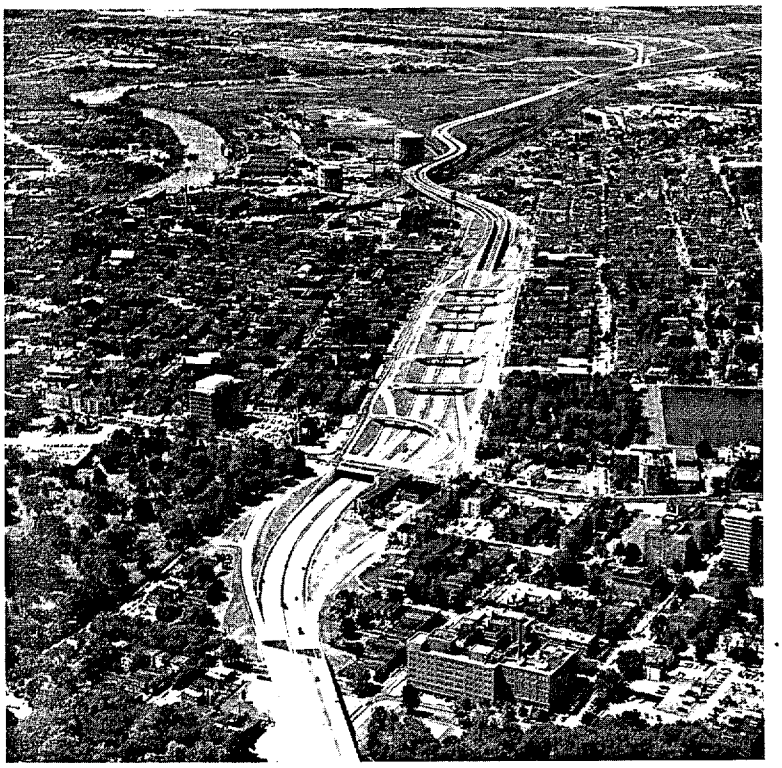
Selected References: Transportation Facilities

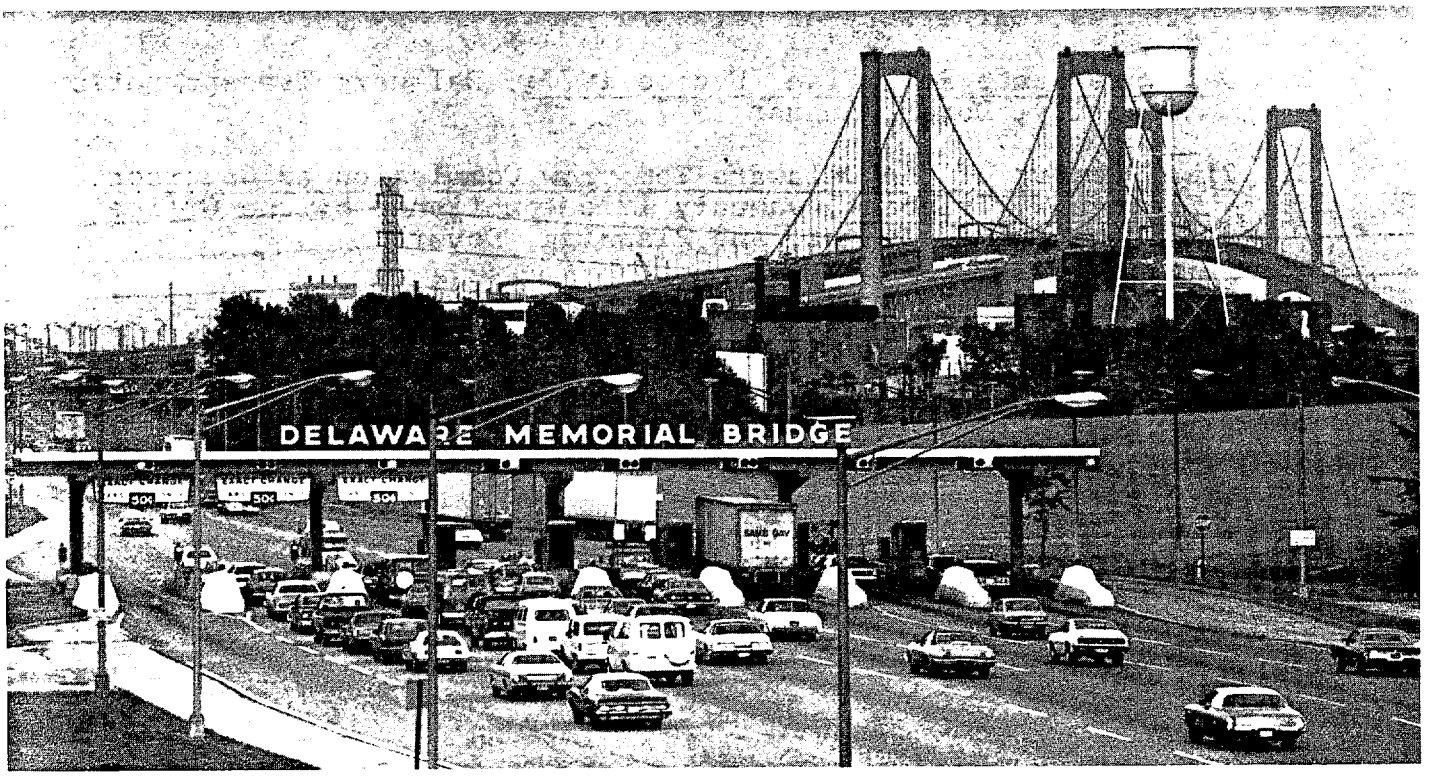
1. A Comprehensive Marine Transportation System for the Delaware Valley Region, Delaware Sea Grant Program, College of Marine Studies, University of Delaware, Newark, May 1977

2. Delaware State Rail Plan (Update 1977), Delaware Transportation Authority, Dover, August 1977

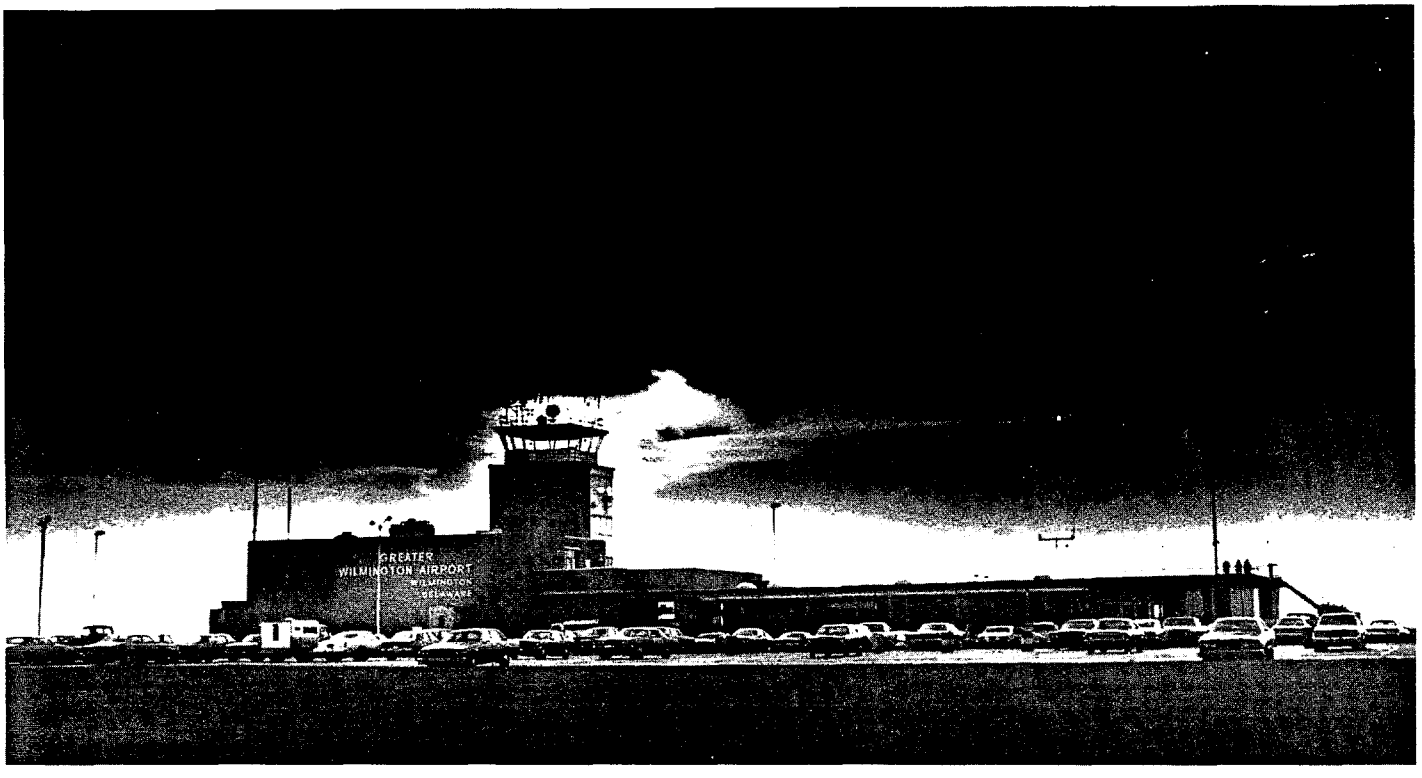
3. Final Report of the Delaware Tomorrow Commission to Governor Sherman W. Tribbitt, January 1976 (published by the Office of Management, Budget, and Planning, Dover)

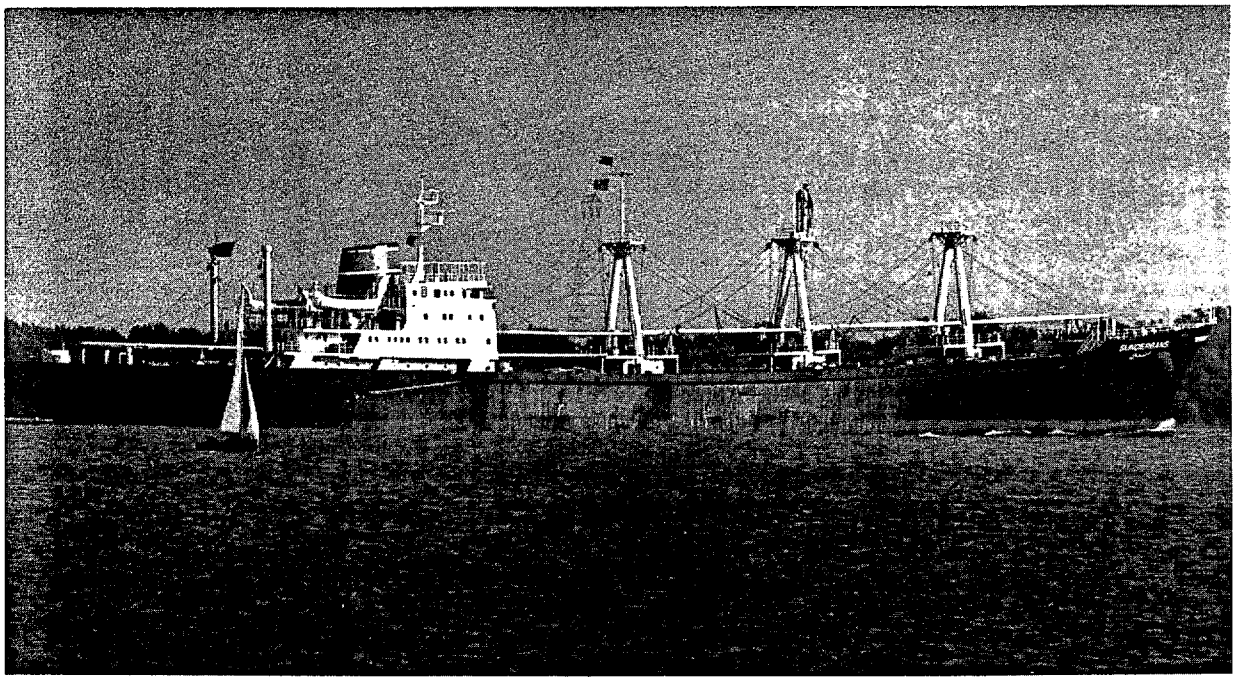
4. State of Delaware Aviation and Airport System Plan, Delaware Department of Transportation, Dover, August 1975

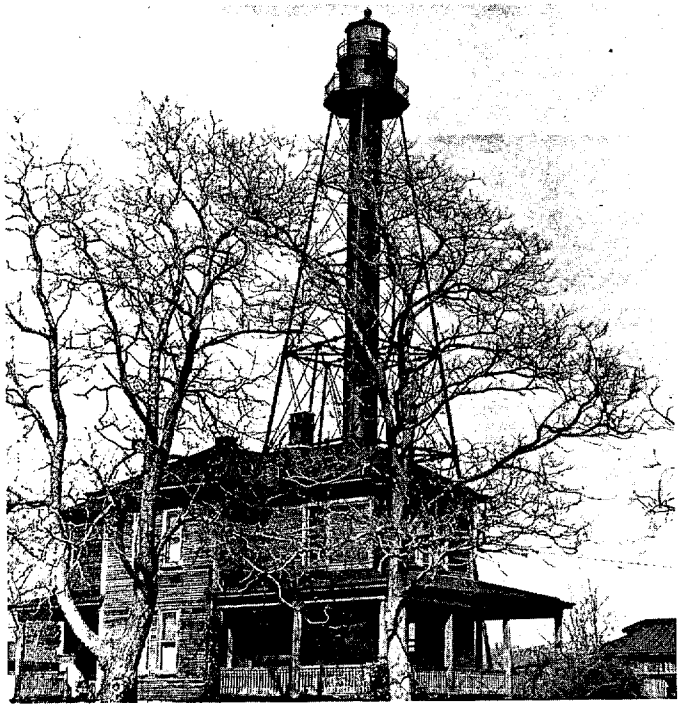



DELAWARE MEMORIAL BRIDGE

STOP


GREATER
WILMINGTON AIRPORT
WILMINGTON
DELAWARE





AIR QUALITY

SIGNIFICANCE AND VALUE

Clean air is important for four reasons: (1) protection of human health and welfare; (2) protection of animals, vegetation, and materials used in construction; (3) conservation of raw materials; and (4) enhancement of aesthetics. The federal government has undertaken a program to address this problem, with the assistance of the states, through the provisions of the Clean Air Act of 1970 as amended.

The public health issues include concern over substances which may cause or contribute to an increase in mortality or serious irreversible or incapacitating illness. Even where these and other substances do not cause death or serious illness, there may be lesser levels of pollutant concentration which may adversely affect someone Some of these adverse effects include headache, dizziness, coughing, shortness of breath, sore throat, eye irritation, nasal discharge, nausea, vomiting, chest pains, skin ulcers, loss of appetite, and mental impairment.

The relationship between air pollutants and disease has been well documented in some cases. Respiratory diseases caused or aggravated by air pollution include emphysema, chronic bronchitis, chronic constrictive ventilatory disease, bronchial asthma, lung cancer and the common cold. Cardiac diseases are often exacerbated by respiratory problems. Cancer outside the respiratory tract can also result, at least in part, from air pollutants.

Sulfur dioxide and particulates are the airborne pollutants responsible for most of the deleterious effects on people. According to the Council on Environmental Quality "Suspended sulfate aerosols are believed among the air pollutants most damaging to human health ..." Most airborne sulfur emissions originate from natural causes, but in the United States, manmade emissions--almost entirely in the form of sulfur dioxide--outweigh emissions from natural sources. Combustion of fossil fuels, smelting of metal ores, and other industrial processes are the principal manmade sources of sulfur dioxide.

Suspended particulates include dust, ash, soot, etc. They can aggravate asthma and other respiratory or cardiorespiratory problems, increase cough and chest discomfort and increase mortality. The sources of particulates include combustion of solid fuels, construction activities and industrial processes.

Carbon monoxide, nitrogen oxides and photochemical oxidants also have damaging effects. Carbon monoxide interferes with the ability of blood cells to carry oxygen, a requirement for operation of nerve tissue, can induce headaches, as well as slow physical and mental activity. Exposure to low concentrations of nitrogen oxide, which is present in automobile exhaust along with carbon monoxide, can cause visual and olfactory abnormalities. Exposure to photochemical oxidants, gaseous compounds produced from chemicals under the influence of sunlight, results in eye irritation and lung damage.

Inhalation of asbestos fibers has been related to bronchogenic cancer, asbestosis, mesothelioma, and other malignant diseases. Beryllium, a metal commonly used in nuclear reactors, is thought to cause lung cancer. Mercury, used to manufacture paint, pulp and paper, can affect the central nervous system and cause insomnia, weight loss, tremors, and physchological disturbances. High concentrations of lead in dust, vegetation, and soil near roadways cause neurological impairment including seizures, mental retardation and behavioral disorders.

Air pollution causes considerable damage to animals. Usually, however, the cases are localized, the sources of pollution are easily identified, and the economic consequences are not serious. Poisoning of livestock from airborne metals, such as arsenic, lead, and molybdenum, is not uncommon. In addition to the loss of animals, significant losses may also result from decreased reproduction and growth, as well as lower output of milk, eggs, wool, etc.

Damage to vegetation, however, is economically more serious. The Environmental Protection Agency estimated 1973 crop losses from high oxidant levels at almost $3 billion. Crop yield reductions of 30 percent or more can result from severe air pollution situations. Damage to ornamental plants, flowers, lawns, and timber undoubtedly raises the figure substantially. The air pollutants which cause the greatest harm to plant life are sulfur dioxide, hydrogen fluoride, photo-chemical smog and oxidants , herbicides and fungicides.

Air pollution abrades, corrodes, tarnishes, soils, erodes, cracks, weakens and discolors many materials, including rubber, textiles, paints, metals, electrical contacts, paper, leather, plastics and stone. In 1968, according to a study by the National Environmental Research Center, the national cost of air pollution damage to materials, was nearly $10 billion. Air pollution induced corrosion of metal alone cost the country over $1.6 billion in 1973 according to the Council on Environmental Quality.

5.D.8.

MANAGEMENT CONCERNS

Any facility or combination of facilities which emit high concentrations of air pollutants into the atmosphere are harmful. Manufacturing facilities, military bases and installations, oil and gas rigs, oil and gas storage or transportation facilities, power plants, deepwater ports, LNG facilities, geothermal facilities, highways, railroads, airports, ports, sewage treatment plants, and desalinization plants all may cause air quality problems.

The Delaware Department of Natural Resources and Environmental Control recently expressed concern that the siting in Delaware of new large sources of air pollution, in particular oil refineries, could violate national air quality standards.

Most of the national primary and secondary ambient air quality standards are now being met in Delaware. Unfortunately, a few difficulties persist. Oxidant levels in New Castle County exceed the national primary standards. The problem may exist statewide, but has been documented only in New Castle County at this time. Oxidants are formed in the atmosphere, in part, from hydrocarbons.

The Port of Wilmington is meeting neither the national primary nor secondary standards for particulates, probably because of heavy traffic and cargo transfer operations. The management of the terminal is cooperating with the State by following State recommendations (e.g., paving dirt roads) to correct the problem.

Finally, the national secondary standards for particulates are not being met in downtown Wilmington due to construction activity.

Delaware's inability to attain and maintain the national levels of air quality for each of the principle classes of pollutants is hardly suprising. As of mid-1975, the standards had been achieved in only 91 of the Nation's 247 air quality regions. The standards were exceeded for particulates in 118 of these regions.

The CMP recognizes that achievement of the desired urban development policies (5.D.2.) will require careful coordination with air quality improvement efforts in order to avoid deterioration in present achievement levels and delay in meeting of as yet unmet objectives.

CMP POLICIES FOR AIR RESOURCES

5.D.8.

1. AMBIENT AIR QUALITY STANDARDS SHALL BE ACHIEVED, THROUGH CONSTRUCTION AND OPERATION PERMITTING, ENFORCEMENT AND MONITORING ACTIVITIES PURSUANT TO THE STATE'S AIR QUALITY REQUIREMENTS.

2. PUBLIC INFORMATION, TECHNICAL ASSISTANCE AND IMPROVED RESEARCH AND ANALYSIS PROGRAMS ARE ENCOURAGED TO ENSURE THAT REGULATIONS ARE REASONABLE AND PRACTICAL TO IMPLEMENT.

Pursuant to the Clean Air Act, Delaware has formulated an "implementation plan" to meet and enforce the primary and secondary national ambient air quality standards for pollutants.

The State is working with polluters to develop compliance schedules and has begun a major program to upgrade the State monitoring systems. Finally, the Department of Natural Resources and Environmental Control intends to acquire new monitoring equipment which will provide better information and improve data handling to meet the objectives and policies of the Air Resources Program. The State's Air Quality Program, developed pursuant to the Clean Air Act, is incorporated into the Delaware Coastal Management Program.

Selected References: Air Quality

1. Annual Report, Fiscal Year 1977, Department of Natural Resources and Environmental Control, Dover

2. Environmental Quality (1975 and 1976), Annual Report of the Council on Environmental Quality, Washington, DC

3. The Effects of Air Pollution, U.S. Department of Health, Education and Welfare, Public Health Service, Washington, DC, 1966

5.D.9.

WATER SUPPLY

SIGNIFICANCE AND VALUE

An earlier section of the document (Section 5.A.3., Coastal Waters) examined issues and management approaches for coastal waters with an emphasis on water quality. This section examines water supply and use issues. An adequate supply of water is vital for economic development, industry, energy use, population growth and distribution, agriculture, fish and wildlife, transportation, and waste disposal. Population growth depends upon certain natural resources of which water is the most important.

The ability of the State's undergroundreservoirs to accept recharge from precipitation and subsequently release this water to streams, and wells determines the location and quantity of water available for use. During extended dry periods, the underground reservoirs provide all of the stream flow and store water can be withdrawn at rates greater than the short term recharge.

Streams are affected by weather changes (seasonal, drought, floods, etc.) much sooner than underground reservoirs. Consequently, surface sources of water can only be used safely at rates which are equal to or less than the underground reservoir releases during certain critical (and somewhat predictable) dry periods. The risk society is willing to take in not having sufficient water available all the time for human use is defined by the "safe yield." The more often society can tolerate shortages, the greater the safe yield. The "safe yield" of streams is usually about 100,000 gallons per day per square mile of drainage area or about 5% of the yearly precipitation according to the Water Supply Section of DNREC.

Underground reservoirs ususally store much more water than can be used in a year, consequently the risk of shortage in water systems which depend on groundwater is much less during a long dry period than for whose systems which use surface water. Thus, the "safe yield" of an underground reservoir is the average recharge rate less the discharge rate required to maintain stream flow. One estimate is that about 12% of precipitation (or 489 mgd) can probably be produced in Delaware without seriously interfering with stream flow.

In Delaware, the average precipitation is 43 inches per year. Of this, 28 inches is evaporated or transpired to the atmosphere and about 16 inches either runs off or recharges the underground reservoirs. About 20% of normal stream flow is derived directly from precipitation; the other 80 percent is groundwater discharge. Thus, the distinction between "surface water" and "groundwater" is unjustified and

impractical since the two are virtually the same water in different places at different times.

Freshwater use in Delaware averages about 140 million gallons per day. The distribution of water uses for each county by type of use and by source during 1974 - 1975 is shown in Table 1. Projections of water usage over the next 20 years are shown in Table 2. Note that the peak damands and average day demands in the peak month are significantly higher than the average demands. It is these peak demands which test the sources of supply and determine the frequency and severity of water shortages.

WATER SUPPLY MANAGEMENT CONCERNS

Most water supply problems occur in northern New Caslte County. The Wilmington metropolitan area, in particular near Newark, faces a long range water shortage. Under drought conditions the major county surburban suppliers would have short term shortages when peak use exceeds the safe yield of surface and groundwater supplies. North of the Chesapeake and Delaware Canal, nearly all the available water sources are being used. Groundwater supplies are mostly developed except for the possibility of some relatively low yield wells. Additional surface water supplies are limited to the Brandywine Creek/Hoopes Reservoir System. Increased groundwater withdrawal or surface water diversion from other streams in the area could result in overdevelopment of these resources and could aggravate the problems of salt water intrusion, leacheate contamination, and interference with wells or stream base flow.

South of the Canal, many of the large, developable aquifers remain unused due to total dissolved solids occuring naturally. There are, however, some areas , in particular at Dover and Milford, where withdrawals are resulting in dropping water tables. In some coastal locations, where water table elevations are less than ten feet above sea level, there is a potential for salt water intrusion into the groundwater if high capacity wells were to draw down the water table and reverse the head. Two coastal municipalities in southeastern Delaware were forced to move their wells farther inland because of this problem.

Leachate from solid waste and dredge spoil also impacts water supply. This problem was discussed in the "Coastal Waters" section.

Both New Castle County and the Coastal Sussex Water Quality Management Programs (208 Program) cited these problems in their final reports. They suggested that water withdrawals, both new and existing, be limited in areas where salt water intrusion or leachate problems could be encountered. Thus, the concerns of water management include:

1. The limits to which development is allowed (and the

degree to which adverse side effects will be tolerated);

2. Allocation of water between existing and potential competing users;

3. Compensation of injured parties for loss of water resulting from the regulatory agencies decisions;

4. Protection, improvement and maintenance of water quality for desired uses; and

5. Protection and preservation of at least the existing quantity and availability of water supplies through retention of existing groundwater recharge rates.

CMP POLICIES FOR WATER SUPPLY MANAGEMENT

1. THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL SHALL ALLOCATE WATER BETWEEN USERS ON THE BASIS OF EQUITABLE APPORTIONMENT OF THEIR NEEDS AND THE AVAILABILITY OF WATER.

2. GROUNDWATER WITHDRAWALS SHOULD NOT EXCEED THE "SAFE-SUSTAINED YIELD," I.E., THE AMOUNT OF WATER WITHDRAWN SHOULD NOT EXCEED THE AMOUNT OF WATER RECHARGED TO THE POINT OF WITHDRAWAL ON AN AVERAGE ANNUAL BASIS. IN SOME CASES MORE STRINGENT LIMITS WILL BE REQUIRED. WITHDRAWALS FROM CONFINED AQUIFERS SHOULD NOT CAUSE WATER LEVELS TO BE LOWERED BELOW THE TOP OF THE AQUIFERS.

3. SURFACE WATER WITHDRAWALS SHOULD BE REGULATED TO MAINTAIN STREAM FLOW AT A RATE SUFFICIENT TO ASSURE THAT WATER QUALITY STANDARDS ARE MET.

4. THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL IN COOPERATION WITH COUNTY AND LOCAL GOVERNMENTS AND PRIVATE WATER SUPPLIERS IS ENCOURAGED TO DEVELOP A COMPREHENSIVE WATER SUPPLY MANAGEMENT PROGRAM INCLUDING THE REALLOCATION OF WATER RESOURCES, THE PROTECTION OF AQUIFER RECHARGE AREAS, AND, WHERE NECESSARY, THE ABROGATION OF ALLOCATIONS TO MARGINAL USERS PROVIDED COMPENSATION IS PROVIDED.

Management of water resources of the State is vested in the Department of Natural Resources and Environmental Control. This agency is charged with the responsibility for a program issuance of permits for construction of any water facility, or the construction, installation, replacement, or modification of any equipment which is intended to withdraw groundwater or surface water. The State's program establishes limits on withdrawal; provides for allocation of water among users of common supplies; provides for compensation in the form of new wells or free hook-up and supply (limited to three years) where domestic supplies have been reallocated; and

encourages mitigating land development practices where groundwater recharge is threatened. Water quality is monitored by the Department of Natural Resources and Environmental Control to detect and assess contamination of water supply sources and by the Bureau of Environmental Health to detect contamination of public water supplies.

The State also participates in cooperative programs with the Delaware River Basin Commission (DRBC), the Corps of Engineers, and U.S. Geological Survey, the Delaware Geological Survey (DGS), and the Water Resources Center at the University of Delaware. With a grant from the Coastal Management Program the DGS and the Water Resources Center prepared Technical Report Number 3, Hydrology, Geology and Mineral Resources of Delaware's Coastal Zone.

Authority granted in 1951 to the Delaware Geological Survey provides for the study of the water resources in the State. In addition to research, the survey provides data and advisory services to the State, U.S. Geological Survey, local governments, and industries. Programs include stream flow and groundwater level monitoring, groundwater investigation, collection of water well data, water quality monitoring, and publication of hydrologic data. Seventeen stream gaging stations and about 20 observation wells are maintained to assess the amgnitude of surface water and groundwater supplies. The DGS is currently undertaking detailed studies relative to aquifers in New Castle County.

The Delaware River Basin Commission, comprised of States of Delaware, New York, New Jersey, and Pennsylvania and the Federal government, is charged with planning, managing, and regulating use of the surface and subsurface waters of the Delaware River Basin. The DRBC's authority includes all lands draining to the Delaware River Estuary and Bay-about half of the State. Water users exceeding 100,000 gallons per day are required to obtain DRBC approval. DRBC programs involve allocation of water resources, limitations on withdrawals, establishment of riverine floodplain standards, establishment of erosion and flood control measures for the Brandywine River Watershed, regulation of hydroelectric power and large storage or diversion projects, and establishment of water quality standards for stream segments.

The State's water withdrawal and allocation permit process, established pursuant to the State Environmental Protection Act in 1973 and additional water allocation legislation enacted in 1977, are the basis for the policies cited earlier. Recent permits have required curtailment of consumptive uses during periods of low stream flow and have led to a balancing of withdrawals between users to assure equitable allocation. The State, county, and local agencies, in cooperation with DRBC and the water suppliers, have emphasized water supply concerns in comprehensive land use planning programs. These concerns have been a consideration in the recent update of New Castle County's Comprehensive Plan.

5.D.9.

Selected References: Water Supply

1. Annual Report, Delaware River Basin Commission, (various years), Trenton, New Jersey

2. Hydrology, Geology and Mineral Resources of the Coastal Zone of Delaware, Technical Report Number 3, Delaware Coastal Management Program, Dover

3. Intra-State Water Resources Survey, 1959, Delaware State Coordinators, Delaware River Basin Water Resources Survey, August 1959

TABLE 1

AVERAGE DAILY FRESHWATER USE IN DELAWARE (1974-75)

(MILLION GALLONS PER DAY)

Area	Public Supply	Self-Supplied Industrial	Irrigation	Self-Supplied Domestic	Total Use
New Castle Co.					
Surface	45.0	10.3	0.3	-	55.6
Ground	15.2	7.7	1.3	2.2	25.4
Total Co.	60.2	18.0	1.6	2.2	81.0
Kent. Co.					
Surface	-	-	-	-	-
Ground	7.7	4.0	6.6	4.0	22.3
Total Co.	7.7	4.0	6.6	4.0	22.3
Sussex Co.					
Surface	-	-	0.5	-	0.5
Ground	6.5	11.9	5.2	6.9	30.5
Total Co.	6.5	11.9	5.7	6.9	31.0
Delaware					
Surface	45.0	10.3	0.8	-	56.1
Ground	29.4	23.6	12.1	13.1	78.2
Total Delaware	74.4	33.9	12.9	13.1	134.3

Source: Department of Natural Resources and Environmental Control, Division of Environmental Control, Water Resources Section.

TABLE 2

PROJECTED FRESHWATER DEMAND

(MILLION GALLONS PER DAY)

New Castle County	1976	1985	1995
Population	393,648	423,178	474,215
Avg. day	82	85	104
Avg. day, peak month	90	95	117
Peak day	99	108	132
Kent County			
Population	93,030	126,436	152,927
Avg. day	17	25	32
Avg. day, peak month	21	29	37
Peak day	23	32	41
Sussex County			
Population	88,014	108,124	133,413
Avg. day	25	32	41
Avg. day, peak month	48	58	70
Peak day	70	83	97
Delaware Totals			
Population	574,692	657,738	760,555
Avg. day	124	142	177
Avg. day, peak month	159	182	224

*does not include seasonal irrigation withdrawals from ground water which amounted to approximately 7 billion gallons during a 100-day summer growing period. Most of this water was used in southern Kent and Sussex County during 1977.

Sources: Department of Natural Resources and Environmental Control
Division of Environmental Control, Water Resources Section.

IMPLEMENTATION

As stated in the introduction to Section 5.D., many of the policies dealing with land development can be "encouraged" rather than "enforced". Accordingly, implementation is not a matter for regulatory procedures, but rather it is a matter of coordination - both a formal and informal.'

The primary mechanism for achieving the land development objectives of the CMP is the Land Use Planning Act; described in detail in Appendix E, Legal Authorities and Organization. This statute establishes a process for intergovernmental review and comment on significant land use, capital expenditures, and related actions proposed by State or local governments. Among the considerations in this review are the policies on land development adopted by the Delaware Tomorrow Commission, the impact of the proposed action on more than one jurisdiction, and regional and national interests in the decision.

Other policies, in particular those relating to public expenditures, are implemented through the State's six year capital improvements program (CIP) and annual capital budget. Each of these are prepared on the basis of an analysis of need, agency proposals, fiscal constraints (particularly those imposed by statutory debt and bond limitations), and State policy. The Office of Management, Budget and Planning is responsible for preparing the CIP and capital budget. Pursuant to Executive Order 61, which requires State agencies to comply with the CMP when adopted, the basis for preparation of the CIP and capital budget will be the CMP. While the Legislature can, and usually does, modify OMBP and agency recommendations, the policy framework established by the CMP will be given consideration.

Although local governments are not legally bound by the CMP's policies on expenditures, the adoption of a local capital improvements program and budget is an action subject to the review and comment process established by the Land Use Planning Act. Therefore, the CMP policies will be considered in local CIP decisions as well.

The State Clearinghouse Committee for federal grants-in-aid established purusant to the State Budget Act, provides another implementation technique. Under procedures established by the Budget Act, the Delaware State Clearinghouse Committee (DSCC) must approve all applications for federal assistance submitted by State agencies and applications by local governments where State

funds or other services are involved. (note: This process parallels the clearinghouse process established pursuant to federal OMB circular A-95 which is a coordination and review process applying to most applications for federal assistance.) OMBP, the designated Delaware CMP agency, also provides the staff support and reviews grant requests for the Clearinghouse Committee. An important consideration in OMBP reviews will be the policies of the Coastal Management Program. While the DSCC may not follow OMBP's recommendations, the process provides an opportunity for influencing many government projects to achieve the Program's objectives.

Encouragement policy can be an influence when no legal authority exists to mandate compliance. It is the intent of Delaware CMP to make these policies meaningful through the mechanisms described above, the coordination process discussed in Section 5.E., and the federal consistency regulations discussed in Appendix F (where applicable).

COASTAL MANAGEMENT

COORDINATION

SECTION 5E

5.E.

COASTAL MANAGEMENT COORDINATION

A. Background And Issues

"Coordination" is one of the more frequently used words in government. Committees, policy boards, councils, technical advisory groups, and a variety of other bodies have been established by virtually every agency and unit of government. Generally, these bodies result from an attempt to provide a forum for discussion of concerns, resolution of conflicts, exchange of information, the "testing" of concepts or recommendations before they are acted upon. The CMP, for example, has its own advisory group - the Coastal Zone Management Committee.

The number of such groups in Delaware once reached the point where a former Governor established a "committee on committees" to examine the problem and recommend the abolition of unnecessary groups. Recently, an Intergovernmental Task Force on Overlapping Services was established to examine the overlaps of services among levels of government.

As Chapter Four (Public Participation Process) states, the CMP began coordination early in the program's development. Coordination during program implementation will be necessary to refine the program and to avoid conflicts between agencies responsible for program implementation. In Delaware, as in most states, management of land and water is divided among several agencies within each level. Planning and zoning actions, in particular those which relate to uses of individual parcels, are primarily the responsibility of local government. Yet, the State government provides many services required by locally approved development. These development decisions often require the State to spend money for facilities which would have been unnecessary had the State and local governments worked together to resolve conflicts.

Conflicts can also occur within State government. For example, the frequent incompatibility between highways and parks can cause a conflict between objectives of the Department of Transportation and those of the Department of Natural Resources and Environmental Control (DNREC). Likewise, industrial recruitment and other development programs can hamper efforts to control or reduce air or water pollution. Preservation of historic or prehistoric sites may also conflict with plans for new construction. Inasmuch as the CMP contains policies for both resource preservation and development, coordination is needed to ensure that those

State agencies responsible for implementing the policies are made aware of how their actions may affect other CMP objectives.

In many cases the management policies are detailed enough to result in the proper decision without coordination. In others, however, the CMP's flexibility allows agencies to work together to determine the best solution to a problem. The CMP encourages consideration of different viewpoints.

Related to this is the need to recognize and preserve the powers, duties, and responsibilties which have been vested in the individual agencies and units of government. This need was acknowledged by the Delaware Tomorrow Commission. The Commission recommended enactment of state land use planning legislation providing for participation by each level of government in certain land use decisions, while preserving each other's traditional rights and powers. (The Commission found this recommendation difficult to accommodate when charged later by Governor du Pont with the responsibility for drafting the legislation).

Coordination, however, could become costly and cause delays in planning, regulatory, or other management processes. Thus it cannot be allowed to become unwieldy and cause more problems than it resolves.

B. Coordination Among State and Local Agencies

Because local governments exercise the primary control over land use, and because the State government provides much of the required public services and facilities, coordination is very important. To provide this coordination the Delaware Tomorrow Commission drafted (with CMP staff help) and recommended legislation which provided for a process to assure coordination between the two levels of government, as well as between government and private enterprise. The legislation, the Land Use Planning Act of 1978, was subsequently enacted and is discussed in detail in Appendix E (Legal Authorities and Organization). Here it is sufficient to note that the Act establishes a formal process by which State and local governments provide an opportunity for each other to review and comment on proposed actions affecting them.

Although the Land Use Planning Act provides the method which the CMP relies upon most for State-local consultation, several other methods established prior to completion of the CMP will supplement the Act. For example, the Coastal Zone Management Committee, comprised of state, county, municipal, federal, and non-government representatives, was established by Executive Order No. 41 signed by Governor Tribbitt on May 29, 1974. This Committee served in an advisory capacity during program development.

A subsequent Coastal Management Committee with specified coordination responsibilities will be established by Executive Order concurrent with program approval (See Part F of this Section). Also, all of the CMP permit decisions, discussed in Section 5.A. are preceded by an opportunity for a public hearing. If a hearing is either requested or required then local governments may comment. Local zoning decisions are preceded by public hearings at which State agencies may comment. Moreover, the "A-95" review process discussed below also provides State-local coordination.

C. Coordination Among State Agencies

The primary State coordination methods used to implement the CMP are established by three Executive Orders which will take effect upon program approval. These Orders establish the program as the official management program for the State's coastal resources; require that State departments and agencies, to the extent permitted by law, enforce the Program's goals, objectives, and policies including those in Part G of this Section; and create a Coastal Management Committee. OMBP, the State agency officially designated to oversee the program, will have the responsibility for monitoring and evaluating the management activities of those agencies and departments which have particular responsibilities under the program, and shall inform the Governor and the General Assembly of their performance. Executive Order 61 requires all State agencies to cooperate with OMBP. Such cooperation includes sufficient coordination to ensure that CMP policies are enforced. The Governor, of course, has the authority to resolve issues resulting from possible non-compliance with the program or inter-agency conflicts with program objectives and policies.

CMP policy regarding State coordination in management and public finance will also be implemented by Executive Orders 29 and 6, as amended, which establish the State and Federal Clearinghouse process and the Capital Projects Review Committee. All agencies and jurisdictions "have the opportunity to review and comment on projects in order to maximize the achievement of goals and objectives and minimize program duplication" (E.O. #29); and it is State policy "to have measurable objectives for capital improvements and their subsequent operating cost implications." (E.O. #6, as amended).

All state or local agencies or private groups which receive state or federal grants are subject to the Clearinghouse process. This review process provides for comment from other agencies

and includes an assessment of the effects of the request on the State Development Plan. The report of the Delaware Tomorrow Commission which outlined broad State development policy, is one component of that plan, as will be the Delaware CMP upon approval. Requests for grants are evaluated for policy conflicts, duplication of services, budgetary and capital improvement impacts, and benefits to the public.

Another coordination step occurs through the capital projects management process developed under Executive Order #6, as amended, and through the preparation of the State's capital improvements program. The basis for review and recommendation of projects is the State Development Plan, the policies adopted as part of it, as well as consideration of costs and benefits, need for the project, general land use impacts, and the financial condition of the State.

Finally, as stated elsewhere in the program document, many CMP-related activities require or otherwise involve State agency coordination independent of the methods described above and below. One example is the coordination provided by the Energy Facilities Siting Liaison Committee, dicussed in Section 5.D.3, which provides for coordination among agencies and governments regarding location of new energy facilities. Likewise, State agencies consult with the Delaware Division of Historical and Cultural Affairs before doing anything which may affect historical or cultural sites. The Delaware Office of Management, Budget, and Planning consults with DNREC on permit applications filed pursuant to the Delaware Coastal Zone Act.

D. Coordination With Federal Agencies and Consideration of National Interests

State-federal conflicts have been lessened through direct involvement of some federal agencies in program development as members of the Coastal Zone Management Committee. Other federal agencies were contacted for their comments early and often during program development. Section Four documents those contacts. The participation by some federal agencies in the CMP's advisory committee during program development was beneficial to both levels of government and will be continued.

The CMP will invite federal agency participation in technical or advisory committees established to plan for and manage coastal resources, and will evaluate programs, plans, and grant requests subject to the State Clearinghouse Process for their relationship to federal concerns as well as to State policies. In the latter case, where projects before the Clearinghouse appear to be of concern to certain federal agencies, these agencies will be notified and offered an opportunity to comment.

5.E.

During program implementation, the CMP will consider the national interest in: (1) the planning for and siting of facilities which are necessary to meet other than local requirements; and (2) coastal resources conservation and protection. OMBP will assume the responsibility for ensuring such consideration. There are three types of decisions which will require that the national interest be considered during program implementation: (1) decisions by State government which involve planning for or locating facilities necessary to meet other than local requirements; (2) decisions by local units of government which involve planning for or locating facilities necessary to meet other than local requirements; and (3) the annual program review. In addition, federal agencies and other interested parties will be given an opportunity to present their evaluation of the national interest to State and local decision makers. Some of the methods for doing this are described in this section. Others appear elsewhere in the document. An especially important one is discussed in Subsection 5.D.3., which deals with energy facilities.

As explained above, Executive Order 61 requires OMBP to monitor and evaluate the management of the State's coastal resources by State agencies and local governments. It also requires all State departments and agencies to cooperate to the maximum extent possible with OMBP. Moreover, Executive Order 61 requires all State departments and agencies to enforce the goals, policies and objectives of the Coastal Management Program. Thus, the policy in Part F. of this section which calls for consideration of the national interest is enforceable.

The national interest will be considered in the amendment of any State rule or regulation used to implement the CMP and in planning for and locating the facilities identified in Working Paper No. 7, entitled The National Interest in Resources and Facilities of the Delaware Coastal Zone. OMBP may add facilities to this list if it determines that there is a national interest in them.

OMBP will submit written comments addressing the national interest in proposed facilities to the appropriate State departments and agencies with planning or siting authority. The comments will attempt to balance the national interest in the proposed facility with the national interest in the preservation of resources. Sources of information used in that balancing process will include Working Paper No. 7; policy statements from the President; federal laws; statements from federal agencies; testimony from public hearings or other public comment; or plans reports, or studies from federal, State, or interstate agencies or local government.

5.E.

The appropriate State agency will respond in writing to OMBP's comments on its planning action or siting decision. This response will summarize the comments and explain how they were considered in the decision to monitor and evaluate the management of the State's coastal resources pursuant to Executive Order No. 60. In the event that OMBP determines that the response inadequately considers the national interest, it will so notify the Governor and resubmit its comments to the appropriate agency, which will then respond anew.

Executive Order No. 60 requires OMBP to submit comments relating to local land and water use decisions and the relationship to Coastal Management Program policies and concerns to local officials. The above cited policy which requires consideration of the national interest will be implemented by Executive Order 60 and the Land Use Planning Act. The Act requires a written rationale for the local government's decision, and it must include a discussion of OMBP's comments or recommendations. A State review board may require reconsideration of the local decision if the local government fails to consider the comments. It is also important to note that under the Land Use Planning Act interested federal agencies must be: (1) Notified of proposed land use planning actions of greater than local significance; (2) afforded an opportunity to participate in the local decision process; and (3) allowed to submit comments and recommendations on such actions.

The CMP recognizes that the national interests in facilities and resources may change. Inasmuch as many of the broad policies in the program cannot be easily reviewed on a case-by-case basis, the national interest in such policies will be reconsidered once a year by OMBP in the annual report to the Governor, the General Assembly, and OCZM.

An additional method to ensure federal and State coordination will be the establishment of joint permit review prior to formal permit action by either party. A coordination process between State agencies and some federal agencies has been established relative to State/Corps of Engineers approvals, and additional steps will be taken to institutionalize this process. Informal coordination, of course, already takes place between many State and federal agencies on a range of CMP concerns.

Finally, the federal constistency provisions outlined in Appendix F will also be used to make sure that federal actions are consistent to the extent practicable with the CMP.

E. Regional Coordination

Coordination among the localities and states in Delaware's region has been of concern since the program began. Actions by neighboring states can affect Delaware and its coastal resources. In order to identify regional problems and to ensure that compatible approaches to the management of regional resources are being used by the states, Delaware hosted the first of a series of meetings among State CMP staffs. Included at these meetings are Delaware, New Jersey, Pennsylvania, Maryland, Virginia and, more recently, North Carolina, South Carolina, and Georgia.

A higher level of coordination is the Mid-Atlantic Governors' Coastal Resources Council (MAGCRC), an organization formed by the Governors of the states in the region for the purpose of exchanging information, developing policy, and preparing responses to federal agencies on coastal issues, primarily those relating to outer continental shelf (OCS) oil and gas exploration and development. This group, which involves the Governors and the officials responsible for development of State OCS and energy policy, has met on a somewhat regular basis and has been successful in raising the level and scope of state participation in many federal OCS leasing and regulatory processes.

Another regional coordination effort, currently only in the developmental stage, is the establishment of a Regional Coastal Information Center (RCIC). This proposal is in response to concerns of coastal managers and concerned citizens who lack information and are concerned that research and information gathering programs and projects may be duplicative or fail to address clearly perceived problems. A definite need for a quick response information delivery system has been identified. The information needs are quite diverse, ranging from highly specific environmental data to more general background information on coastal law. The National Coastal Zone Information Center of OCZM has supplied some of the information, but a national center cannot begin to provide the specialized coverage needed at state and local levels.

The Delaware CMP made an initial attempt at closing this gap by funding a Research Clearinghouse based on work done by the University of Delaware which related to coastal management. This start was useful but limited in scope.

New England and the Pacific Northwest have responded to the need for more localized coastal information through the formation of RCICS. The RCIC approach was first suggested at the national level by OCZM and the Sea Grant Marine Advisory Service. The mid-Atlantic States have proposed a more decentralized and state-specific system.

This system will provide a readily accessible quick-response coastal information capability for state coastal planning programs and other state and local agencies, scientists and technical personnel needing environmental data and/or bibliographic information, Sea Grant programs, regional fishery management, and the general public. Delaware's CMP will work with the Delaware Sea Grant Program in support of this proposed system.

Another issue involving regional coordination is limited in scope and involves the Delaware-New Jersey boundary along the upper Delaware River, in particular as it affects Salem County, New Jersey. As a result of a 1933 U.S. Supreme Court ruling, Delaware's jurisdiction extends to the low water mark on the New Jersey shore. Salem County officials contend that Delaware law, in particular the Delaware Coastal Zone Act, unduly restricts development along the Delaware River in New Jersey. Delaware officials and CMP staff members met with Salem County officials to discuss the matter. While Delaware understands Salem County's concerns, there is no evidence that New Jersey has suffered any adverse effects. Thus, an exchange of information between the parties is deemed the best way to avoid problems. Therefore, Delaware has agreed to share information on Coastal Zone Act applications, where appropriate, with Salem County, and has asked Salem County to notify Delaware whenever an impending development in their county could raise the jurisdictional difficulty. In any event, only a few possible uses would cause problems. For example, single purpose (use) piers extending into the Delaware River, the most likely regulatory issue, would require a Delaware Coastal Zone Act permit, but experience under the Act involving Delaware and Pennsylvania shows that such applications can be processed to the satisfaction of all parties.

Finally, a long-standing, regional coordinating group in the Wilmington area, the Wilmington Metropolitan Area Planning Coordinating Council (WILMAPCO), is significant to the CMP. Municipal, county, and State representatives from Delaware, Maryland, and New Jersey work together in WILMAPCO to resolve interstate and intrastate issues affecting the Wilmington Area.

F. Coastal Management Committee

An Executive Order to be issued prior to program approval will establish a Coastal Management Committee to be comprised of private citizens and officials from State, county, and local governments to provide oversight and coordination regarding program implementation. Among the duties of the Committee may be:

1) To advise OMBP on applications for Section 306 grants, including review of OMBP's annual work plan;

5.E.

2) To approve applications for CEIP grants and loans where required under the CEIP Intrastate Allocation Process;

3) To monitor CMP implementation to ensure that the Program is achieving stated objectives;

4) To review and offer recommendations on federal actions subject to the provisions of Section 307 of the CZMA (federal consistency);

5) To provide an informal forum, where appropriate, for the review of plans, large development projects, capital programs, etc., covered by the Land Use Planning Act (this would not substitute for the process established by the Act, but would allow for informal discussions of issues which are subject to the Act's provisions);

6) To recommend and approve CMP amendments, including the designation of Areas of Particular Concern/Special Management areas, etc.; and

7) To function as a special problems advisory group when needed for review of projects; changes in federal, state, or local law or regulation; or other matters of interest to coastal management.

This method, combined with those listed above, provides for intergovernmental and interagency coordination which will ensure that Delaware's Coastal Management Program is effective.

G. Coordination Policies

1. STATE AND LOCAL GOVERNMENTS RESPONSIBLE FOR IMPLEMENTING THE CMP SHALL PROVIDE AN OPPORTUNITY FOR ONE ANOTHER, FEDERAL AGENCIES, AND OTHER INTERESTED PARTIES TO REVIEW AND COMMENT ON PROPOSED ACTIONS WHICH MAY BE OF MORE THAN LOCAL INTEREST.

This general policy will be implemented by the methods discussed above. The details of the most important method--the process established by the Delaware Land Use Planning Act--appear in Appendix E (Legal Authorities and Organization). It will also be implemented through the Coastal Management Committee.

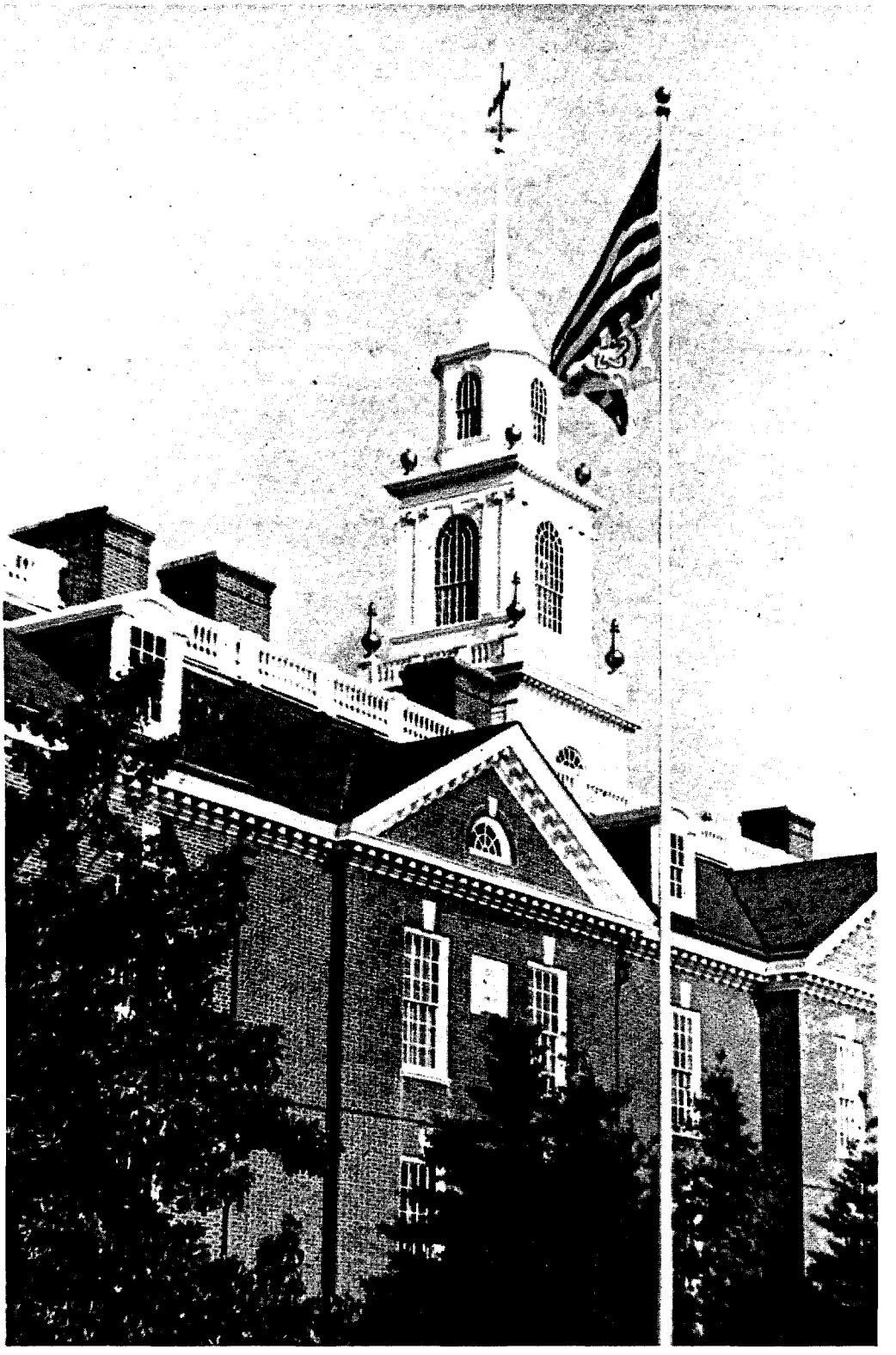
2. STATE AGENCIES RESPONSIBLE FOR IMPLEMENTATION OF THE CMP SHALL COORDINATE THEIR CMP IMPLEMENTATION RESPONSIBILITES WITH EACH OTHER TO THE EXTENT NECESSARY TO ASSURE WELL-INFORMED AND REASONED PROGRAM DECISIONS.

5.E.

This policy will be enforced, if necessary, by the Office of the Governor pursuant to Executive Order 61.

3. ALL STATE AGENCIES AND LOCAL UNITS OF GOVERNMENT SHALL CONSIDER, PRIOR TO ANY CMP DECISIONS, THE NATIONAL INTEREST IN: (1) PLANNING FOR AND LOCATING FACILITIES WHICH ARE NECESSARY TO MEET OTHER THAN LOCAL REQUIREMENTS; AND (2) COASTAL RESOURCE CONSERVATION AND PRESERVATION.

The preceding discussion and Appendix E. provide the details of how this policy will operate, as well as the authority for it. The facilities and resources to which the policy applies are further described in Working Paper No. 7.



APPENDIX

INTRODUCTION

The federal Coastal Zone Management Act (CZMA) and the regulations adopted pursuant thereto (15 C.F.R. 923) were relied upon a great deal for guidance during development of the CMP. Thus many of the program elements in the document reflect consideration of specific provisions in the CZMA. The appendices which follow serve two purposes. One, they give those unfamiliar with the CZMA a better idea of why the CMP has addressed certain issues. The appendices accomplish this by re-stating the general CZMA planning requirements. Two, the appendices serve those who are familiar with the requirements by explaining where in the document or the appendices certain CZMA requirements are satisfied. This should be especially helpful to the U.S. Secretary of Commerce who is responsible for reviewing and approving the program.

APPENDIX A - GENERAL REQUIREMENTS

The federal requirements for an approvable coastal management program include: (1) An identification and evaluation of the coastal resources mentioned in the Coastal Zone Management Act (CZMA) that require management or protection by the State; (2) a reexamination of existing policies or the development of new policies to manage these resources; (3) a determination of particular uses and special geographic areas that are to be subject to the management program; (4) an identification of the inland and seaward areas subject to the program; (5) consideration of the national interest in planning for and locating facilities that meet more than local requirements; and (6) sufficient legal authorities and organizational arrangements to implement the program. In developing the CMP, an open process must be followed which involves providing information to and considering comments from the public.

The Delaware CMP addresses all of the above requirements. The Delaware CMP contains three kinds of policies: resource management; coastal development; and governmental process. Distinctions among these three kinds of policies are not always possible, but in general they can be classified as follows:

(a) Resource Mangement policies deal with management of valuable or vulnerable resources, such as wetlands, beaches, floodplains, estuaries and inter-tidal areas, wildlife habitats, rare or unique natural areas, and historic and cultural areas. These policies are found primarily in Sections 5.A., 5.B. and 5.C. of the document.

(b) Coastal Development - policies deal with shoreline access, port development, energy facilities, and large scale residential and other forms of development. These policies are found primarily in Section 5.D., although many of the policies contained in the resource protection sections are clearly related to development.

(c) Governmental processes - policies establishing administrative and regulatory procedures and responsibilities to address such matters as permitting, coordination, consideration of uses of more than local concern, etc. Delaware's program addresses this class of policy through Section 5.E. and the legal authorities appendix. Also many of the policies contained in other Section 5 discussions deal with roles and responsibilities for coastal management.

APPENDIX B - USES SUBJECT TO MANAGEMENT

These requirements address determination of uses which shall be subject to management under the program. Required are resource inventories, analysis of the demand resource use, and analysis of possible adverse impacts of use on the quality, location and distribution of important coastal resources. These form the basis for the program's policies, authorities, and management methods. Consideration should be given to the possible impacts of: (a) residential and commercial development, such as subdivisions, high rise apartments or hotels, trailer parks and second home developments, and shopping centers; (b) industrial developments, such as tank farms and refineries, power plants, manufacturing complexes, industrial parks, onshore and offshore port facilities, mineral and sand extraction operations, liquified natural gas facilities, petrochemical plants, and OCS development; (c) recreational facilities, such as camp grounds, amusement parks, marinas, and other boating facilities; (d) public facilities and public works such as schools, hospitals, government buildings, and sewage treatment facilities; and (e) transportation facilities such as highways, railroads, airports, ports, and harbors.

1. Use Permissibility

State programs must contain policies and procedures by which uses determined to be subject to the management program will be allowed, conditioned, modified, encouraged, or prohibited. Such policies and procedures must be enforceable at the time of program approval.

In order to assess use permissibility, a number of inventories and assessments were undertaken; many of which resulted in technical reports and papers. Sensitive resources (e.g., wetlands and beaches) were studied and impacts of use were examined. Considered were air and water quality impacts, health of the plant and animal communities, public safety and welfare, aesthetics, and conflicts with other uses.

In Chapter 5 the Delaware CMP discusses these impacts and the conditions under which various uses will be permitted. It should be noted that many of the uses, which must be considered, are also subject to encouragement policies when such uses occur in areas not having a direct and significant impact on coastal waters. In these cases, the location or magnitude of the use may raise land use, public facility, or other concerns. When this occurs such uses are subject to the policies and coordination procedures described in Sections 5.D. and 5.E.

2. Uses of Regional Benefit

A state's program must provide a method for assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit. Pursuant to options allowed by federal regulations, Delaware has defined uses of regional benefit to include facilities in which there is a national interest. Working Paper Number 7, The National Interest in Resources and Facilities of the Delaware Coastal Zone is incorporated therein by reference as it pertains to this requirement. In accordance with this paper, national defense and aerospace facilities, energy production and transmission facilities, recreational facilities, transportation facilities, and regional wastewater treatment plants are uses of regional benefit. In addition, the Land Use Planning Act establishes conditions relating to other actions which involve more than one local jurisdiction. The process, conditions, and applicable authority to assure that local decisions do not unreasonably restrict or exclude uses of regional benefit are discussed in Appendix E, Legal Authorities and Organization, Part 3.

3. Energy Facility Planning Process

States are required to develop a planning process capable of anticipating and managing the impacts of energy facilities, including, but not limited to, the impacts of offshore oil and gas exploration.

Working Paper No. 7, incorporated by reference as part of the Delaware CMP, provides the analysis and rationale to energy facility siting concerns. Section 5.D.3., "Energy Facilities," addresses planning and policy considerations. Appendix E, Legal Authorities and Organization, discusses the State's authority regarding specific energy facility siting considerations. Together, the working paper, Section 5.D.3., and Appendix E satisfy the energy facility planning process requirements.

APPENDIX C - SPECIAL MANAGEMENT AREAS

Some Delaware areas are of particular concern because of their coastal-related values or characteristics, or because they may face pressures which require attention beyond that provided in the general CMP planning and regulatory system. This attention could take several forms including increased public expenditures, intergovernmental coordination, technical assistance, or additional maintenance. Most importantly, the attention might foster public awareness of the importance of the special areas, thereby generating support for their wise utilization in the future.

The federal Coastal Zone Management Act (CZMA) and regulations adopted pursuant thereto require that the CMP consider the following: (1) areas of particular concern; (2) priorities of uses; (3) other areas of particular concern; (4) areas for preservation or restoration; (5) shorefront access and protection planning; and (6) shoreline erosion/mitigation planning.

1. Areas of Particular Concern

The CZMA requires that the CMP inventory and designate "areas of particular concern" within the coastal zone. The federal regulations identify several areas which should be included in the inventory, ranging from "areas of unique, scarce, fragile, or vulnerable natural habitat" to "areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters." Working Paper No. 3, Geographic Areas of Particular Concern, inventories most of these areas. In addition, Section 5. of the program document details the significance of the areas which require consideration. Although Section 5. does not explicitly discuss each area in terms of a possible "Area of Particular Concern" designation, it does explain what and why each management approach is selected. Implicit in that explanation is a consideration of which areas merit designation as "areas of particular concern."

The CMP's general planning and regulatory system addresses the coastal management problems in Delaware. For example, a variety of environmental safeguards are provided to protect valuable resources. Designation of these areas or others as "areas of particular concern" will not affect their management in any significant way. It is hoped, however, that the designation of four areas will enhance their management.

Delaware's wetlands are the first of these areas. The importance of wetlands is stressed in the program document, Working Paper No. 7, and Technical Report No. 2.

The designation of wetlands as an Area of Particular Concern once again emphasizes to the public the importance of preserving this invaluable resource, and thereby encourages continued support for wetlands preservation. The management policies, guidelines, and discussion in Section 5.A.1. of the document are based on this objective.

A second Area of Particular Concern is "Public Lands" discussed in Section 5.B.1. The history of land title problems indicates that special measures are needed to monitor boundary developments which may adversely affect the public's interest in the area. This interest reflects the area's extremely high recreational value. Although the State has always had the authority to protect these lands, it has not always had the interest, support or means to do so. The designation as an Area of Particular Concern is intended to focus attention by State government, the public-at-large, individual property owners who may be directly and substantially affected by the policies contained in Section 5.B.1., and the federal Office of Coastal Zone Management whose support may be needed to provide adequate funding for policy enforcement.

The third area selected for designation is the Port of Wilmington. Because the Port is important to the State and regional economy, and serves the Nation in many other ways--for example, as a conduit for energy resources--the CMP exempts the Port from the bulk product transfer prohibitions which the Delaware Coastal Zone Act applies to coastal areas outside the Port. The CMP has also supported and will continue to support the Port's attempts to expand its facilities so that it can meet anticipated demands. Finally, CMP efforts will continue to promote State investment in the City-operated Port.

The continued success of these CMP efforts will depend on the public's awareness of the Port's contribution to the State, regional, and national welfare. The designation of the Port as an Area of Particular Concern fosters such awareness.

The fourth area selected for designation is beaches. The area so designated, however, is much more limited than the statutory definition of beach. That definition includes all lands from the mean high water line inland 1,000 ft. or to the nearest roadway, which ever is closer. The area being designated as an Area of Particular Concern is the beach lands seaward of the building line. Since beaches are universally recognized for their recreational value, it would appear that they would not have to be singled out for special consideration. There is, however, a general lack of understanding of coastal processes on the part of the public and of the effects of construction on or alteration of those lands. This lack of understanding was evident during the Governor's Workshop on Shoreline Erosion and Flood Prone Areas conducted on March 6, 1978.

It was felt, therefore, that those lands which are both readily identifiable and which bear the most direct relationship to coastal processes should be singled out for special management and public focus.

Federal regulations require that the CMP "describe how the management program addresses and resolves the concerns for which areas are designated." Sections 5.A.1., 5.A.2., 5.B.1., and 5.B.4. provide the details of why the CMP is concerned about the areas designated and how it addresses those concerns. As indicated above, the primary purpose of the designations is to promote continued public understanding and support for the management strategy used to address the concerns.

The CZM regulations also require that the areas designated as Areas of Particular Concern be identified in sufficient detail to determine with reasonable certainty whether a given area is included in the designated areas. For this purpose the program document includes maps of the designated wetlands and "public lands." Detailed maps are available for inspection at the Delaware Department of Natural Resources and Environmental Control (DNREC) in Dover. As for the Port of Wilmington, all areas within the City limits of Wilmington are included in the Port for purposes of the CMP. The beaches so designated will be surveyed and mapped in the near future per the Regulations Governing Beach Protection and the Use of Beaches.

Finally, the federal regulations encourage the CMP to involve local governments, other State agencies, federal agencies, and the public in the process of designating Areas of Particular Concern. The Delaware CMP, accordingly, has invited such involvement several times. Working Paper No. 3 was distributed to interested members of the public primarily to elicit recommendations on the designations. In addition, newsletters, workshops, and the Delaware Coastal Zone Management Committee (a broadly represented advisory group to the CMP) considered the designation issue.

A recommendation was received by the U.S. Environmental Protection Agency to designate Indian River Bay and Rehoboth Bay. After careful consideration this recommendation was not adopted. EPA is concerned that development along the two aforementioned Bays is causing environmental stress which the water bodies cannot handle. Although there is considerable merit in that contention, the CMP declines to designate the area as an Area of Particular Concern for the following reasons: (1) DNREC has the necessary regulatory authority and administrative support to address the problem; (2) DNREC is fully aware of EPA's concern and the problems associated with the Bays;

(3) DNREC is fully committed to solving these problems; and (4) the Coastal Sussex 208 Program is also directing much of its effort to the problem. Thus the federal, State, and local agencies which have the responsibility for solving the problems are all keenly interested in doing so.

Similar reasoning ruled out the designation of coastal waters as well as the "Coastal Strip" regulated under the Delaware Coastal Zone Act. Both of these areas have public visibility, as reflected in the management policies of the CMP.

2. Priorities of Uses

The CZMA provides that the CMP must include "Broad guidelines on priorities of uses in particular areas, including specifically those uses of lowest priority." The federal regulations interpret this requirement to mean that priority of use guidelines must be established at least for areas designated as "Areas of Particular Concern." The purpose of the priorities established by the CMP is not to determine or dictate what use would prevail in a given situation, but rather to guide or advise the decision makers who carry out the CMP on how certain discretionary powers should be exercised. As such the priorities serve to: (1) provide a basis for special management in areas of particular concern; (2) provide a common reference point for resolving conflicts; and (3) articulate further the nature of the interests to be promoted, prohibited or managed as a result of designation.

The Delaware CMP establishes priorites of uses for wetlands, beaches, "public land", and the Port of Wilmington. Sections 5.B.1. and 5.B.4. describe the priorities for the latter two areas. Priorities of uses for wetlands and beaches are established below.

The highest priority uses of the wetlands are ones that preserve the basic productivity of the resource and which maintain its recreational, scenic, flood buffering, and sediment trapping capabilities. Uses which are generally consistent with these objectives including hiking, hunting, fishing, haying, trapping, and grazing of domestic animals. Related structures which cause little environmental damage, such as duck blinds and waterfowl nesting structures are also high priority uses. Lowest priority uses are more permanent structures which require waterfront locations for their central purpose and have no alternative on adjoining non-wetland property of the owner. A docking facility is an example.

For the purposes of this section beaches shall be subdivided into two zones. The first zone consists of those beach lands extending from the water's edge inland to the vegetation line. This area is also called the backshore or beach berm. The highest priority uses in this area are those related to recreation, such as sunbathing, surfing, picnicking, swimming and similar activities.

Lowest priority uses are those involving the construction of buildings or shore protection devices which may have an adverse effect on the beach or adjacent beaches. The second zone consists primarily of the dune and extends roughly from the vegetation line to the building line. Since the dunes are so fragile to human uses, it is difficult to assign uses of highest priority. This area should actually be designated as a no use zone with the exception of appropriately constructed dune crossovers for public access. All other uses are of lowest priority.

3. Other Areas of Particular Concern

The regulations provide that the CMP may (1) establish a process for designating Areas of Particular Concern in the future, or (2) indicate areas that are known to require additional management although the exact nature of appropriate management requires, for some good reason, additional time to determine or effectuate. Except as provided for Areas of Preservation and Restoration (See #4 below), the CMP exercises neither of these options. The process for additional designations of Areas of Particular Concern will be established if and when such designations become appropriate. The annual review of program implementation will assess whether additional designations are appropriate, but it is not anticipated that the assessment will involve use of the criteria and procedures contemplated by the federal regulations under the option.

The CMP considered the possibility of exercising the second option for floodplains. Under an earlier version of the CZMA regulations, areas could be identified as ones which may need additional management. Floodplains in Delaware could be identified in that manner because, as Section 5.B.3. points out, the federal-local floodplain management program may not successfully address all of the State floodplain management concerns. The current regulations, however, tie the option to areas "known to require additional management." The federal-local floodplain program is expected to accomplish the CMP objectives and it would therefore be inaccurate to categorize floodplains as areas known to require additional management.

4. Areas for Preservation or Restoration - Future Designation Process

The CMP must provide for procedures whereby specific areas may be designated for the purpose of preserving or restoring them for their conservation, recreational, ecological or esthetic values (Section 923.21-24 of Program Approval Regulations). Delaware's CMP relies on several processes for this purpose, specifically, the Natural Areas Preservation Program described in Section 5.B.2. and the Critical Areas Planning process required under the Delaware Land Use Planning Act (described in Appendix E). Through the Natural Areas Preservation Program, the prinicpal means used for future APR designation, registries of natural areas will be developed

utilizing studies done for New Castle County and the CMP, additional investigations undertaken by the Department of Natural Resources and Environmental Control's Office of Heritage Planning and Research with the assistance of governmental and private parties, through the SCORP Planning Process, nominations by landowners and other individuals, and recommendations by the Natural Areas Advisory Council.

Policies and procedures for designation of natural areas and for dedication of such areas as nature preserves are being developed by the Department pursuant to the Natural Areas Preservation Act (Title 7, Chapter 73, Delaware Code). Included will be administrative procedures relating to the nomination process, guidelines for local tax relief and public access relating to natural areas, dedication procedures and standards, and management standards. These policies and standards will be adopted by the Department after public review and approval by the Natural Areas Advisory Council and will be in place during the first year of CMP implementation.

The secondary means of APR designation is the critical areas plan preparation process required of the State and all local governments pursuant to the Land Use Planning Act (Title 29, Chapter 92, Section 9212). The statute requires that land us actions affecting critical areas be subject to review by the impacted agencies prior to final decisions. Critical areas as defined by the Act include areas of physical, economic or social importance such as wetlands, major port facilities, and historic areas. While no jurisdicition has completed its critical area plan (as of June 1979) the preliminary guidelines based in part on "Critical Areas Programs: Guidebook for State and Local Governments," Institute of Rational Design, Inc. NY, July 1977) developed by the Office of Management Budget, and Planning suggest that "physical" areas include beaches, flood hazard zones, major acquifer recharge areas, natural hazard areas, forests, and other areas of importance to the State. To the extent that particularly sensitive areas are identified by critical areas plans (the approval of which requires public and governmental agency review) additional management techniques and APR designation may be appropriate.

Finally, many ongoing programs will identify areas which could be designated for special management actions. For example, a State-Federal (HCRS) study is underway to identify rivers and their immediate environs for outstanding recreational, scientific and educational characteristics. This study may result in the nomination of some river segments for additional management. The study will explore administrative and legal options which would facilitate the protection of these riverine areas. As appropriate the recommendations of this study will be considered in the annual review and updating of the CMP.

5. Shorefront Access and Protection Planning

The CMP must develop a planning process that can identify public shorefront areas appropriate for access or protection. The basic purpose in focusing special planning attention on shorefront access and protection is to express more than local concern with respect to additional access or protection needs for public beaches and other public coastal areas of environmental, recreational, historic, esthetic, ecological or cultural value and to include these areas for special management attention within the purview of the CMP. Fortunately, adequate public access to and protection of Delaware's ocean front beaches are assured by virtue of the State Park holdings in this area. Program document Sections which combine to satisfy the planning requirement include 5.A.2. (Beaches), 5.B.1. Public Lands 5.C.5. (State-owned Coastal Recreation and Conservation Lands), 5.D.5. (Recreation), and, to a lesser extent, 5.A.1. (Wetlands), 5.A.3. (Coastal Waters, 5.A.4. (Coastal Strip and Underwater Lands), 5.B.2. (Nature Preserves), 5.C.1. (Woodlands and Agricultural Lands), 5.C.2. (Historic and Cultural Areas), and 5.D.9. (Transportation Facilities). In addition, Working Paper No. 8, Beach Erosion Control and Shoreline Access Planning, provides a detailed inventory and analysis of Delaware's publicly accessible shorelines.

This long list is not surprising given that the requirement deals with the access and protection needs for other shorefront areas beside beaches. These shorefront areas are comprised of many types of coastal resources, each of which the CMP considers to some extent.

6. Shoreline Erosion and Mitigation Planning

The CMP must also establish a planning process to assess the effects of shoreline erosion and evaluate ways to mitigate, control or restore areas adversely affected by erosion. This process must also include methods and procedures to designate for erosion control, mitigation and/or restoration as areas of particular concern or areas for preservation and restoration, if appropriate. The CMP must also articulate policies pertaining to erosion, including policies regarding preferences for structural, non-structural or no controls. The Section of the Program document dealing with beaches (5.A.2.) summarizes this planning process and Working Paper No. 8, Beach Erosion Control and Shoreline Access Planning, (incorporated by reference in the CMP) discusses it in detail.

APPENDIX D - BOUNDARIES

The federal Coastal Zone Management Act (CZMA) requires that the CMP identify the boundaries of the coastal zone subject to the management program.

Working Paper No. 2 provides background information on the requirements, and the various options considered during the course of program development. These options included biophysical boundaries -- such as wetland drainage areas, flood hazard areas, watersheds, and the ten foot elevation contour; and institutional boundaries, such as the coastal counties, the Delaware River Basin Commission Boundary, and the areas delineated under Section 208 of the Federal Water Pollution Control Act of 1972.

There are four elements to the CMP boundary: (1) the inland boundary; (2) the seaward boundary; (3) excluded lands; and (4) interstate boundaries.

1. The Inland Boundary

According to the CZMA, the inland boundary must include those lands, "the uses of which have a direct and significant impact on coastal waters." "Coastal Waters" are those waters which contain a measurable quantity or percentage of seawater. In Delaware, there are no lands more distant than eight miles from coastal waters. Inasmuch as the primary purposes in defining the boundary are (1) to assist coastal residents and property owners as well as resource users and governmental entities to understand the geographic scope of the management program and (2) to identify areas eligible for Coastal Energy Impact Program assistance, an inland boundary which can be described in a manner which is sufficiently clear and exact for such purposes is obviously preferable over one that is not. By defining the inland boundary in terms of existing political jurisdictions, the objectives of clarity and exactness can be realized. Thus the Delaware CMP has elected to utilize it county boundaries to define the inland boundary.

The federal Office of Coastal Zone Management (OCZM) has suggested that the utilization of county boundaries which border coastal waters is an acceptable option for many of the coastal states, including Delaware where such boundaries encompass the entire State. Defining the CMP inland boundary in terms of landward boundaries of the State has several advantages.

One, that small area in the State which is relatively distant from coastal waters does not have to be precisely identified and mapped for exclusion. Two, the CMP does not have to struggle with the definition of what consititutes a "direct and significant impact on the coastal waters." Instead the CMP recognizes that certain large-scale uses within eight miles of coastal waters may have such impacts and that the inland boundary should therefore include the entire State. Three, by including all the State in the inland boundary, any jurisdiction in Delaware which may be adversely affected by energy development will be eligible to apply for assistance under the Coastal Energy Impact Program.

It is noteworthy that, during the course of program development, several comments were received which advocated adoption of a relatively small inland boundary. Given the pervasive influence of coastal waters in Delaware, however, OCZM and OMBP mutually concluded that such a boundary would not satisfy the legal mandates of the CZMA. At best, only a small portion of the State could be rationally excluded pursuant to the requirements, and such exclusion was deemed not worth the attendant administrative difficulties.

It should also be pointed out that most of the CMP regulatory controls apply only in those areas traditionally viewed as coastal areas, not the entire State. Such areas include the wetlands, beaches, coastal strip (the Delaware Coastal Zone Act's "coastal zone"), and underwater lands. The entire State will be subject only to the provisions of the broader program -- primarily coordination, information systems, and the water and air quality programs.

2. The Seaward Boundary

The seaward boundary is clearly defined in the CZMA. It is the three mile outer limit of the United States territorial sea. The lateral seaward boundaries between New Jersey and Delaware, and Delaware and Maryland have not been determined yet. The boundary in the Delaware River and Bay however, has been fixed according to a United States Supreme Court decision and is approximately the mid-channel of the River and Bay from the mouth of the Bay to the southern edge of a circle drawn 12 miles around the City of New Castle. North of that point to the Delaware northern boundary, the boundary is the low water mark on the New Jersey side of the River. It is anticipated that the states may have difficulty agreeing upon the remaining boundaries, and that OCZM may have to delimit them, subject to court review.

Regardless of what seaward boundaries are ultimately used, it is important to bear in mind that they will be used for purposes of this program only and represent the area within which the CMP may be authorized and financed. These seaward limits are irrespective of any claims the State may have by virtue of the Submerged Lands Act or any changes that may occur as a result of the Fisheries Conservation and Management Act of 1976.

3. Excluded Lands

States must exclude from their coastal management zone those lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the federal government.

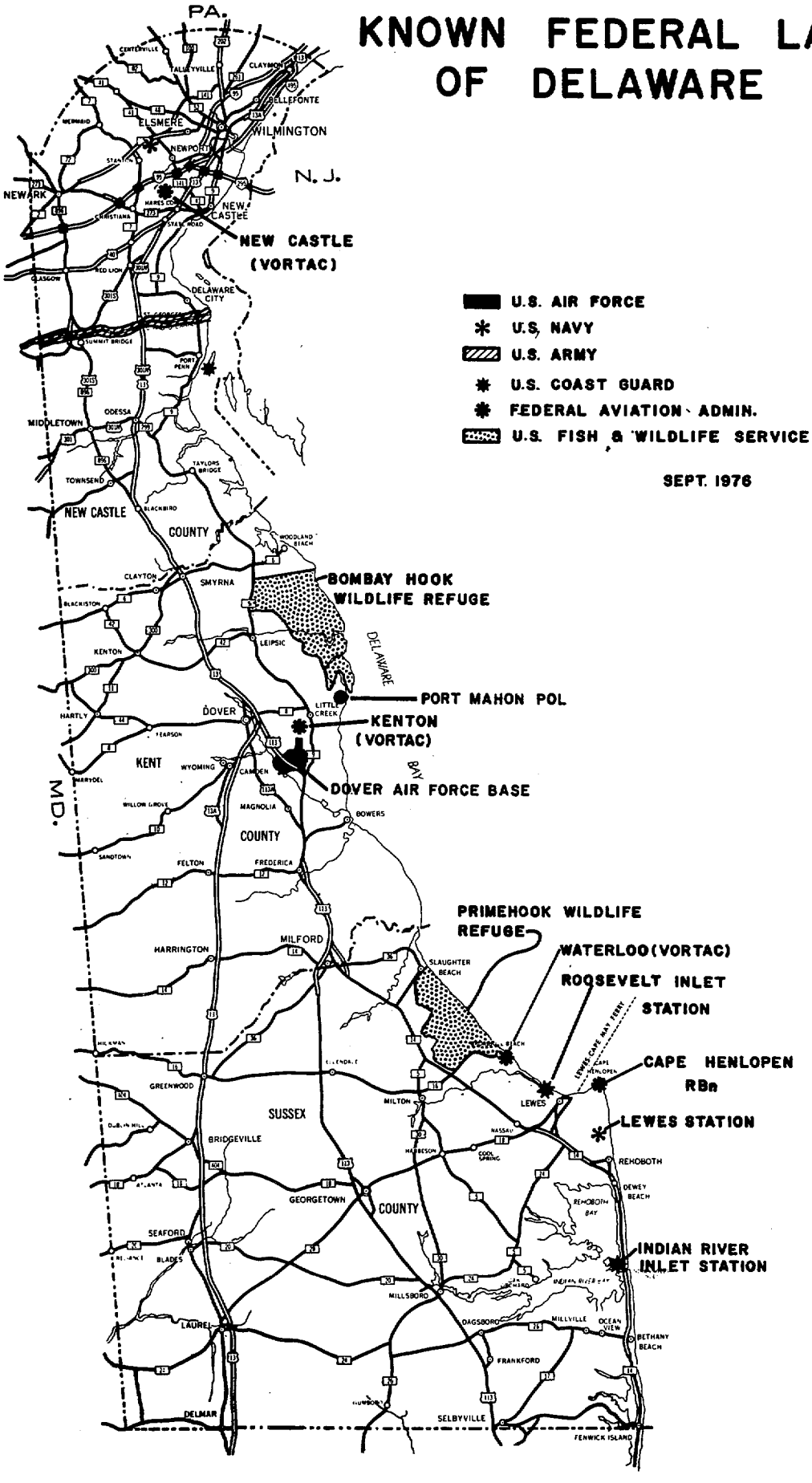
The exclusion of federal lands does not remove federal agencies from the obligation of complying with the consistency provisions of Section 307 of the CZMA when federal actions on these excluded lands have spillover impacts that significantly affect coastal areas, uses or resources within the purview of the CMP. Nor does such exclusion impair in any way any rights or authorities that the State may have over federal lands that exist separate from this program. Hence, as identified in Appendix F, federal development activities and projects on federal lands may be subject to a consistency review. Also, while federal agencies are exempt from "state permitting authority" they must comply with permits issued by a state pursuant to federal authority such as those required under the Clean Air and Clean Water Acts.

4. Interstate Boundaries

Although inland coastal management boundaries of contiguous States need not be coterminous, Delaware has consulted with adjoining coastal States during program development to minimize the possibility of incompatible uses occurring at the juncture of the boundaries. Several meetings were attended by the CMP managers and staffs of Delaware and the adjoining States to discuss program development issues, including resource use compatibility. In addition, WILMAPCO, which is comprised of representatives from Delaware, Maryland and New Jersey, has addressed various CMP-related issues, including the boundary situation in Salem County created by the United States Supreme Court decision mentioned above. That decision subjects parts of waters bordering Salem County, New Jersey to the Delaware Coastal Zone Act and other Delaware authority. Inasmuch as coastal resources of Delaware may be affected by certain uses of such waters, the Delaware CMP has opposed Salem County efforts to waive the Delaware's regulatory provisions which may relate to development in Salem County.

Two other specific interstate boundary issues taken up by the CMP with adjoining states include (1) the development and implementation of a statewide sediment and erosion control program which is based on a similar program in Maryland, and (2) the review of a New Jersey-Delaware fisheries compact. The latter action generated a Delaware Attorney General's Opinion which has afforded the State increased and needed flexibility in managing its fishery resources.

KNOWN FEDERAL LANDS OF DELAWARE



APPENDIX E - LEGAL AUTHORITIES AND ORGANIZATION

According to the federal regulations, the legal authorities relied upon must be broad enough to ensure implementation of the enforceable CMP policies. Moreover, the entities which exercise these authorities must be required to exercise in conformance with the policies. This Appendix explains how these specific requirements are satisfied.

1. IDENTIFICATION OF AUTHORITIES

The CMP must identify relevant constitutional provisions, statutes, regulations, case laws and such other legal instruments (including executive orders and interagency agreements) that will be used to carry out the program. The authorities identified must indicate the CMP's ability to: (1) Administer land and water use regulations in conformance with the policies of the managemnt program; (2) Control such development as is necessary to ensure compliance with the management program; (3) Resolve conflicts among competing uses; and (4) Acquire appropriate interests in lands, waters or other property as necessary to achieve management objectives.

As the introductions to the various sections of the document explain, the CMP exerts regulatory control over land and water uses which directly impact those resources which the CMP is most concerned about. So-called "enforceable policies" are used to implement these controls. The CMP document cites the specific authority for each of its enforceable policies, usually at the end of each section in the Authorities Tables.

The document also describes various programs and measures which will be used to promote the so-called "encouragement policies." These policies apply to those resources or issues which are of CMP concern, but, for one reason or other, do not need State-CMP regulatory controls. These policies are readily distinguishable in most cases from the enforceable policies because the former usually employ the word "should," while the latter typically use the word "shall."

In a few cases, the program document refers to this Appendix for a more detailed discussion of how certain authorities will work during program implementation. Those discussions, and additional identification of the authorities, appear below.

2. CONTROL TECHNIQUES

The CMP must implement and enforce its program through any one or a combination of the techniques provided in the federal Coastal Zone Management Act (CZMA). These techniques include direct State controls, local government implementation of State-

established criteria and standards, and State administrative review for consistency with the CMP of State, local, or private actions which may affect the CMP.

The CMP relies primarily on direct State controls. The Delaware Erosion and Sediment Control Act (7 Delaware Code, Chapter 40) presents one notable exception. This statute authorizes the Delaware Department of Natural Resources and Environmental Control (DNREC) to establish statewide minimum standards for the control of erosion and sedimentation which, for the most part, will be implemented by local government, subject to State administrative review and enforcement. The statute complements the water quality provisions of the Environmental Protection Act. That Act protects water quality from point sources of water pollution, the Erosion and Sediment Control Act imposes non-point source controls. Policies 31-33 in Section 5.A.3. of the document (Coastal Waters) rely upon the Act for enforcement.

Aside from the policies implemented by the Erosion and Sediment Control Act, most of the enforceable CMP policies will be implemented by direct State controls. Space does not allow detailed descriptions of all the pertinent statutes, regulations and caselaw. The interested reader is, therefore, referred to Delaware and Outer Continental Shelf Development: Roles and Systems at Various Levels of Government, prepared for the Delaware Office of Management, Budget, and Planning (OMBP), and which contains detailed descriptions of most of the relevant statutes and regulations.

The statutes were enacted by the Delaware General Assembly, which derives its lawmaking authority from Article II, Section 1 of the State Constitution. This Section provides that "the legislative power of this State shall consist of a Senate and House of Representatives." Article II, Section 1 was interpreted in State vs. Fountain, 22 Delaware 520, 69 A. 926 (Ct. Gen. Sess. 1908) to mean that the whole lawmaking power of the State is committed to the General Assembly.

In addition, several other State administered statutes, including the Natural Areas Preservation System Act (7 Delaware Code, Chapter 73), will be used to implement other CMP policies, primarily "encouragement policies."

3. CMP MANAGEMENT AUTHORITIES - DIRECT CONTROLS

The primary authority for implementation of the air and water pollution control requirements is the Delaware Environmental Protection Act. Other statutes which provide direct State controls for implementation of enforceable CMP policies include the Delaware Wetlands Act (7 Delaware Code, Chapter 66), the Delaware Beach Preservation Act (7 Delaware Code, Chapter 68), the Delaware Underwater Lands Act, (7 Delaware Code, Chapter 61), and the Delaware Coastal Zone Act (7 Delaware Code, Chapter 70).

a. Air and Water Pollution Control Requirements

The CZMA requires the CMP to incorporate requirements established pursuant to the Federal Water Pollution Control Act (FWPCA) and the Clean Air Act (CAA). These requirements include any enforceable standards established pursuant to either Act.

The U.S. Environmental Protection Agency establishes water and air quality standards for State implementation. The Delaware Environmental Protection Act (7 Delaware Code, Chapter 60) provides the authority for implementing these standards, discussed in Sections 5.A.3. (Coastal Waters) and 5.D.8. (Air Quality) of the document. Most of the CMP policies in Section 5.A.3. are based on the Act.

The Environmental Protection Act authorizes DNREC to exercise direct State control over specified activities related to air and water pollution which take place anywhere within the State, and the CMP hereby incorporates the requirements of the FWPCA and the CAA, as implemented by the Environmental Protection Act.

Several sets of regulations adopted by DNREC pursuant to the Act augment the agency's authority. These include regulations governing: the control of water pollution (effluent standards); water quality standards for streams; solid waste disposal; the installation and operation of septic tanks; the control of air pollution; and implementation plans for attainment and maintenance of national ambient air quality standards.

The statute is very broad. A DNREC permit could be required for any activity which might cause or contribute to air or water pollution, ground or surface water withdrawal, solid waste collection or disposal, and construction or operation of pipeline systems or water wells.

(1) air quality

The regulations narrow the scope of the statute. Only stationary sources of air pollution require permits, although ships in port are subject to the visible violation of emissions regulations. Before stationary facilities which will emit air pollutants may be built, a construction permit must be obtained. The applicant applies simultaneously for the construction permit and operating permit, which is issued separately.

The most important consideration in DNREC's decision to grant a permit is the effect on ambient air. Delaware is divided into two "air regions." New Castle County is part of the Philadelphia Metropolitan Interstate Air Quality Control Region. Kent and Sussex Counties comprise the Southern Delaware Intrastate Air Quality Control Region. DNREC regulations control emissions from individual pollutant sources with the objective of attaining

and maintaining ambient air quality standards - permissible levels of contamination - for specified pollutants, including sulfur dioxide, carbon monixide, photo chemical oxidants, nitrogen dioxide, and hydrogen sulfide.

Delaware imposes more stringent requirements than provided by the federal regulations in the following respects: (1) primary ambient air quality standards are slightly higher for sulfur dioxide and suspended particulates; (2) Delaware has hydrogen sulphide ambient air quality standards while the national program does not; (3) Delaware's standards apply to most existing and new emission sources, the national program applies to certain new sources; and (4) Delaware sets additional air quality standards which the national program does not include.

(2) water quality

DNREC water regulations implement and are consistent with the National Pollutant Discharge Elimination System permit program. Under the program, individual discharge permits are issued with specified effluent pollutants into surface waters. Even if a permit applicant can demonstrate that his/her discharge is within the permissible effluent limitation levels, no permit may be issued if the water quality of the receiving waters is degraded beyond levels established by separate regulations for each Delaware stream.

Different levels are set for different streams, but the levels of enough streams are sufficiently high to guarantee that stream water quality will accommodate the uses--including boating, bathing, drinking, etc.-deemed desirable in the CMP policy section.

Any person whose interest is substantially affected by any DNREC action taken pursuant to the Act may appeal to the Environmental Appeals Board. The Board's decision may be appealed to Superior Court. The Act does not provide for property acquisition authority because such authority is unnecessary, both for purposes of the statute and the CMP.

b. The Wetlands Act

The Wetlands Act authorizes DNREC to exercise direct State control over all lands between the mean low water elevation and two feet above the local mean high water elevation upon which grows or may grow typical marsh plants listed in the Act and at the conclusion of Section 5.A.1. in the document.

The following activities are not regulated by the Wetlands Act or regulations issued pursuant thereto: (1) mosquito control activities authorized by DNREC under separate authority; (2) construction of directional aids to navigation, duck blinds, and foot bridges; (3) placement of boundary stakes; (4) building of wildlife nesting structures; (5) grazing of domestic animals; (6) haying; and (7) hunting, fishing and trapping.

Activities requiring a DNREC permit include dredging, draining, filling, bulkheading, excavation, drilling, and construction of any kind, including piers, jetties and boat ramps. Prior to issuing any wetlands permit, DNREC must consider the proposed activity's environmental impact, economic impact, aesthetic effect, effect on neighboring land uses, the number and type of public and private support facilities required, as well as the impact of such facilities, the need for water access, and the availability of alternative.

Many activities are not allowed even by permit, absent certain specified conditions. These strict prohibitions attempt to implement the express legislative and CMP policy to preserve and protect the productive public and private wetlands and to prevent their despoliation and destruction consistent with the historic right of private ownership of lands. The statute recognizes that preservation of wetlands may work at cross-purposes with private property rights and, accordingly, provides that if the Superior Court finds that an action pursuant to the Act constitutes a taking without just compensation, then DNREC shall have two years to acquire fee simple or any lesser interest in the wetlands in question by negotiation or condemnation. Thus, to the extent that the statute or regulations may not be enforceable due to constitutional problems, the CMP policies may be implemented with condemnation powers. It is important to note, however, that inherent in the CMP policy is flexibility to allow very minor development without exercising condemnation powers.

Aside from the final appeal right to the courts, a conflict resolution mecahnism is provided in the way of a Wetlands Appeals Board which hears appeals from DNREC decisions. Any person "whose interest is substantially affected by any action" of DNREC has a right to appeal, first to the Appeals Board and then to court. DNREC itself may appeal an adverse decision from the Appeals Board and will do so in the event a CMP policy is otherwise frustrated.

c. the Beach Preservation Act

The Beach Preservation Act requires DNREC to pass regulations to effectuate the purposes of the Act. The statute says "(t)he purposes of this Chapter are to enhance, preserve, and protect the public and private beaches of the State..." This broad directive, coupled with rule-making authority, gives DNREC wide discretion.

Under the Act no substantial change in the existing characteristics of any beach may be made without prior written approval of DNREC. The regulations require such approval for the following activities on public beaches: (1) carrying away beach material; (2) changes which increase the potential for beach erosion; (3) operation of dune buggies, automobiles, or other machines; and (4) construction of any structure on the landward side of the primary dune (if such construction has a substantial effect on the dune, a permit is also required).

Written approval is required for the following activities on private beaches: (1) construction of structures landward of the primary dune (a permit is required if the construction would have a substantial effect on the dune); (2) changes increasing the potential for beach erosion: and (3) conditions unreasonably dangerous to persons or property.

No construction is allowed on or seaward of the primary dune if the owner, public or private, has land on which to build behind the dune. When there is no alternative, a permit is required which will not be granted unless , inter alia, an adequate flood protection plan is presented. Permits are also required for the construction of groins, jetties, and bulkheads.

Factors considered in processing permits include: (1) the effect of the proposed project on beach erosion; (2) flooding and other potential damage to the subject property and to other properties; and (3) the feasibility of alternate protection from storm damage that may be available.

A method for resolving conflicts of interest is provided. Any person whose interest is substantially affected by any action of the DNREC's Division of Soil and Water Conservation taken pursuant to the Act may appeal to the Secretary of DNREC, who must then hold a public hearing prior to making a final ruling. Any person aggrieved by a final order of the Secretary may appeal to Superior Court.

DNREC may acquire through negotiation or condemnation, fee simple or lesser land interests whenever at least two-thirds of the owners of the property included in the project area along a private beach have agreed to allow DNREC to undertake any or all necessary works to enhance the beach and allow free public access, provided, however, that the agreeing property owners own at least two-thirds of the property included in the project area. Mandatory condemnation power for the purpose of beach enhancement and access is not deemed critical due to the effectiveness of existing points of public access.

d. the Underwater Lands Act

The Underwater Lands Act authorizes DNREC to exercise direct State control over State lands lying below mean high water. Most of the Act's provisions pertain to development of Delaware's submerged lands. The statute addresses problems related to: the right to drill for and remove minerals; royalties; liens; rentals; drilling record disclosures; bonds; cessation of production; and drilling and exploration operations.

DNREC regulations list five types of projects involving the use of public submerged lands which require approval: (1) the erection of any structure on such lands; (2) the dredging or filling of such lands; (3) the excavation of any channel, lagoon, turning basin, or ditch on public or private land which will make connection with public submerged lands; (4) the filling

of lands adjacent to public submerged lands; and (5) the laying of any pipeline, line for transmission of electricity, or telephone line in, on, over or under the beds of public submerged lands.

DNREC, with the Governor's approval, may lease public submerged lands in accordance with the Act. Avoidable pollution of the ocean and of the waters covering submerged lands as well as avoidable contamination of the beaches and impairment with the enjoyment of bathing, boating, fishing, and navigation is prohibited. "Avoidable pollution" and "avoidable contamination" are defined to impose a high degree of care on the lessee. Upon completion of the lease, DNREC may require the lessee to restore any portion of works that is visible at extreme low tide to its original condition.

The importance of the Underwater Lands Act to implementation of the CMP policies is that it creates a mechanism by which facilities important to the national, regional, State and local interest can be permitted in the coastal zone, provided specified environmental protections are in place. Oil and gas pipelines, offshore power plants, and transportation facilities are examples of uses which the Underwater Lands Act can allow.

The Underwater Lands Act does not authorize the acquisition of property because such authority is unnecessary, both for purposes of the Act and the CMP since the State owns these lands.

e. the Coastal Zone Act

The Coastal Zone Act authorizes OMBP to exercise direct State control over the "coastal zone," an area approximately two miles wide along the State's shoreline. The program document refers to the area as the "coastal strip." The Act gives OMBP rule-making authority, but the agency has not exercised the authority to any significant extent.

Under the Act, new heavy industrial uses are absolutely prohibited in the coastal strip. The Act defines "heavy industry use" as

> "a use characteristically involving more than 20 acres, and characteristically employing some but not necessarily all of such equipment such as, but not limited to, smokestacks, tanks, distillation or reaction columns, chemical processing equipment, scrubbing towers, pickling equipment, and waste-treatment lagoons; which industry, although conceivably operable without polluting the environment,

has the potential to pollute when equipment malfunctions or human error occurs. Examples of heavy industry are oil refineries, basic steel manufacturing plants, basic cellusoic pulp-paper mills, and chemical plants such as petrochemical complexes. Generic examples of uses not included in the definition of "heavy industry" are such uses as garment factories, automobile assembly plants and jewelry and leather goods manufacturing establishments."

Also prohibited are offshore "bulk product transfer facilities." These include port or dock facilities attached to the shore which are used for the transfer of bulk quantities of any substance, such as oil, from vessels to onshore facilities and vice versa. An Attorney General's Opinion (Inf. 77-33)concludes that the Act would not prohibit a pipeline which transits the coastal zone. The statute also expressly exempts the Port of Wilmington and a "docking facility or pier for a single industrial or manufacturing facility" from the bulk product transfer definition.

Manufacturing uses are deemed less detrimental to the environment than heavy industrial uses. New manufacturing uses are allowed in the coastal strip by permit only. "Manufacturing" means transforming substances into new products. Examples of manufacturing uses are garment factories, automobile assembly plants and jewelry and leather goods establishments.

Permit applications must include an environmental impact statement. The Director of OMBP's decision on the application must account for the proposed project's environmental impact; economic effect; aesthetic effect; number and type of supporting facilities required and the impact of such facilities; and the effect on neighboring land uses. Though it is impossible to pre-determine whether a given manufacturing use would be allowed by permit in a given area of the coastal strip, compliance with the CMP policy requiring consideration of the aforementioned factors before issuing or denying a permit is assured (Kreshtool vs. Delmarva Power Light Company, Del. Super., 310 A. 2d 649).

The statute includes a method for resolving conflicts among competing interests in the event a developer, or other aggrieved party, feels the Act is being unfairly administered. The statute provides for appeals, first to the Coastal Zone Industrial Control Board and then to Superior Court.

d. Natural Areas Preservation System

Title 7, Chapter 73 of the Delaware Code establishes a natural areas preservation system. Under the statute, DNREC is responsible for: (1) formulating policies for the selection,

acquisition, use, management, and protection of nature preserves; purposes; (3) surveying and recording unique natural areas within the State; (4) disseminating information pertaining to nature preserves within the State; (5) promoting restoration of natural areas; and (6) adopting regulations for the use and protection of natural areas.

Further, political subdivisions and other instrumentalities of the State, including schools and universities, are encouraged to dedicate suitable areas as nature preserves.

An area is dedicated as a nature preserve in the same manner and with the same effect as a conveyance of an interest in land, ie., by recordation with the County Recorder. Once land has been duly dedicated, it cannot be used for any purpose inconsistent with preservation unless; (1) a public hearing is held; (2) DNREC finds there exists an imperative and unavoidable public nessity for such use; (3) the Governor approves the use; and (4) the General Assembly, by legislative act, approves the use.

Although the Act does not attempt to preserve, in a regulatory manner, unique natural areas which are privately owned, it is an important device for acquiring interest in or encouraging the dedication of such lands without infringing on private rights.

g. Other Authorities

(1) resource conservation measures: Title 7 of the Delaware Code provides additional resource conservation measures. Part I protects and regulates activities affecting wildlife, game and fish. Part II does the same for shellfish, including oysters, crabs, clams and lobsters. Part III regulates actions affecting forests. Part IV establishes tax drainage ditches and encourages other agricultural and soil conservation measures. Part V authorizes DNREC to supervise and control public lands. Part VI appropriates State money to acquire public lands for park, recreation, and conservation purposes. It also protects and encourages the preservation of archaeological sites and objects of significance within the State. Finally, Title 7, Chapter 64 creates a Delaware Solid Waste Authority to plan, finance, and manage solid waste disposal facilities.

(2) navigation and transportation authority: Title 23 of the Delaware Code establishes a Board of Pilot Commissioners which: grants licenses to persons to act as pilots in the Delaware Bay and River; decides differences which may arise between masters, owners and pilots; and enforces remedies and collects money penalties for pilotage rule violations. The same title regulates potential obstructions to navigation (e.g., casting of ballast, dams, and anchorage), controls motorboat operations, describes salvage and other vessel property rules, regulates wharf lines and bulkheads, and provides additional restrictions on dredging activities.

Title 2 requires the State Department of Highways and Transportation to establish a State airways system and otherwise regulate State aeronautics. It also authorizes the Department to develop a State Comprehensive Plan for mass transportation. Title 17 requires the Department to build and maintain State roads. Title 26 gives the State control over new installation of pipes, conduits and wires above or beneath public roads.

Corporations organized for the transportation and storage of oil may take lands, easements and rights-of-way for locating, constructing, maintaining and operating its tanks, pumps, and pipes. They must, of course, meet all applicable environmental standards, discussed above, and restore portions of road surfaces disturbed by laying the pipe to their original condition. For pipelines beneath public roads, the corporations also need a franchise and a construction permit from the Utilities Section of the Department of Transportation and Highways.

(3) public utility regulation: Title 26 authorizes the State Public Service Commission PSC) to regulate public utilities with respect to utility rates, property rights, equipment and facilities. Among its other powers, PSC may require a public utility operating within the State to extend its facilities and services. This authority will be exercised, if necessary, to ensure that energy demands can be satisfied. The Delaware Energy Act of 1978, discussed in Section 5.D.3. of the document (Energy Facilities) will serve the same purposes.

4. CMP MANAGEMENT AUTHORITIES - INDIRECT CONTROLS

The primary indirect State control is the Erosion and Sediment Control Act which will be implemented at the local level. The Act requires that DNREC develop and coordinate a comprehensive State erosion and sediment control program. This program will develop erosion control techniques for different uses under various circumstances (e.g., construction activities and agricultural practices on different soil types, slopes, proximity to water). Within one year from State adoption of the program, soil conservation districts (Delaware political subdivisions) must develop programs consistent with the State program. The State develops the district programs for local implementation if the districts are unable or unwilling to do so.

Once the local programs are in place, land disturbing activities, except home landscaping and agricultural and forestry practices on lands of less than six percent slope, require approved erosion control plans before such activities can be initiated. The Act defines "land disturbing activity" as "any land change which may result in soil erosion...including... filling, clearing, grading, excavating and filling of land..."

The Act requires periodic inspections to ensure that the plans are being followed and provides for injunctive relief to correct deficiencies. Normally these responsibilities will be carried out at the local level, but DNREC is required to take over the functions if local districts fail in this respect.

DNREC will initially administer the Act under a provision giving the agency interim authority to implement the statutory policy until local programs are adopted. The policy is to "extend and strengthen" erosion and sediment control programs "to conserve and protect land, water, air, and other resources of the State." DNREC's interim regulations will translate this broad mandate into specific operational standards and criteria. It is important to note, however, that the CMP policy (and the statute) do not apply for 18 months to construction projects on less than 20 acres or to any farming practices. Thus, the exercise of interim authority will apply only to large construction projects where compliance with the broad conservation policy is clearly threatened.

Once the local programs are approved and in place, local implementation and enforcement begin. Pursuant to Executive Order No. 61, the Office of Management, Budget, and Planning will be kept apprised of local compliance with the program policies. If monitoring reveals a pattern of noncompliance the standards and criteria established pursuant to the Erosion and Sediment Control Act will be adhered to as provided in the regulations.

5. AUTHORITIES RELATED TO USES OF REGIONAL BENEFIT (ALSO TO NATIONAL INTERESTS AND STATE-LOCAL CONSULTATION)

The CMP must provide a method of assuring that local land and water use regulations do not unreasonably restrict or exclude land and water uses of regional benefit. A related requirement is that the CMP must provide for adequate consideration of the national interest involved in planning for and siting the facilities which are necessary to meet more than local requirements. Finally, the CMP must include a mechanism specifically designed to insure continued State-local government consultation on State management program decisions that would conflict with any local actions. The Delaware Land Use Planning Act 1978 (29 Delaware Code, Chapter 92) provides most of the method for complying with these requirements. The Land Use Planning Act establishes a process whereby State, local, regional and federal agencies are notified when decisions are comtemplated which involve adoption or amendment of capital improvements programs , actions affecting a critical area or involving the planning for or construction of a major public or private institution, or land use decision having a significant impact

on more than one local jurisdiction. Opportunities are created for review and comment, public hearings, where appropriate, and consideration of concerns of other agencies and units of government. Provisions are also made for a reconsideration of decisions using a lay body, the Council on State Planning, as a resolution mechanism. This process will greatly improve the exchange of information between jurisdictions and allow for the resolution of policy issues between the State and local governments through a broadly represented forum.

Each individual requirement referred to above is addressed by the Land Use Planning Act, as follows.

a. Regional Benefit Uses

Article II, Section 25 of the Delaware Constitution empowers the General Assembly to enact laws under which municipalities and counties may adopt their own laws to regulate the nature and extent of land use within their respective jurisdictions. The Legislature exercised this authority in Title 22, Chapter 3 and Title 29, Chapters 26, 49 and 69 of the Delaware Code. The eastern boundaries of Delaware's three counties are defined to extend to the Delaware Bay. Thus, the counties have considerable authority over the uses permitted in the coastal zone. Although local zoning powers cannot permit facilities which would be excluded by the aforementioned State controls (e.g., an oil refinery near the beach), they might be used to exclude facilities which would be allowed by the State (e.g., a pipeline meeting the State's environmental standards and permitting requirements). The Land Use Planning Act provides a mechanism which assures that local governments give adequate consideration to needs of other than local concern.

Under the Act, local governments are required to review their Comprehensive Development Plan to determine whether such plans arbitrarily exclude land uses of more than local benefit. OMBP and other State agencies may also review such plans for the same purpose. If a local government determines that there is an arbitrary exclusion, then it must amend the plan to remedy such exclusion. If a State agency determines there is an arbitrary exclusion and the local government disagrees, then a decision by the local government to retain the disputed provision is a "land use planning action" subject to the review process described below.

Although the Land Use Planning Act does not define the term "arbitrarily exclude land uses of more than local benefit," OMBP has established the following definition in the procedures it uses to comply with the Act: "Any provisions in a Local Comprehensive Development Plan which restrict or exclude a use of more than local benefit in a manner which is not based on reason or does not otherwise adequately consider the regional, Statewide and national benefits of such use will be deemed provisions which 'arbitrarily restrict or exclude a use of more than local benefit' as this term is used in the Land Use Planning Act."

OMBP is required by Executive Order No. 60 to enforce the policies of the CMP. It is hereby declared CMP policy that if OMBP determines that a local comprehensive plan arbitrarily excludes a use of regional benefit pursuant to the above definition, then OMBP shall appeal any and all decisions by local governments to retain such arbitrary exclusions to the State Planning Council pursuant to the Land Use Planning Act.

Likewise, it is hereby declared CMP policy that OMBP shall appeal any local government "land use planning actions having a significant impact upon more than one local jurisdiction." as that term is used in the Land Use Planning Act, if OMBP determines that actions are "unreasonable." For purposes of this policy, the CMP adopts the definitions of "unreasonable" and "land use planning actions having a significant impact upon more than one local jurisdiction " used by OMBP to implement the Land Use Planning Act. "Unreasonable" is defined by OMBP as "without adequate consideration of the regional, State, and national interests." "Land Use Planning actions having a significant impact upon more than one local jurisdiction" is defined as "any adoption or amendment of regulations, zoning ordinances, decisions, or other actions of regulatory nature which have a significant impact upon people residing outside the jurisdiction where such actions are taken."

The Land Use Planning Act subjects all "local government land use planning actions having a significant impact upon more than one local jurisdiction" to the review process. That process requires local jurisdictions to notify OMBP of proposed actions, including decisions to retain Comprehensive Development Plans over State objections, to OMBP for review and comment. OMBP, in turn, must notify interested State, regional and federal agencies. These agencies may then submit comments pertaining to the economic, physical, fiscal and environmental imapcts, as well as energy implications, of the proposed action.

OMBP transmits all such comments to the local decision-making agency. If the proposed action would significantly affect the interests of more than local concern, OMBP may ask the local agency to hold a hearing. The local jurisdiction must consider all comments and provide a written rationale for its decision. The rationale must include a discussion of State comments and recommendations.

OMBP has the right to appeal the local decision to the Council on State Planning. The Council can require reconsideration of the decision only if it is unreasonable or fails to adequately consider State comments. If the Council requires reconsideration of the decision, then the local jurisdiction must reconsider its decision and the review process begins anew.

Although the statute has not been reviewed judicially, Delaware courts have held that administrative agencies with discretionary powers cannot act arbitrarily or capriciously. (Kreshtool vs. Delmarva Power and Light Company, Del. Super., 310 A. 2d 649; Spear vs. Blackwell and Son, Incorporated, Del.

Super., 221 A. 2d 52).

b. Consideration of National Interests

The CMP considers the national interest in planning for and siting facilities which meet more than local requirements in Working Paper No. 7 (The National Interest in Resources and Facilities of the Delaware Coastal Zone), and several sections of the program document, most notably Section 5.E. As Section 5.E. explains, Executive Order No.61 requires OMBP to submit comments, pursuant to the Land Use Planning Act process, addressing the CMP policies and concerns to local land and water use decision makers. Policy No. 4 in Section 5.E. requires State and local government consideration of the national interests. Thus the review process discussed above will encompass the appropriate consideration of the national interest.

c. State-Local Consultation

The CMP must include a mechanism specifically designed to ensure continued State-local consultation on State CMP decisions that would conflict with any local zoning ordinance, decision or other action. The purposes of the State-local consultation mechanism are to: (1) provide information to local zoning authorities of CMP plans or policies which could conflict with local zoning: (2) allow local governments to comment on such plans or policies; and (3) require consideration of such comments.

It is important to note that only major CMP plans and policies must be subject to the process. Regulatory actions dictated by State legislation, such as individual permit actions are not subject to the process. Examples of what might constitute a major program decision include a decision prohibiting the development of non-water dependent facilities on certain shoreline areas; a decision requiring that new development may not interfere with existing public rights of access to the sea; a decision to acquire urban shoreland for recreational purposes; and designation of natural areas as areas for preservation or restoration pursuant to Section 5.B.2. of the document (Nature Preserves).

The Land Use Planning Act subjects such major decisions to the review process established by the Act, and which is very similar to the review process established for local actions, discussed above. Section 9225 of the Act states that:

> "State land use planning actions subject to this subchapter (and the review process) are ones of local concern which include, but are not limited to: (1) adoption or amendment of the Delaware Comprehensive Development Plan (the CMP is part of this Plan) or portion thereof; (2) the adoption or amendment of facilities plans; (3) the adoption or amendment of Capital Improvements Programs as defined herein; (4) actions relating to planning or construction of major facilities for public and private institutions; and (5) any land use planning action involving a Critical Area as defined herein."

"Critical Area: is defined as "an area wherein the establishment or maintenance of a viable physical, economic, or social environment is of more than local concern; or the physical, economic, or social characteristics of said area are of primary importance or uniquely sensitive..." OMBP procedures used to implement the Act further define the term to include areas acquired pursuant to Section 5.B.2. of the document.

OMBP procedures also extend the local government comment period to 30 days to comply with a CZMA requirement. OMBP is authorized in Section 9229 of the Land Use Planning Act to grant such an extenstion to the 20 day comment period provided in the statutes. The Land Use Planning Act provides the remaining procedures which satisfy the federal requirement for a State-local consultation mechanism. These procedures include notice to the appropriate local jurisdiction; an opportunity to submit comments; State consideration of the comments; public hearing provisions; a written response by the State to the local jurisdiction providing a rationale for its decision; and provisions regarding implementation of the decision. The CMP hereby incorporates these Land Use Planning Act provisions.

6. NETWORKING

All the above authorities can be used to implement the full range of policies identified in the document as necessary for coastal management purposes. Each State agency is legally bound to exercise its authority in conformance with the CMP policies, pursuant to either a specific statute or Executive Order 61.

It is important to note that nearly all of the enforceable CMP policies require no executive order to ensure their implementation because the statutory requirements almost always require the State agencies to enforce the policies.

In Delaware, the agency heads with CMP responsibilities report directly to the Governor. Executive Order 61 directs all State agencies to enforce both the enforceable and encouragement policies of the CMP. It also requires them to notify OMBP of any proposed changes to rules or regulations used to implement CMP policies. OMBP must then review the proposed changes (with the federal Office of Coastal Zone Management if a program amendment is a possibility), and take necessary action, if any, to amend theprogram or the regulations. A copy of the Executive Order appears at the end of Appendix E.

No Delaware Court has considered the scope and effect of Executive Orders in any detail, but the weight of other authority holds that where an executive order has an adequate constitutional or statutory basis, it has the force of law. As one source puts it, "A constitutional grant of the supreme executive power to a governor implies such power as will secure an efficient execution

of the laws..." (38 Am. Jur. 2d, Governor, Sec. 4). Several Delaware Attorney General Opinions have, in the absence of Delaware caselaw, adopted this rule. (See, for example, Opinion No. IW-048, issued January 16, 1976).

Substantive Executive Orders carry over from one administration to another unless they are specifically amended or recinded. They are official documents of the State having been signed by the Governor and countersigned by the Secretary of State. Accordingly, they are binding on those agencies which are part of the executive branch.

Reliance on Executive Orders to carry out many CMP policies raises questions regarding resolution of conflicts between agencies affected by the Executive Order. OMBP has the responsibility for monitoring implementation of CMP policies. In the course of this monitoring activity OMBP will notify an agency when there is an apparent inconsistency, informing them as to the relevant CMP policies and the provisions of Executive Order 61. Meetings at the staff and agency head levels will be held in order to resolve problems.

Should compliance with CMP policies become such a problem as to not be resolved at the agency head level the matter will be referred to the Governor through his staff. OMBP will meet with the agency head, the Governor and others as appropriate to resolution of the matter. A memorandum of understanding will be prepared to ensure future compliance.

7. ORGANIZATIONAL STRUCTURE

The CMP msut describe the organizational structure that will be used to implement and administer the program. This description must include a discussion of those State and local agencies that have responsibility for administering the program. Further, the CMP must describe the relationship of these agencies to the designated lead agency, discussed below.

Article III, Sections 1 and 17, respectively, provide that "The supreme executive powers of the State shall be vested in a Governor: and "(h)e (the Governor) shall take care that the laws be faithfully executed." Executive Order 61, discussed above requires State agencies to implement the program.

Aside from the Department of Justice (Attorney General's Office) and the local soil conservation districts, the agencies responsible for administering the CMP answer directly to the Governor. The Attorney General is a constitutional officer whose duty it is to represent the State and its departments in litigation and to advise the Executive and other State officiers and agencies when called on for legal advice (In re Opinions of the Justices, 47 Del. 117, 88 A. 2d 128, Sup. Ct. 1952; and 29 Del. Code, Chap. 25).

Thus, the Attorney General has a constitutional and statutory duty to assist the Governor if and when enforcement of the law (CMP policies) depends on litigation.

Ultimate responsibility for CMP implementation then obviously, rests with the State Executive Branch of government. Within this branch, DNREC has the prominent role. It administers all but one of the environmental laws relied upon to implement most of the enforceable CMP policies. Moreover, it is also the agency most active in the affairs relating to the encouragement policies. For example, it administers the Natural Areas Preservation System, the State recreation programs, and wildlife preservation programs.

OMBP, of course, also plays an important role. It was the lead agency responsible for developing the CMP and administers the A-95 review program, the Land Use Planning Act, and the Coastal Zone Act.

Other State agencies with lesser, but significant responsibilities, are identified in the document. The same is true for local units of government. Section 5.E. and other parts, including this Appendix, explain the relationship of all the agencies with CMP responsibilities.

8. DESIGNATED STATE AGENCY

The Governor must designate a single State agency to receive and administer federal grants used for CMP implementation. Such designation establishes a single point of accountability for administering funds and for monitoring management activities. The designated agency must have the following capabilities: (1) the fiscal and legal ability to accept and administer funds; (2) the administrative capability to monitor and evaluate the management of coastal resources and to present such evaluation to other entities, including the General Assembly, the Governor and OCZM; and (3) the ability to request federal approval for appropriate refinements or amendment to the programs.

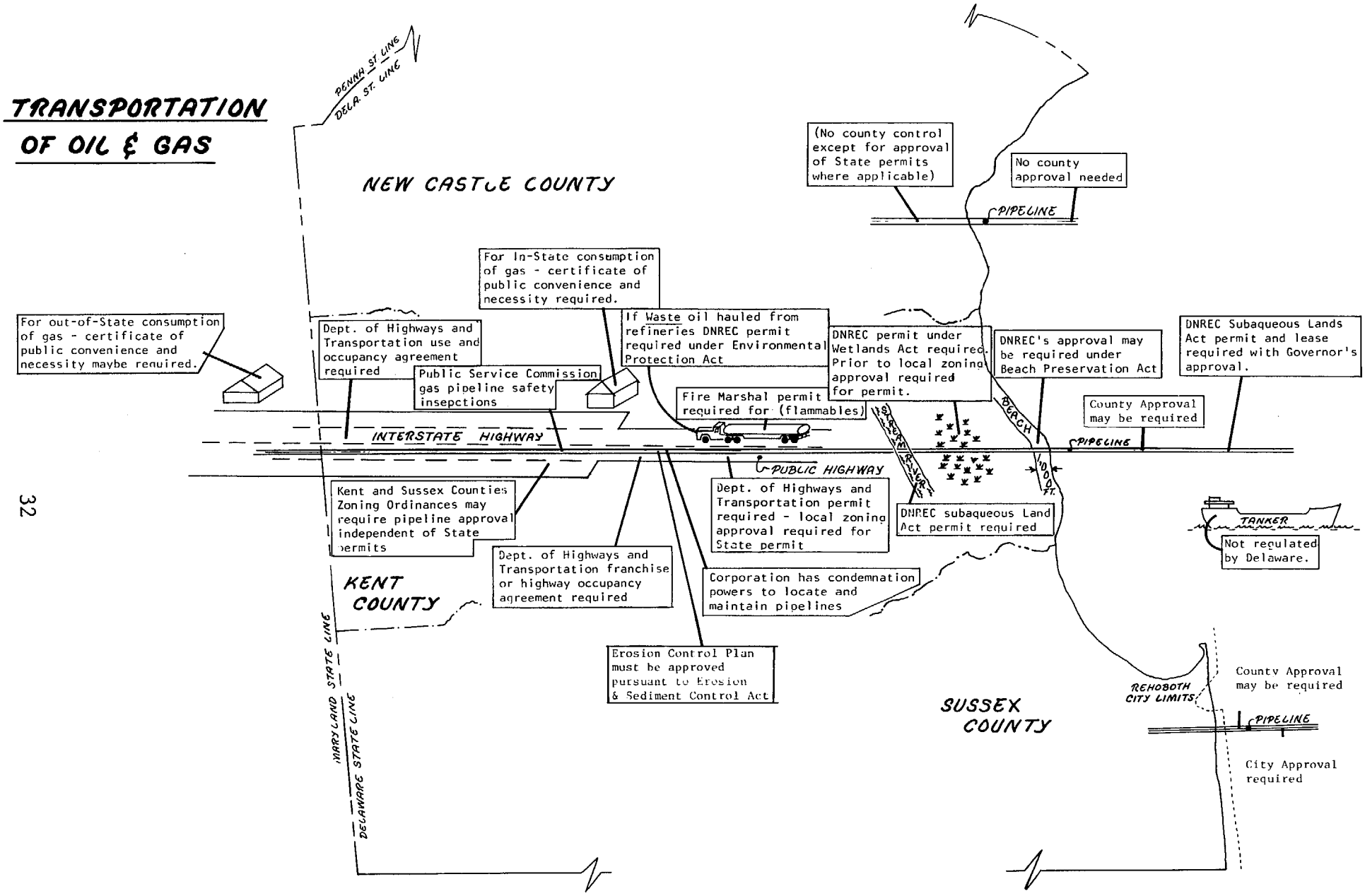
The Governor designated an agency with these capabilities in Executive Order 60. The designated agency is the Office of Management, Budget, and Planning. That agency will be responsible for monitoring other State agency implementation of the CMP policies as required by Executive Order 60. An annual report of CMP implementation, prepared by the agency, will evaluate the performance of all agencies responsible for CMP implementation. This report will be forwarded to the Governor and OCZM.

9. DOCUMENTATION

Documentation is required to the effect that the Governor: (1) has reviewed and approved as State policy the CMP; (2) has designated a single agency to receive and administer implementation grants; and (3) attests to the fact that the State is organized and has the necessary authorities to implement the program.

The documentation is contained in the transmittal letter from the Governor which accompanies the CMP/FEIS submission.

TRANSPORTATION OF OIL & GAS



STATE OF DELAWARE

EXECUTIVE DEPARTMENT
DOVER

EXECUTIVE ORDER

NUMBER SIXTY

TO: Heads of All State Departments and Agencies

RE: Designation of the Office of Management, Budget and Planning to Receive and Administer Section 306 Grants Pursuant to the Federal Coastal Zone Management Act

WHEREAS, The federal Coastal Zone Management Act (P.L.92-583, as amended) requires, as a precondition to allocating federal monies to states under Section 306 of the Coastal Zone Management Act, the Governor to designate a State agency to receive and administer Section 306 grants pursuant to federal regulations (15 CFR Part 923.46); and

WHEREAS, The Office of Management, Budget and Planning has been actively involved in developing and completing a Coastal Management Program to make the State of Delaware eligible for Section 306 funding; and

WHEREAS, The Office of Management, Budget and Planning has a legislative mandate to coordinate other State and local programs, plans, and policies within the coastal zone; and

WHEREAS, The Office of Management, Budget and Planning has the fiscal, legal, and administrative capability to administer funds;

NOW, THEREFORE, I, PIERRE S. duPont, IV, by virtue of the authority vested in me as Governor of the State of Delaware, do hereby declare and order as follows:

1. The Office of Management, Budget, and Planning is designated as the single agency to receive and administer Section 306 grants pursuant to the federal Coastal Zone Management Act.

2. The Office of Management, Budget, and Planning may, in administering said grants, make contracts or similar arrangements (such as pass-through grants) with participating agencies for the purpose of carrying out specific management tasks, and shall account for the expenditure of implementation funds by any recipient of such funds.

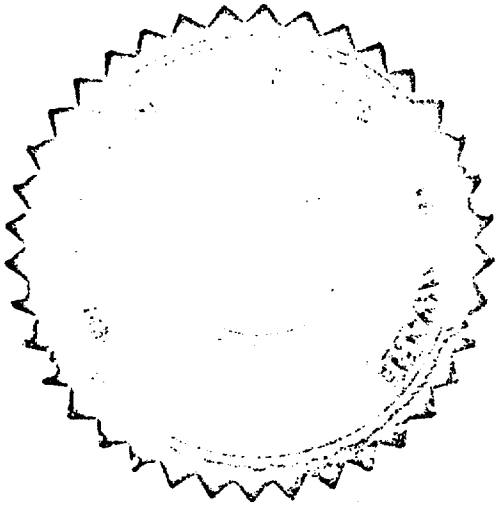
3. The Office of Management, Budget, and Planning shall monitor and evaluate the management of the State's coastal resources by the various agencies and local governments, if any, with specified responsibilities under the Management Program (irrespective of whether such entities receive Section 306 funds).

4. The Office of Management, Budget, and Planning shall make periodic reports to the federal Office of Coastal Zone Management, the Governor, and the General Assembly, as appropriate, regarding the performance of all agencies involved in the Program.

5. The Office of Management, Budget, and Planning may, if and when appropriate, request approval from the Associate Administrator of the federal Office of Coastal Zone Management for amendments or refinements to the Coastal Management Program.

6. All State departments and agencies shall cooperate to the fullest extent possible to assist the Office

of Management, Budget, and Planning in carrying out the duties and responsibilities of this Order.



Approved this 24th day of August 1978.

Governor

ATTEST:

Secretary of State

STATE OF DELAWARE

EXECUTIVE DEPARTMENT
DOVER

EXECUTIVE ORDER

NUMBER SIXTY-ONE

TO: Heads of All State Departments and Agencies

RE: Review and Enforcement of the Coastal Management Program

WHEREAS, The federal Coastal Zone Management Act (P.L.92-583, as amended) provides funds to states to implement federally approved Coastal Management Programs; and

WHEREAS, pursuant to federal regulations (15 CFR Part 923.45), one condition of Coastal Management Program approval is demonstration that the Program, as approved, will be enforced; and

WHEREAS, Several State departments and agencies have authority for enforcing the State of Delaware's Coastal Management Program and for making rules which might possibly make the Program unenforceable;

NOW, THEREFORE, I, PIERRE S. duPont, IV, by virtue of the authority vested in me as Governor of the State of Delaware, do hereby declare and order as follows:

1. To the maximum extent permitted by law, all State departments and agencies shall, upon federal approval of the Delaware Coastal Management Program, enforce the goals, policies and objectives of the Coastal Management Program.

2. Each State department and agency shall, upon federal approval of the Delaware Coastal Management Program, review the Program and timely notify the Delaware Office of Management, Budget and Planning of any and all proposed

changes in its rules or regulations which have the potential for interfering with the enforcement of Coastal Management Program policies.

3. The Department of Natural Resources and Environmental Control shall, upon federal approval of the Coastal Management Program, notify the Office of Management, Budget and Planning of all proposed changes in the Department's rules and regulations.

4. The Office of Management, Budget and Planning shall, upon receipt of notification made pursuant to this Order, review the proposed changes and, if the Office determines such changes would have the potential for interfering with the enforcement of the Coastal Management Program, consult with the federal Office of Coastal Zone Management for the purpose of determining whether the proposed changes, if they were to take effect, would require an amendment to the Coastal Management Program.

5. The Office of Management, Budget and Planning shall take whatever action is necessary and sufficient to amend the Coastal Management Program in the event State authorities are inadequate to enforce the current Coastal Management Program, provided, however, that the Office of Management, Budget and Planning and other State departments and agencies will first explore the utility and desirability of amending the rules and regulations to conform with the current Coastal Management Program.

6. The Office of Management, Budget and Planning shall submit, pursuant to Title 29, Chapter 92, Delaware Code,

comments addressing the Coastal Management Program policies and concerns to local land and water use decision makers.

Approved this 24th day of August 1978.

Governor

ATTEST:

Secretary of State

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
EDWARD TATNALL BUILDING
P.O. BOX 1401
DOVER, DELAWARE 19901

OFFICE OF THE
SECRETARY

PHONE: (302) 678 - 4403

MEMORANDUM TO: Division Directors and Legal Office

FROM : Austin P. Olney, Secretary APO

SUBJECT : Review and Enforcement of the Coastal Management Program

DATE : September 13, 1978

I want to bring to your attention Executive Order No. 61 which provides for the mechanism for enforcing the Coastal Management Program. In particular, note paragraph 3 which requires this Department to notify OMBP of all proposed changes in our rules and regulations.

cc: Nathan Hayward
David Hugg

encl: E.O. #61

APO:jhb

RECEIVED
FEB 14 1979
14
OMBP OFFICE

MEMORANDUM OF UNDERSTANDING

Between The

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

And The

OFFICE OF MANAGEMENT, BUDGET, AND PLANNING

On The

MANAGEMENT OF DELAWARE'S BEACHES
PURSUANT TO THE COASTAL MANAGEMENT PROGRAM

The Department of Natural Resources and Environmental Control (DNREC) and the Office of Management, Budget, and Planning (OMBP), in order to ensure a unified and coordinated program of beach management in Delaware, believe it desirable to develop understandings in this area.

This memorandum serves to establish an agreement between DNREC and OMBP concerning the management of the State's beaches in accordance with policies established in Subsection 5.A.2., Beaches and Shorelines, of the Delaware Coastal Management Program, as approved by the Office of Coastal Zone Management (OCZM), National Oceanic and Atmospheric Administration, U. S. Department of Commerce.

The following points of understanding have been reached and clarify the responsibilities of the DNREC in implementation of the State's Coastal Management Program.

1. DNREC agrees to interpret and enforce the Regulations Governing Beach Protection and Use of Beaches, dated May 6, 1974, in accordance with the policies of Subsection 5.A.2. of the Coastal Management Program.

2. DNREC agrees that permits for projects which may affect beach erosion, but which are issued solely pursuant to Subchapter II of the Underwater Lands Act, 7 Del. C. 61, shall be issued with consideration given to sound beach management practices as provided by law.

3. DNREC agrees to conduct a topographic survey of all privately owned beaches on the Delaware Bay and Atlantic Ocean for the purpose of establishing a new building setback line based upon coastal geomorphology. This survey shall be conducted when DNREC receives, or is assured of receiving, a grant for such purpose from OCZM.

4. With the exception of Policy 7, DNREC agrees to amend, consistent with obligations under 7 Del. C. 68, the Regulations Governing Beach Protection and Use of Beaches to explicitly incorporate the policies and principles contained in Subsection 5.A.2. of the Coastal Management Program pertaining to beach erosion control to the extent that existing regulations are inadequate for this purpose.

5. DNREC agrees to amend the definition of building line in accordance with the topographic survey and responsible public comment. OMBP agrees to seek an amendment to Policy 7 to incorporate the new definition of building line into the Coastal Management Program.

6. OMBP agrees to apply for a grant from OCZM on behalf of DNREC for the purposes of conducting the topographic survey and establishing a new building line.

7. Implementation of Policy 7 as it exists will not be required by item 4 above after the Regulations have been amended, since it is agreed that the definition of building line will be revised. However, in the event that the survey required by item 3 above does not take place in 1979, DNREC agrees to enforce the Regulations in accordance with Policy 7.

Based upon the understanding recited in this memorandum, it is hereby agreed that DNREC and OMBP will cooperate in implementing Subsection 5.A.2. of Delaware's Coastal Management Program.

IN WITNESS THEREOF, the contents of this memorandum have been accepted and approved by DNREC and OMBP this 26 day of February, 1979.

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Witness Jean H. Bracken

By Austin P. Olney
Austin P. Olney, Secretary

OFFICE OF MANAGEMENT, BUDGET, AND PLANNING

Witness Thalia Y. Kenton

By Nathan Hayward, III
Nathan Hayward, III, Director

STATE OF DELAWARE
EXECUTIVE DEPARTMENT
DOVER, 19901

PIERRE S. DU PONT
GOVERNOR

PHONE: (302) 678 - 4101

MEMORANDUM OF UNDERSTANDING AND AGREEMENT

The undersigned do hereby agree that technical advisory services shall be provided by the Secretary of the Department of Natural Resources and Environmental Control to the Director of the Office of Management, Budget, and Planning upon the latter's written request for advisory assistance in evaluating probable and possible environmental effects of industrial development projects for which applications for status decisions and permits have been made under terms of the Coastal Zone Act (Title 7, Chapter 70, Delaware Code). If determined necessary and desirable by both signatory parties, such advisory technical assistance may be on a reimbursable basis.

It is also agreed that the Office of Management, Budget, and Planning will not issue a status decision or Coastal Zone Permit until the Department has been given an opportunity to review and comment on request for a status decision or a permit application.

This agreement shall take effect on the date of signature of both parties concerned and shall be terminated only upon mutual agreement of both parties, by order of the Governor, or by Law.

Signed:

Secretary, Department of Natural Resources and Environmental Control	Date
Director, Office of Management, Budget and Planning	Date 2/26/79
Witness	Date 2/26/79
Witness	Date 2/26/79

APPENDIX F. - COORDINATION, PUBLIC INVOLVEMENT AND NATIONAL INTERESTS

These requirements address coordination with governmental and private bodies to assure that their interests are considered during the program development process and that procedures are created to ensure continued consideration of their viewpoints during program implementation. The evaluation of substantive inputs by public and private entities is necessary to achieve a balance of sometimes conflicting interests.

1. FEDERAL-STATE CONSULTATION

Federal regulations require that the CMP provide an opportunity of full participation by relevant federal agencies in the program development. Specifically, the CMP must: (1) contact federal agencies identified in the regulations for the purpose of arranging understandings regarding each agency's participation during program development; (2) provide for federal agency input on a timely basis; (3) summarize the nature, frequency, and timing of contacts with federal agencies; (4) evaluate federal comments received; (5) indicate the nature of major comments by federal agencies; and (6) advise these agencies of public hearings on the program.

Section 4 of the document (Public Participation) explains how the CMP has dealt with most of these requirements. In addition, many other program document sections, Working Paper No. 7 (The National Interest In Resources And Facilities Of The Delaware-Coastal Zone), and Working Paper No. 5 (Federal-State Interaction And The National Interest) respond to federal agency comments received during program development.

2. CONSIDERATION OF NATIONAL INTERESTS

The CMP must: (1) describe which national interests in the planning and siting of facilities were considered during program development and the sources relied upon for such consideration; (2) indicate how and where such consideration is reflected in the substance of the CMP; (3) describe a process for continued consideration of national interests during program implementation; (4) consider any applicable interstate energy plan or program developed pursuant to Section 309 of the Coastal Zone Management Act (CZMA); and (5) meet the requirements for an energy facility planning process pursuant to the statute and regulations.

Most of the requirements are met in Working Paper No. 7 which is incorporated in the CMP by reference. The process for continued consideration of national interests during program implementation appears in Sectiom 5.E. of the document (Coastal Management Coordination) and Appendix E (Legal Authorities and Organization). Section 5.D.3. (Energy Facilities) contains the energy facility planning process.

3. FEDERAL CONSISTENCY PROCEDURES

The CZMA provides that each federal agency conducting or supporting activities directly affecting the coastal zone must do so in a manner which is, to the maximum extent practicable, consistent with approved State management programs. Both the statute and federal regulations (15 C.F.R. Part 930) specify the types of information and procedures the CMP must use to implement the CZMA federal consistency provisions. Although a few of the program document sections discuss federal consistency as it may be applied in the implementation of certain policies, the CMP federal consistency procedures are established in this part of Appendix F.

The State agency designated to handle federal consistency review is the Delaware Office of Management, Budget, and Planning (OMBP). This agency is responsible for securing the necessary review and comment from other State, regional, or local government agencies and is the only agency authorized to comment officially on a federal consistency determination, concur with or object to a consistency certification, or determine the consistency of a proposed federal assistance activity.

The meaning of several key statutory terms is explained in the federal regulations. These explanations, which define "significantly affecting the coastal", "associated facilities", "federal activity", "consistent to the maximum extent practicable", "federal license or permit", "federal license or permit activity described in detail", "person", "OCS plan", "federal assistance", "applicant agency", "OMB A-95 process", "consistent with the objectives or purposes of the Act", "necessary in the interest of national security", and "appellant", are too lengthly for inclusion in the CMP, but are hereby adopted by reference. In addition, all the procedures and other requirements imposed by the said regulations upon federal agencies for compliance with the federal consistency provisions of the CZMA are hereby adopted as procedures and requirements which the Delaware CMP will expect the federal agencies to follow in their dealings with the Delaware CMP.

CZMA Section	307(c)(1) & (2) (Subpart C)	307(c)(3)(A) (Subpart D)	307(c)(3)(B) (Subpart E)	307(d) (Subpart F)
Federal Action	Direct Federal activities including development projects	Federally licensed and permitted activities	Federally licensed and permitted activities described in detail in OCS plans	Federal assistance to State and local governments
Coastal Zone Impact	"Significantly affecting the coastal zone"	"Significantly affecting the coastal zone"	"Significantly affect-the coastal zone"	"Significantly affect-the coastal zone"
Responsibility to notify State agency	Federal agency proposing the action	Applicant for federal license or permit	Person submitting OCS Plan	A-95 Clearinghouse receiving State or local government application for Federal assistance
Notification procedure	Alternatives chosen by Federal agency (subject to NOAA regulations)	Consistency certification	Consistency certification	OMB Circular A-95 notification procedure
Consistency requirement	Consistent to the maximum extent practicable with CZM Program	Consistent with the CZM Program	Consistent with the CZM Program	Consistent with the CZM Program
Consistency determination	Made by Federal agency (Review by State agency)	Made by Applicant with State agency concurrence	Made by Applicant with State Agency concurrence	Made by State agency
Federal agency responsibility following a disagreement	Federal agency not required to disapprove action following State agency disagreement (unless judicially impelled to do so)	Federal agency may not approve license or permit following State agency objection	Federal agency may not approve Federal licenses or permits described in detail in the OCS Plan following State agency objection	Federal agency may not grant assistance following State agency objection
Administrative Conflict resolution	Mediation by the Secretary of Commerce (Subpart G)	Appeal to the Secretary of Commerce by applicant or independent Secretarial review (Subpart H)	Appeal to the Secretary of Commerce by person or independent Secretarial review (Subpart H)	Appeal to the Secretary of Commerce by applicant agency or independent Secretarial review (Subpart H)

FEDERAL CONSISTENCY MATRIX DIAGRAM

Sections 07(c) and (d) of the Federal Coastal Zone Management Act provide that:

1. Federal activities and development projects directly affecting the coastal zone shall be conducted consistent with the approved management program to the maximum extent practicable;

2. That no license or permit shall be granted by a Federal agency until the State or its designated agency has concurred with the applicant's certification or until, by the State's failure to act, the concurrence is conclusively presumed;

3. That no Federal agency shall grant a license or permit for any activity described in detail in Outer Continental Shelf (OCS) plans and that affects any land or water use in the coastal zone until the State concurs with the certification of consistency made by the person submitting the OCS plan;*

4. That Federal agencies shall not approve proposed assistance projects to state and local governments that affect the coastal zone and are inconsistent with a state's coastal management program.

Section 307 of the Act contains these and other provisions to assure the states that Federal grant programs, permits, and Federal development projects in the State's coastal zone will, to the maximum extent practicable, be consistent with the State's management program. A discussion of the federal consistency provisions follows.

3.A. Federal Activities and Development Projects

Federal activities and development projects are subject to a consistency determination where such projects are likely to directly and significantly affect a State's coastal zone. Covered are functions of a federal agency performed by it or on its behalf in the exercise of the federal agency statutory responsibilities, including planning, construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources. Excluded are federal licenses and permits and federal assistance to states or local government (these are covered separately in following sections).

*OCS Plan - The term "OCS Plan" means any plan for the exploration or development of or production from any area which has been leased under the Outer Continental Shelf Lands Act (42 USC Sec. 1351 et seq.) as amended.

(1) Federal Activities and Development Projects Subject to Consistency Determination

Many federal activites have little or no chance of directly affecting Delaware's coastal management area. Such activities include normal administrative and office operations of federal agencies, operation and maintenance of air and sea navigation and radio transmission facilities, and processing of federal assistance or services to individual clients. Other activities and development projects, however, have the potential for a direct or significant impact. They may: cause a significant changes in the manner in which lands, waters or other coastal resources are used; significantly limit the range of available uses of coastal resources; or cause significant changes in the quality of coastal resources.

The following types of Federal activities and development projects are generally assumed to directly affect Delaware and, therefore, are subject to a consistency determination.

(a) Actions on Excluded Federal Lands:

- any activity causing a discharge which if occurring on other than Federal property would be subject to Delaware air, water or hazardous materials regulations

- any activity likely to result in a significant non-point source of pollution affecting the State's coastal waters

- any activity in a flood prone or erosion prone area which could lead to a significant change in drainage patterns, run-off coefficients, or sediment loadings

- any activity which could result in a significant change in population or change in land or water use/development patterns which could require major new public investment

(b) Actions Within the Coastal Management Area/State:

- all development projects undertaken by a federal agency within the State of Delaware

- designation of any land or water area the purpose of which is to impose restrictive use covenants, requirements, or controls (for example, designation of aircraft hazard zones)

(c) Actions Outside the Coastal Management Area/State (i.e., in another state or outside Delaware's territorial boundary at sea)

- any activity or development project (landward or seaward of the management area) which could result in a significant change in air or water quality within the management area

- construction of a major federal facility in close proximity to Delaware which could result in significant land or water use impacts, or require significant State or local public investment, or adversely affect the State's economy

(2) Notification and State Review

Federal agencies must notify the Office of Management, Budget, and Planning (OMBP) at the earliest practicable time of existing or proposed federally conducted or supported activities directly affecting the coastal management area. Such notification must be received at least 90 days before the federal activity or development project reaches a decision stage likely to restrict the consideration of alternative approaches or measures.

The notification from the federal agency must contain:

(a) a brief statement indicating how the proposed action will be undertaken in a manner consistent with the Delaware Coastal Management Program;

(b) an evaluation of the relevant provisions of the Delaware CMP;

(c) a detailed description of the proposed action, its associated facilities and their combined coastal effects; and

(d) relevant data and information , including time schedules, sufficient to support the federal consistency determination (it is recognized that the degree of detail will be commensurate with the expected effects of the proposed activity.

In making their consistency determination federal agencies must ensure that their activities and development projects are consistent to the maximum extent practicable with the enforceable policies of the management program. Adequate consideration must be given to those aspects of the CMP which are of an encouragement nature. According to federal regulations, the "consistent to maximum extent practicable" test means capable of being done within the fullest degree permitted by existing federal law.

(3) State Review-Process

Pursuant to Section 930.41 (15 C.F.R. Part 930) the State shall inform the federal agency of its agreement or disagreement with the federal agency's consistency determination at the earliest practicable time, but in no case later than 45 days following receipt of federal notification, unless an extension has been granted. State concurrence is presumed if no response is received within the 45 day period. The State may request and shall be given one 15 day extension. Longer or additional extensions may be granted by the federal agency.

Upon receipt of a federal notification OMBP will notify the Coastal Management Committee, those agencies and individuals normally notified through the State Clearinghouse, and any individuals or organizations having registered with OMBP for the purpose of reviewing federal activity or development project consistency determinations. OMBP shall be responsible for compiling comments and responding to the federal agency.

(4) OMBP Objection to a Consistency Determination

In the event OMBP disagrees with the federal agency's consistency determination, a notification will be sent to the federal agency which:

(a) describes how the proposed action is inconsistent with the management program;

(b) identifies alternative measures, where feasible, which would make the proposed action consistent; and

(c) describes the nature and necessity of additional information required for making a consistency determination (if this is the basis for the State's objection).

Copies of the State's objection will be sent to the affected federal agency and the Associate Administrator of NOAA.

In the event of State objection, the State will attempt to resolve its concerns with the federal agency. Federal agencies are requested to refrain from initiation of the proposed activity or development project beyond the 90 day notification period in order to allow for resolution of the disagreement.

(5) Modification of Consistency Determination Process

OMBP recognizes the need to maintain flexibility in this process and acknowledges that a shorter review time or the development of consistency agreements and waivers may be necessary in the interests of national security or other overriding national interest.

OMBP, through negotiation with federal agencies, may enter into agreements limiting the applicability of consistency review based upon the scope, size, location or other characteristics of the proposed action.

3.B. Federal Licenses and Permits

Federal licenses and permits include authorization, certification, approval or other form of permission granted by any Federal agency to an applicant (OCS leases are covered separately). Activities which require a federal license or permit and which affect lands or water with Delaware must be consistent with the Delaware Coastal Management Program.

Pursuant to regulations established to implement Section 307 of the FCZMA, states may prepare lists of those federal licenses and permits which are considered to "affect the coastal zone." Such list becomes the basis for consistency determinations and no federal license or permit described on the list can be granted until a certification of consistency is obtained.

(1) Licenses and Permits Subject to Consistency Determination

All of the licenses and permits listed in Table F-1 for activities occurring within Delaware are considered to significantly affect Delaware's coastal zone and, except as otherwise noted, are subject to consistency certifications and review. Licenses and permits listed which relate to activities occurring outside the State of Delaware will be considered to significantly affect the coastal zone if they:

(a) could result in a significant change in air or water quality or quantity within Delaware;

(b) involve activities in close proximity to Delaware's coastal boundary and could lead to significant land or water use pattern impacts, require new or expanded public facilities or services within Delaware, or have the potential to adversely impact commerce, trade, or agriculture within Delaware;

(c) involve actions which could impact commercial or recreational fishing, marine transportation, or other uses of the State's coastal waters or submerged lands; or

(d) involve the transport, storage or handling of hazardous or toxic materials such that spills or other accidents could impact Delaware lands or waters.

It should be noted that in many cases where a federal license or permit is required a State permit for the same action or use is also necessary. In such cases no federal license or permit consistency review will be required since the State has authority to prevent an inconsistent action by denial of the State permit.

(2) Notification and Review Process

Federal agencies are required to inform applicants for listed federal licenses and permits of the applicants' responsibilites for notification to the State and submission of required information including a consistency certification. Form of notice and the consistency certification shall comply with (15 C.F.R. Parts 930.57 and 930.58).

These requirements shall also apply to unlisted licenses and permits and to licenses and permits for activities occurring outside of Delaware's coastal management boundary if OMBP notifies the federal agency, the applicant and the Associate Administrator of NOAA within 30 days of the public notice of the federal license or permit.

Applicants should, as a preliminary matter, seek the views of the State and the assistance of the OMBP regarding the means for ensuring that the proposed activity will be coordinated in a manner consistent with the Delaware Coastal Management Program.

As a convenience to applicants, federal agencies should list the requirements for consistency determinations on their applications forms and inform the applicant of the address and telephone number of OMBP.

At the same time as an application for a listed federal license or permit is submitted to the federal agency, the applicant will transmit a copy of the application and consistency certification in the form specified by Sections 930.57 and 930.58 to the State. If the application would ordinarily be sent to a State agency other than OMBP, a duplicate copy must also be sent to OMBP.

Pursuant to Section 930.60, State review of a federal license or permit application commences at the time OMBP receives a copy of the consistency certification and supportive information in the form specified under Sections 930.57 and 930.58. Upon receipt of these materials in proper form, the following process shall apply:

(a) Public Notice:

1. OMBP will give at least 30 days public notice prior to the date OMBP plans to respond to the certification;

2. The notice shall describe the subject matter of the certification review; including a summary of the proposed activity and an announcement of the availability for inspection of the consistency certification and accompanying public information;

3. The notice shall request interested parties to comment on the proposed activity;

4. The notice shall provide the date, time, and place of the hearing, if any, which OMBP decides to hold on the certification review;

5. The notice shall be published in at least two Delaware newspapers of general circulation;

6. Notice shall also be provided in the immediate area of the coastal zone which is likely to be significantly affected by the proposed activity, if the notice above is adequately for this purpose;

7. Public notice may be expanded in proportion to the degree of likely public interest involved, the substantial commitment of or impact on coastal resources, the complexity or controversy of the proposal, or for other good cause;

If OMBP holds public hearings on certification reviews, they shall be scheduled for the purpose of (1) allowing access to the consistency certification and accompanying public information, (2) facilitating broad public participation at the hearing, and (3) affording the applicant expeditious consideration of the proposed activity.

(b) Review by Coastal Management Committee

In order to facilitate review of applications and consistency certifications, notice will be sent to the Coastal Management Committee. Coastal Management Committee review will include consideration of the application and supportive information to determine if:

(i) the proposed activity conflicts with the objectives and policies of the Coastal Management Program;

(ii) the proposed activity by itself, or in consideration with existing projects, would cause a violation of a Delaware statute or regulation contained in the program or result in an adverse impact of an unacceptable nature as defined by the management program; or

(iii) alternative measures exist, which if adopted by the applicant would permit the proposed activity to be conducted in a manner consistent with the management program;

The Committee will render its recommendation to OMBP and such recommendation will be part of the record upon which the OMBP consistency certification decision is based.

(3) State Concurrence with a Consistency Certification - Notice and Process

At the earliest practicable time, after the close of the public comment period OMBP shall notify the federal agency and the applicant whether it concurs or objects to the consistency certification. Concurrance shall be in writing. Concurrance by OMBP shall be automatically and conclusively presumed if OMBP does not respond within six months of the commencement of the OMBP review. If OMBP has not issued a decision within 90 calendar days of the commencement of the review, OMBP shall notify the federal agency and the applicant of the status of the matter and the basis for futher delay.

(4) Federal Action When OMBP Concurs with a Consistency Certification

If OMBP issues a concurrence (or concurrence is conclusively presumed) with the applicants' consistency certification, the federal agency may approve the application for a license or permit. If a federal agency dtermines that it will deny an application, early notification to OMBP is desired in order to avoid an unnecessary consistency review.

(5) Federal Action When OMBP Objects to a Consistency Certification

At any time during the six months following commencement of the review period, OMBP may object to the consistency certification. Such objection will be contained in a written notice to the applicant, the federal agency and the Associate Administrator of NOAA. The notice will describe how the proposed activity is inconsistent, any alternatives which will make the project or activity consistent, and the nature and necessity of any additional information required to determine program consistency. Upon receipt of the State's objection, the federal agency shall be prevented from granting the federal license or permit, except where permitted by the Secretary of Commerce based upon a finding that the proposed activity is consistent with the purposes of the

Federal Coastal Zone Management Act or in the interest of national security (15 C.F.R. 930, Sub part H).

6. Modification of Consistency Determination Process

Section 930.54 of the fedreal regulations pertaining to Federal Consistency (15 C.F.R. 930) provides that State agencies, with the assistance of federal agencies, may monitor other federal license and permit activities which may reasonably be expected to significantly affect the State's coastal zone. Delaware proposes to monitor unlisted federal license and permit activities through the A-95 Process/State and Regional Clearinghouses. NEPA environmental impact statements, and routine reporting of regional resource agencies (Delaware River Basin Commission, etc.).

Should OMBP determine that an unlisted license or permit activity could significantly affect the coastal zone, notification will be sent to the appropriate federal agency, the Associate Administrator of NOAA, and the applicant.

OMBP may, after program approval, establish procedures to waive the consistency review for certain classes or types of projects based on a consideration of their size, scope, location or extent of State and local control. Such waivers will be considered whenever the objectives of the CMP are met, when, in the opinion of the State, adequate safeguards are built into State and local permitting authority, or when the interests of the public and the applicant are best served by such action. Waivers will apply only to the State Review Process set forth above, not to the requirements placed on the applicant for a consistency determination.

Table F-1

Federal Licenses and Permits Subject to Consistency Review[1]

Federal Agency	[2] License or Permit and Statutory Citation
Army Corps of Engineers Department of Defense (To the extent a State permit for the same action is also necessary no federal consistency review is required - See note (1)	- Construction of dams or ditches across navigable waters, or obstruction or alteration of navigable waters required under Sections 9 and 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401, 403) - Establishment of harbor lines pursuant to Section 11 of the Rivers and Harbors Act of 1899 (33 U.S.C. 404, 405) - Occupation of sea wall, bulkhead, jetty, dike, levee, wharf, pier or other work built by the United States pursuant to Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408) - Approval of plans for improvements made at private expense under USACE supervision pursuant to the Rivers and Harbor Act of 1902 (33 U.S.C. 565) - Discharge of dredged spoils into the waters of the United States pursuant to the Federal Water Pollution Control Act of 1972, Section 404 (33 U.S.C. 1344) - All actions for which permits are required pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413) - Construction of artificial islands and fixed structures on the Outer Continental Shelf pursuant to Section 4(f) or the Outer Continental Lands Acts (43 U.S.C.) not otherwise covered in an OCS Plan.

Table F-1
(continued)

Federal Agency	License or Permit and Statutory Citation
Army Corps of Engineers (continued)	- Port Access Routes pursuant to 43 U.S.C. 1333(f)
Coast Guard Department of Transportation	- Construction or modification of bridges, causeways or pipelines over navigable waters pursuant to 49 U.S.C. 1455
	- Permits for Deepwater Ports pursuant to the Deepwater Ports Act of 1974 (33 U.S.C. 1501)
Environmental Protection Agency (To the extent that the issuance of any or all of listed EPA permits or licenses have been delegated to the State the consistency determination process shall not apply - CMP consistency will be satisfied pursuant to State Executive Order No. 61).	- NPDES permits and other permits for federal installations, discharges in contiguous zones and ocean waters, sludge runoff permits and agricultural waste disposal pursuant to Sections 401, 402, 403, 405, and 318 of the Federal Water Pollution Control Act of 1972 (33 U.S.C. 1341, 1342, 1343 and 1328) - Permits pursuant to the Resources Recovery and Conservation Act of 1976 - Permits pursuant to the Clean Air Act of 1976 (42 U.S.C. 1857)
Nuclear Regulatory Commission	- Licensing and certification of the construction and operation of nuclear power plants and for possession and use of by-products, source and special nuclear material pursuant to Atomic Energy Act of 1954, Title II of the Energy Reorganization Act of 1974 and the National Environmental Policy Act of 1969.
Federal Energy Regulatory Commission	- Licenses and permits ordering interconnection of electric transmission lines; issuing certificates of public convenience and necessity for interstate natural gas transmission and terminals including approval of LNG sites; approvals for abandonment of natural gas pipelines; and licenses required for non-federal hydroelectric projects and associated transmission lines.

Table F-1
(continued)

Federal Agency	License or Permit and Statutory Citation
Department of Energy	- Regulation of gas pipelines, and licensing of import or expor of natural gas pursuant to the Natural Gas Act (15 U.S.C. 717) and the Energy Reorganizati Act of 1974
	- siting, construction and operati of non-nuclear power plants.
U.S. Geological Survey Department of Interior	- permits to drill, construct, and maintain pipelines, gathering and flow lines and assoc. structures persuant to 43 USC 1334 to the extent that these are covered by an OCS plan.
Bureau of Land Management Department of Interior	- permits and rights of use and easements for required for pipeline corridors, and associated activities pursuant to the OCS Lands Act (43 U.S.C. 1334) and 43 U.S.C. 931(c) and 20 U.S.C. 185, to the extent these are not covered by an OCS plan.

1) If the action covered by the listed federal license or permit is also covered by State regulatory authority, the federal consistency determination requirements shall not apply. However, if the scope of the proposed action covered by the federal license or permit is broader than that covered by State permit the portion of the project not covered by a State permit shall be subject to a consistency determination.

2) Mechanisms may be developed to allow for a waiver of certain steps in the State Review Process for projects covered by the listed permits and licenses. Such waivers will be based on the size, scope, location and extent of State and local control of the proposed activity. The intent of such waivers will be to avoid duplication, reduce permit review time, and facilitate consideration of projects having adverse impacts.

3.C. OCS Exploration, Development and Production Activities

Subpart E of 15 CFR Part 930 provides that OCS plans submitted to the U.S. Secretary of the Interior for Outer Continental Shelf exploration, development and production, and all associated federal licenses and permits described in detail in such OCS plans, shall be subject to a determination of their consistency with a State's coastal management program. Included in the consistency determination are: (a) license and permit activities which are described in detail in the OCS plan, such as, permits to drill, and rights-of-use and easements for the construction and maintenance of structures, platforms, gathering and flow lines; and (b) OCS-related licenses and permits, such as for pipeline corridors, artificial islands or other fixed structures, transport of dredged materials, and discharges or emissions subject to the Federal Water Pollution Control Act of 1972 or the Clean Air Act of 1970.

(1) OCS Activities Subject to Consistency Determination

A certification of consistency for each activity described in detail in the OCS plan shall be attached to the OCS plan at the time it is submitted to the Secretary of the Interior. No federal official or agency shall grant any license or permit for any activity described in detail in the OCS plan until the State has received such certification and plan together and until the State has concurred or conclusive concurrence is presumed.

OCS plan license and permit actions not described in detail in the OCS plan are subject to the provisions for federal licenses and permits (See part 3.B. of this Appendix).

(2) Notification and Review Process

Any person submitting to the U.S. Secretary of the Interior any OCS plan must furnish OMBP with a copy of the OCS plan (excluding proprietary information) and a consistency certification.

When satisfied that the proposed activities described in detail in the OCS plan meets the Federal consistency requirements, the OCS lessee or operator shall declare in the consistency certification that:

> "The proposed activities described in detail in this plan comply with Delaware's approved coastal management program will be conducted in a manner consistent with such program."

Supporting information to accompany the certification shall include the comprehensive offshore, nearshore and onshore data and material required by the Department of the Interior's operating regulations governing exploration, development and production operations on the OCS (30 CFR §250.34). Information supplied must include an assessment of the probable coastal zone effects, and a set of findings indicating that the proposed activities, their associated facilities, and their combined effects, are all consistent with the provisions of the management program.

The State will review OCS plans through the Energy Facility Siting liaison Committee described in Section 5.D.3. In order to ensure that other levels of government and the general public is aware of and has an opportunity to comment on such plans OMBP will provide public notice of the receipt of such plans, the procedures for comments, and the review closing date.

(3) State Concurrence with Consistency Determination

At the earliest practicable time OMBP will notify the person and Federal agency whether it concurs with or objects to the consistency certification. If the State issues a concurrence, it will notify both the Secretary of Commerce and the Secretary of the Interior. Concurrence by the State agency shall be conclusively presumed in the absence of an objection within six months following commencement of State review.

If the OMBP has not issued a decision within 90 days following the beginning of review, it will notify the person and the Department of the Interior of the status of the matter and the basis for further delay.

If the State issues a concurrence or is conclusively presumed to concur, the OCS lessee or operator will not be required to submit additional certifications and supporting information for State review at the time Federal applications are actually filed for the Federal permit activities described in detail in the OCS plan. The lessee or operator must, however, supply OMBP with copies of permit applications to allow the State to monotor the approved OCS activities.

(4) State Objection to a Consistency Determination

In the event the State objects to the OCS plan certification, it will accompany its objection with reasons and supporting information concerning each activity which the State finds to be inconsistent with the managmenet program. The State's objection will include a statement informing the person of a right of appeal to the Secretary of Commerce on the grounds described below. Following receipt of a State agency objection, Federal agencies may not issue any of the licenses or permits for activities described in detail in the OCS plan.

3.D. Federal Assistance to State and Local Governments

Federal consistency provisions (Subpart F, 15 C.F.R. Part 930) provide that state and local governments submitting applications for federal assistance affecting a state's coastal zone shall certify that such applications are consistent with the state's coastal management program.

The term "Federal assistance" means assistance provided under a Federal program to an applicant agency through grant or contractual arrangements, loans, subsidies, guarantees, insurance, or other forms of financial aid. An applicant agency means any unit of state or local government which, following management program approval, submits an application for federal assistance.

A federal agency may not grant federal assistance if OMBP objects on the grounds that the proposed action to be supported by federal assistance is inconsistent with the state's coastal management program.

(1) Delaware CMP Consistency Provisions Relative to Federal Assistance

Applications by state, county and municipal agencies for federal assistance must be reviewed by the Delaware Federal Aid Clearinghouse established pursuant to OMB Circular A-95. Additionally, all applications from governmental entities which receive State funds must be reviewed and approved by the Delaware State Clearinghouse Committee (DSCC), a legislatively mandated review body whose membership includes representatives of the executive and legislative branches of State government. The DSCC may veto applications and prevent their further consideration by a federal agency. Other reviews are also required at the regional level for projects in New Castle County.

Because of the extensive coverage of the Clearinghouses, Delaware chooses not to develop a list of federal assistance federal consistency review for such projects at this time. Implementation of a separate review process would be duplicative, costly, and time-consuming with little real benefit.

Nevertheless, consistency with the CMP will be one of the criteria that the Office of Management, Budget, and Planning will consider in its review of federal assistance applications and its recommendations to the State Clearinghouse and the DSCC.

In the event OMBP objects to the applicant agency's proposal on grounds of inconsistency with the Delaware CMP, it must accompany its objections with reasons and supporting information. The Clearinghouse must then notify the applicant agency and the Federal agency of the State CMP objection.

CMP objections will: (a) describe how the proposed project is inconsistent with specific elements of the management program; (b) indicate alternative measures, if any, which if adopted would make the proposal consistent; and (c), if the objection is on the basis of insufficient information, indicate the nature ofthe information and the necessity of having such information to determine the consistency of the activity with the Delaware CMP.

(2) Modification of Consistency Determination Process

OMBP will monitor federal assistance projects and programs through the A-95 process and other means. Where such monitoring indicates that significant impacts on the State's coastal resources have occurred or could occur from federal assistance projects a formal consistency review and determination pursuant to federal regulations will be requested. In such case OMBP will notify the applicant agency(s), involved federal agencies, and the Associate Administrator for Coastal Zone Management of its intention to make such a determination.

Some federal assistance programs are not subject to OMB Circular A-95 nor to the review process required by the Delaware State Clearinghouse Committee. In these cases OMBP will monitor program activity through the federal register, informal and formal federal agency contact, newsletters, State-local technical assistance projects, information provided by the Coastal Management Committee, and other means. Where it is determined that such programs could have a significant impact on the CMP, the Coastal Management Committee will be asked to review the federal program and, if appropriate, request that such federal program be subject to the A-95/Clearinghouse review and approval process. A formal consistency determination may subsequently be required.

OMBP reserves the right to establish a federal assistance program consistency list based on either or both of the preceding evaluations and to implement the federal assistance consistency determination process and authorities provided by Subpart F, 15 C.F.R. Part 930.

4. MEDIATION

A. During Program Development

The CZMA provides for mediation of "serious disagreements" between any federal agency and a coastal State during the development or initial implementation of a coastal management program. In such cases, the U.S. Secretary of Commerce acts as mediator, but only if all parties aree to mediation. To date, neither Delaware nor any federal agency has requested mediation.

B. Relative to Federal Consistency

Provisions have been made and a procedures described in Sub-parts G and H of NOAA regulations published in the Federal Register of March 13, 1978 (15 C.F.R. Part 930 Section 930.120

through 930.134) by which the Secretary of Commerce may mediate disagreements arising from consistency determinations for (a) federal activities and development projects; (b) federal licenses and permits; (c) OCS plans; and (d) federal assistance to State and local governments. These provisions are incorporated by reference into Delaware Coastal Management Program.

In all cases of conflict or objection relating to a federal consistency determination under parts 3A, 3B, 3C and 3D of this Appendix, OMBP will seek resolution of the conflict or objection through informal meeting with the affected federal agency or applicant. In any case OMBP will inform the federal agency or the applicant of the appeal and mediation provisions relating to the specific consistency determination issue.

5. FULL PARTICIPATION

In addition to consultation with federal agencies, the CZMA requires that the opportunity for full participation in program development be provided to State agencies, local governments, public and private parties. More specifically, the CMP must (1) develop and make available general information regarding the program design, its content and its status throughout program development; (2) provide a listing of organizations likely to be affected by the program; (3) indicate the nature of major comments received from such organizations; (4) coordinate the contents of the CMP with local, areawide or interstate plans applicable to areas within the coastal zone; (5) establish a mechanism to provide for continuing coordination with affected parties after program approval; (6) hold public meetings, workshops, and so forth during program development; and (7) held public hearings on the program. Some of these requirements are detailed below.

Most of the requirements were met by activities described in Section 4 of the document. Section 5.E. establishes the mechanism to provide for continuing coordination after program approval.

6. PLAN COORDINATION

As indicated above the contents of the CMP must be coordinated with local, areawide or interstate plans applicable to areas within the coastal zone. Evidence of coordination must be documented by: (1) identifying local governments, areawide agencies designated pursuant to regulations established under Section 204 of the Demonstration Citites and Metropolitan Act

of 1966, and regional agencies or interstate agencies which have plans affecting the coastal zone in effect on January 1 of the year in which the CMP is submitted for approval; (2) listing or summarizing substantive contacts with these entities; and (3) identifying conflicts with those plans of a regulatory nature that are unresolved at the time of program submission and the means that will be used to resolve these conflicts. Particular attention must be given to land use plans prepared pursuant to Section 701 of the Housing and Urban Development Act; State and areawide waste treatment facility management plans prepared pursuant to Sections 201 and 208 of the Federal Water Pollution Control Act; plans and designations made pursuant to the Flood Insurance Act; any applicable interstate energy plans or programs developed pursuant to Section 309 of the CZMA; and regional and interstate highway plans. Finally, the CMP must consider the contents of such federal interagency agreements as the Office of Coastal Zone Management (OCAM) has entered into with respect to the CZMA, as for example the OCAM-HUD and OCZM-EPA agreements.

Section 4 of the document addresses the requirements. In addition, several other sections discuss various plans as they apply to the CMP. For example, 208 planning is described in Section 5.A.3. (Coastal Waters) and Working Paper No. 7. Likewise, plans made pursuant to the Flood Insurance Act are discussed in Section 5.B.3. (Flood Hazard Areas).

7. CONTINUING CONSULTATION

Among the requirements for continuing consultation is a specific one which pertains only to the establishment of a mechanism for State-local government coordination. The mechanism must ensure State-local consultation on State management program decisions that would conflict with any local zoning ordinance, decision or "other action."

The CMP addresses the general continuing consultation requirements with the utilization of various coordinative devices, including the federal OMB Circular No. A-95 Project Notification and Review System. The most important mechanism, however, is the one established by the Delaware Land Use Planning Act. This statute is described in detail in Appendix (Legal Authorities and Organization), and provides the necessary authority for satisfying the more specific State-local consultation requirement. Section 5.E. of the document explains how this and other coordination will take place during program implementation.

8. PUBLIC HEARINGS

The CZMA requires that certain specified procedures be followed with respect to public hearings on the program. These procedures pertain to public notice; the number, scope, time and location of hearings; availability of materials; and preparation of hearing summaries.

Hearings were held on the Discussion Draft, Delaware Coastal Management Program, September 1978 and all supporting information in November 1978. Additionally, public workshops were held in November in order to provide adequate opportunities for review and comment. Hearings were scheduled and conducted in accordance with 15 C.F.R. Part 923.58.

The Draft Environmental Impact Statement (DEIS) was released on March 23, 1979 by the Office of Coastal Zone Management with an initial comment period extending to May 14, 1979 (later extended to May 18, 1979). Four (4) public hearings were held by OCZM in accordance with federal requirements:

Friday, April 27, 1979, Wilmington, 10:00 a.m. and 8:00 p.m.
Saturday, April 28, 1979, Dover, 10:00 a.m.
Saturday, April 28, 1979, Rehoboth Beach, 2:30 p.m.

The comments received at the hearings and during the comment period have been reviewed by OCZM and the State and are summarized in this Final Environmental Impact Statement. (See Part 6)

Delaware State News

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OMBP

State of Delaware :
: ss.
County of Kent :

Before me, a Notary Public, for the County and State aforesaid, personally appeared Oscar D. Bailey, known to me to be such, who being sworn according to law deposes and says that he is Publisher of the Delaware State News, a daily newspaper published at Dover, County of Kent and State of Delaware, and that the notice, a copy of which is hereto attached, was published in the Delaware State News in its issue of

October 16,17,18, 1978

Oscar D. Bailey
Publisher

Sworn to and subscribed before me this Eighteenth day of October A.D. 1978

Kathleen Kunkle
Notary Public

Notice of Hearing/Workshop
Delaware Coastal Management Program
Discussion Draft

Pursuant to 15 Code of Federal Regulations, Part 923.58, the Delaware Office of Management, Budget and Planning hereby gives notice of a public hearing/workshop on Tuesday, November 21, 1978 at 7:00 P.M. in the Auditorium of the Central Middle School, Delaware and Pennsylvania Avenues, Dover, Delaware. This hearing/workshop is for the purpose of presentation of the Discussion Draft of the Delaware Coastal Management Program and the taking of public comments thereon.

This hearing is on the full scope of the Delaware Coastal Management Program, specifically the following documents:

a) "Discussion Draft, Delaware Coastal Management Program," September, 1978;

b) Working Paper No. 7, "The National Interest in Resources and Facilities of the Delaware Coastal Zone," March, 1978; and

c) Working Paper No. 8, "Beach Erosion Control and Shoreline Access Planning," September, 1978.

Copies of the Discussion Draft and both working papers may be examined at the Office of Management, Budget and Planning, Third Floor, Townsend Building, Dover, Delaware between the hours of 8:00 A.M. and 4:30 P.M., Monday through Friday. Copies of the Discussion Draft and both working papers will be available for public review after October 18 in all public libraries and in county and local government offices throughout the State.

In order to facilitate public review and comment, additional workshops will be held as follows:

November 1, 1978 - Georgetown,
Delaware Bacon
Delaware Technical and
Community College
Route 18 - 7:00 P.M.

November 8, 1978 - Middletown
Middletown High School
South Broad Street - 7:00 P.M.

November 9, 1978 - Lewes
Cape Henlopen High School
Savannah Road - 7:00 P.M.

Additional workshops will be scheduled as necessary.

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THE NEWS-JOURNAL COMPANY
831 ORANGE STREET
WILMINGTON, DELAWARE 19899
(302) 573-2000

AFFIDAVIT OF PUBLICATION

STATE OF DELAWARE

COUNTY OF NEW CASTLE

Personally appeared before me this 18th day of October 19 78 Robert S. Larrimore of THE NEWS-JOURNAL COMPANY, a daily newspaper printed and published in the City of Wilmington, County of New Castle, State of Delaware, who, being duly sworn states that advertisement of

NOTICE OF HEARING/WORKSHOP

DELAWARE COASTAL MANAGMENT PROGRAM

was published in:

THE MORNING NEWS on October 16, 17, and 18, 1978

EVENING JOURNAL on October 16, 17, and 18, 1978

THE NEWS JOURNAL on

SUNDAY NEWS JOURNAL on

Name

Asst. Classifie
Title

Sworn to before me this 18th day of October 19

Notary Public

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Additional workshops will be scheduled as necessary.

*Oct16,17,18,N&J (13578)

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AFFIDAVIT OF PUBLICATION

STATE OF DELAWARE

COUNTY OF NEW CASTLE

Personally appeared before me this 28th day of October 19 78 Thomas P. Grant, Jr. of THE NEWS-JOURNAL COMPANY, a daily newspaper printed and published in the City of Wilmington, County of New Castle, State of Delaware, who, being duly sworn states that advertisement of

NOTICE OF WORKSHOP -- DELAWARE COASTAL MANAGEMENT PROGRAM DISCUSSION DRAFT

was published in:

THE MORNING NEWS on October 26, and 27, 1978

EVENING JOURNAL on October 26, and 27, 1978

THE NEWS JOURNAL on October 28, 1978

SUNDAY NEWS JOURNAL on

Name

Classified Ac
Title

Sworn to before me this 28th day of October 19 78

Notary Public

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Delaware Coastal
Management Program
Discussion Draft

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This workshop is on the full scope of the Delaware Coastal Management Program, specifically the following documents:

a. "Discussion Draft, Delaware Coastal Management Program", September, 1978;

b. Working Paper No. 7, "The National Interest in Resources and Facilities of the Delaware Coastal Zone", March, 1978; and

c. Working Paper No. 8, "Beach Erosion Control and Shoreline Access Planning", September, 1978.

Copies of the Discussion Draft and both working papers may be examined at the Office of Management, Budget and Planning, Third Floor, Townsend Building, Dover, Delaware between the hours of 8:00 A.M. and 4:30 P.M., Monday through Friday. Copies of the Discussion Draft and both working papers are available for public review in all public libraries and in county and local government offices throughout the State.

In order to facilitate public review and comment, other workshops will be held as follows:

November 1, 1978 — Georgetown,
Delaware Room
Delaware Technical and Community College
Route 18 — 7:00 P.M.

November 8, 1978 — Middletown,
Middletown High School
South Broad Stree — 7:00 P.M.

November 8, 1978 — Lewes
Cape Henlopen High School
Savannah Road — 7:00 P.M.

November 21, 1978 — Dover
Auditorium, Central Middle School
Delaware and Pennsylvania Avenues — 7:00 P.M.

Sunday News Journal • The Morning News • EVENING JOURNAL • THE NEWS JOURNAL

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852

MAR 26 1979

MEMORANDUM

DATE: March 23, 1979

TO: Recipients of the Draft Environmental Impact Statement Prepared on the Proposed Delaware Coastal Management Program

FROM: J. Cynich
Robert R. Kifer, Chief
NEPA Compliance Unit

SUBJECT: Public Hearing

You are invited to attend the public hearings to be held on the Draft Environmental Impact Statement prepared on the Proposed Delaware Coastal Management Program.

The views of interested persons and organizations will be solicited. These may be expressed orally or in written statements. Presentations will be scheduled on a first-come, first-served basis, and may be limited to a maximum of 10 minutes, or as otherwise appropriate. Priority will be given to those with written statements.

Parties unable to attend the scheduled public hearings may be assured that written comments submitted to the Office of Coastal Zone Management will receive the same consideration as oral comments presented at the public hearings.

The hearing schedule is:

Friday, April 27, 1979

10:00 a.m. and 8:00 p.m.
Gallery Level Auditorium
State Office Building
820 French Street
Wilmington, Delaware

Saturday, April 28, 1979

10:00 a.m.
Conference Room #1
3rd floor
Townsend Building
Federal Street
Dover, Delaware

2:30 p.m.
Commissioners' Room
Municipal Building
73 Rehoboth Avenue
Rehoboth, Delaware

APPENDIX G - MISCELLANEOUS

Coastal Management Programs may be divided (segmented) into sub-areas where resource, regulatory or other considerations warrant. Segmentation can be approved in cases where a State has a long coastline, where development or other pressures necessitate an emphasis on one portion of the coast, where public support may allow for an accelerated program development effort, or where earlier management efforts for a portion of the coast have been developed.

Coastal Management Programs are required to include an environmental impact assessment which describes: (1) the proposed action; (2) the environment affected; (3) the relationship of the proposed action to land and water use plans, policies and controls for the area; (4) the probable impact of the proposed action on the environment; (5) alternatives; (6) probable adverse environmental effects which cannot be avoided; (7) the relationship between local, short-term uses of the environment and the maintenance and enhancement of long term productivity; (8) irrevocable or irretrievable commitments of resources that would be involved in the proposed action should it be implemented; and (9) consultation and coordination with others.

Segmentation

The Delaware Coastal Management Program was not segmented, hence, requirements dealing with segmentation are not applicable.

Environmental Impact Assessment (EIS)

An EIA was developed jointly with the Office of Coastal Zone Management and was incorporated into the Draft Environmental Impact Statement (DEIS).

APPENDIX H - LIST OF PARTICIPANTS

Considerable contributions of time, energy, knowledge, and moral support were provided by many individuals and organizations. To all of them the Program staff offers its sincere appreciation. At the risk of missing some one, the following individuals are recognized for their active and continuing assistance and support:

STATE AGENCY PARTICIPANTS:

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Robert Graham	Division of Fish and Wildlife
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J. Noble Carroll	Department of Agriculture
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Delaware Geological Survey

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Dr. Richard Benson	DGS staff
Dr. Thomas Pickett	DGS staff

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**Representing New Castle County municipalities

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Sussex County

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Gerry Esposito	Sussex County 208 Program*
Don Schwartz	Sussex County Engineers' Office
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Ronald Donovan	City of Lewes, City Manager
Bayard V. Coulter	Town of Bethany Beach, Town Manager**

**representing Sussex County municipalities

City of Wilmington

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Ken Dodunski	Wilmington Planning Department

REGIONAL AGENCY PARTICIPANTS:

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Lawrence Newcomb	WILMAPCO staff*

Delaware River Basin Commission

Van Dyke Polhemus	DRBC staff*

OTHER PARTICIPANTS:

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Joel M. Goodman	College of Marine Studies*
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Elizabeth A. Allen	Department of Geology, (student)
Daniel F. Belknap	Department of Geology, (student)
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Federal Agency Representatives

Susan Bastress	U.S. Fish and Wildlife Service
Ron Gatton	National Marine Fisheries Source
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Marian Renfrew	National Weather Service, NOAA*
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Fred Mott	Soil Conservation Service, USDA
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Otis Fincher	Soil Conservation Service, USDA

Private Citizens and Interest Group Participants

Richard Hendricks	Delaware Society of Professional Engineers
Gwynne Smith	Representive, Delaware General Assembly
Jacob Zimmerman	Senator, Delaware General Assembly
Andrew Knox	Senator, Delaware General Assembly

*Agency affiliation during period of participation in program development.

Private Citizens and Interest Group Participants cont.

Rita Smith	League of Women Voters
Olive Parks	League of Women Voters, Sussex
Lillian Hopkins	League of Women Voters, Sussex
Ledi Lantis	League of Women Voters, Sussex
Lorraine Fleming	Delaware Nature Education Society
Norman Wilder	Delaware Nature Education Society
Joseph Taylor	Delaware Farm Bureau
John Walton	Delaware Farm Bureau
John Tarburton	Delaware State Grange
Leon DeValinger	Delaware League of Local Governments
Mary Molek	Delaware League of Local Governments
Marina Hulse	Roy F. Weston, Inc.
Gary Soulsman	The Whale (Lewes)
Carol Trasatto	Delaware State News
Nancy Kessler	News-Journal Papers
George Frick	Delaware Oilmen's Association
Edward Hitchcock	Exxon Corportion, USA
William R. McBride	Gulf Oil Company, US

Many other individuals participated in workshops, seminars, the Lewes Pilot Study, various subcommittees, research and technical report projects, and indirectly through the Delaware Tomorrow Commission, its committees, and subcommittees. To all who have been a part of this project the Program staff offers its thanks.

NOTES

Part III
Alternatives to the Proposed

PART III

PART III: ALTERNATIVES TO THE PROPOSED ACTION

Given the nature of the proposed action, which is approval of the Delaware Coastal Zone Management Program, all Federal alternatives involve a decision to delay or deny approval. To delay or deny approval could be based on failure of the Delaware Program to meet any one of the requirements of the Federal Coastal Zone Management Act (CZMA). In approving a CZM program, affirmative findings must be made by the Assistant Administrator for Coastal Zone Management on more than twenty requirements.

The Delaware response to the need for wise coastal management was to pass three new laws and to "network" a number of existing State statutes and permit authorities under a comprehensive set of coastal policies. The three new laws, the Erosion and Sediment Control Act, the Land Use Planning Act, and the Natural Areas Preservation Act, give the State additional control over problems associated with the flow of sediment into marine waters as well as giving the State an additional role in local decisions involving uses of regional benefit. Two gubernatorial executive orders were signed which explicitly detail that State agency actions must be made in accord with the Coastal Program once Federal approval is given, and that OMBP is the lead agency responsible for ensuring that the Program is properly implemented. In developing a specific set of coastal policies which are binding on State agencies,and by passing new State laws, Delaware has taken significant action to address coastal resource issues.

Nevertheless, in the course of development of the Delaware Program, several potential deficiencies were identified. These deficiencies have now been addressed by Delaware, and the Assistant Administrator has made a determination that Delaware has met the requirements for approval under Section 306 of the Coastal Zone Management Act. In order to elicit public and agency comment and assure that the Assistant Administrator's determination is correct, this section identifies areas where there may be possible deficiencies and considers alternatives of delay or denial based upon each. Before examining the alternatives, the following section identifies the generalized impacts that would result from delay or denial on any basis.

1. Loss of Federal funds to administer the program. Under Section 306, Delaware would receive approximately $1 million per year to administer its coastal management program. Most basic to a loss of Federal funds will be the inability of the State to provide adequate staffing and administrative support to coordinate and evaluate coastal actions and permits, and to assure that government agencies operate consistently with coastal policies.

Additionally, problems identified by Delaware may continue due to a lack of funds to address them. Local governments would also be without the funds necessary to identify and resolve local coastal resource issues. Pass-through funding for local coastal technical assistance would be essential for the most effective coastal management program.

To delay or deny approval of this program would also make it difficult for the State to give needed consideration to shorefront access, shoreline erosion, and energy facility siting.

2. Loss of consistency of Federal actions with Delaware's Coastal Zone Management Program and its policies. Program disapproval would mean that Federal actions, in or affecting the Delaware coastal zone, would not have to be consistent with the State's program under Section 307(c) of the CZMA. This would be of particular concern to the State of Delaware as its coastal zone is heavily influenced by Federal activity.

3. Loss of adequate consideration of the national interest in the siting of facilities which are other than local in nature as required by Section 306(c)(8) of the CZMA. By delaying or denying program approval States and local governments would be under no obligation to give adequate consideration to coastal resources and facilities that are of national interest. This could result in loss of public benefit that the use of such resources may provide.

Program approval would mean that the State could undertake increased technical assistance to local governments and improved implementation of existing State programs. This would give the State and local governments an opportunity to give balanced consideration to both facilities and resources in the national interest. Lacking program approval, these considerations affecting resources in the national interest might not be made.

Alternative I. The Assistant Administrator could delay or deny approval if the national interest in the siting of facilities or the protection of natural resources in the coastal zone was not adequately considered.

Section 306(c)(8) of the CZMA requires that the management program provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities .... which are necessary to meet requirements which are other than local in nature.

In the past, various Federal agencies and interest groups related to energy have expressed concern regarding the Delaware Coastal Zone Act's prohibition of heavy industrial facilities, including many energy facilities, from locating in the Coastal Strip. This criticism has cited the national interest in the location of such facilities and has indicated that this prohibition is counter to the national interest. The State has produced a large amount of written material to demonstrate that it does meet this Federal national interest requirement. Working Paper No, 7, dated March, 1978, and entitled "The National Interest in Resources and Facilities of the Delaware Coastal Zone" is the most indepth of this material. In its discussion of national interest, the DCMP has discussed the need for balancing the national interest in energy and other industrial facilities with the national interest in water and air quality, wetlands, fish and wildlife, forests, agricultural lands, floodplains, erosion hazard areas, historical sites and recreation. The DCMP notes that at present there is little demand for a refinery or a gasification plant in Delaware; if it were found that either of these facilities were needed in the future, the DCMP does allow for their location outside of the coastal strip. In the case of deepwater ports, these facilities are prohibited on the Delaware side of the Delaware River and Bay, but the DCMP does support the concept of a port offshore the Atlantic Coast, provided it meets certain minimum standards relating to oil spills and other environmental safeguards. The CMP generally encourages and supports OCS development facilities due to their compelling national interest and lack of viable alternatives, and provides for the consideration of related onshore facilities such as pipeline and platform fabrication yards. The CMP permits storage depots and service bases related to OCS activity, and the State is currently promoting Lewes as a supply base. Pipelines related to OCS are also permitted as long as they terminate outside the Coastal Strip, while the siting of storage tanks is generally prohibited within the strip. An inland location, however, outside the Coastal Strip is encouraged. Although there is limited demand for power plants at present, the CMP does permit them to locate in the coastal strip on a case-by-case basis if certain environmental criteria are met.

The Delaware CMP has provided and will continue to provide for direct involvement of Federal agencies in coastal decision-making. Passage of the Land Use Planning Act, in 1978, will allow for more formal participation by Federal agencies in making such decisions. The State is convinced that its natural resources, and particularly its recreational resources, are important to the national interest, and that the interest in energy facilities must be carefully balanced with these other interests.

If questions arise concerning the adequacy of the CMP's treatment of the national interest, the Assistant Administrator could delay or deny program approval. In this case, the State could do nothing, or amend its legislation and/or administrative processes to ensure national interest factors are adequately considered.

If the State chose to do nothing, the impacts would be those generalized impacts identified above for delay or denial of program approval.

Under the second option, it would be necessary for the State to develop new language to be incorporated into the Coastal Zone Act and/or new administrative pressures to expand upon the State's ability to consider the national interest.

Alternative II. The Assistant Administrator could delay or deny approval if the Program has not ensured that uses of regional benefit (URBs) will not be unreasonably restricted or excluded by local governments.

Section 306(e)(2) of the CZMA requires that the management program provide "for a method of assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit".

Local units of government exercise control over a wide range of land use decisions. In the past the Delaware Program has been criticized because of its failure to ensure that uses of regional benefit are not unreasonably restricted or excluded by local governments. Prior to 1978, the State did not have the ability to review, comment and appeal local decisions which did not consider regional needs.

The State proposes to meet this requirement through application of the Delaware Land Use Planning Act of 1978, which establishes a process whereby State, local, regional, and Federal agencies are notified when decisions are being considered which involve adoption or amendment of capital investment programs, actions affecting a critical area or involving the planning for or construction of a major public or private institution or land use decision having a significant impact on more than one local jurisdiction. Opportunities are created for review and comment, public hearings, and consideration of concerns of other agencies and units of government. Provisions are also made for a reconsideration of decisions using the Council on State Planning as a resolution mechanism. Under this Act, local goverments are required to review their Comprehensive Development Plans to determine whether these plans arbitrarily exclude uses of regional benefit. OMBP and other State agencies may also review such plans for the same purpose. If a local government determines that there is an arbitrary exclusion, then it must amend its plan to remedy such exclusion. If a State agency determines that there is an arbitary exclusion and the local government disagrees, then OMBP will appeal the local interpretation if it determines that it is unreasonable. This appeal is made to the Council on State Planning which can reverse a decision if it is unreasonable or fails to adequately consider State comments. If the decision is reversed, the local government is required to reconsider its decision and the review process begins again.

If questions arise concerning the adequacy of the CMP's treatment of URBs, the Assistant Administrator could delay or deny program approval. If this were the case, the State could do nothing or could adopt new legislation, amend the Land Use Planning Act, or create new administrative processes to ensure that URBs are not unreasonably restricted or excluded.

If the State chose to do nothing, the impacts would be those generalized impacts identified above for delay or denial of program approval.

Under the second option, it would be necessary for the State to develop additional legislation, new amendments to the Land Use Planning Act, and/or administrative procedures to ensure adequate treatment of URBs.

Alternative III. The Assistant Administrator could delay or deny approval if the program is not adequately comprehensive to achieve the goals and objectives of the Coastal Zone Management Act as expressed by Congress in Sections 302 and 303 of the Act.

Congress noted in creating the Coastal Zone Management Act, in Section 302(g), "in light of competing demands .... present state and local institutional arrangements for planning and regulating land and water uses in such areas are inadequate." Readers may question whether the State has gone far enough in defining the scope of the Program to adequately address the competing demands on its fragile coastal areas.

OCZM has made a determination that the Delaware Program is adequately comprehensive in scope. The program contains specific policies related to the following management issues: coastal resources, areas of special interest and development issues. These policies address the full range of considerations called for in Sections 302 and 303 of the CZMA. These policies cover issues relating to wetlands, beaches, coastal waters, underwater lands and the coastal strip, public lands, natural areas, flood hazard zones, the port of Wilmington, woodlands, agricultural lands, historic and cultural areas, living resources, mineral resources, and recreation and conservation lands. The development issues cover energy facilities, public investment, recreation and tourism, national defense and aerospace, transportation, air and water quality and general development.

After review of Delaware's January 1978 first draft management program, OCZM found that specific and enforceable management policies were not sufficiently comprehensive to address the problems and issues identified.

In response to this finding, the Delaware CMP staff reworked the policies to achieve more comprehensive treatment of coastal issues and problems and published a Discussion Draft in September, 1978.

In comments received on the Discussion Draft, the Delaware Program had been criticized for lack of comprehensiveness in its treatment of freshwater wetlands and public investment. The Wetlands Act does not cover those inland, nontidal freshwater wetlands of less than 400 acres. OCZM believes that coverage of tidal, saline, and freshwater wetlands and inland, nontidal freshwater wetlands larger than 400 acres in size is sufficient to manage coastal uses which might have a direct and significant impact on coastal waters. Delaware's public investment policies are generally advisory in nature and attempt to focus development in those areas which can support such development without adversely affecting coastal resources. When coupled with State resource policies and State control over the siting of many large facilities in the Coastal Strip, Delaware has developed a system which adequately addresses the considerations found in Section 302 and 303 of the Act.

Because of the questions concerning the comprehensiveness of the program, the Assistant Administrator could delay or deny program approval. In this case the State could do nothing or could broaden the scope of the program by developing new policies and modifying existing ones. If the State chose to do nothing, the impacts would be those generalized impacts identified above for delay or denial of program approval.

Under the second option, it would be necessary for the State to develop additional policies and means to enforce these policies. This might require additional legislation or the establishment of new administrative mechanisms.

Alternative IV. The State could withdraw the approval application and attempt to use other sources of funding to meet the objectives of the State's coastal management program.

In the voluntary, cooperative program provided for by the CZMA, there exists a possibility for a state to withdraw its application without sanctions or penalties, except withdrawal of OCZM funding. For a state which has made great strides in the development of a coastal management program, this would be considered a real fiscal loss to the State. It is also possible the overall national objectives of the CZMA would not be met.

The legislative history of the CZMA shows Congress did not intend the requirements of the CZMA to be so stringent or difficult to achieve that a state would be precluded from achieving program approval after reasonable effort and time. Nevertheless, experience has shown that the process of adequate program development is not an easy one. Of particular significance are the difficult "balancing" policies of the CZMA, especially State/Federal relations. Programs must adequately consider varied interests which are often conflicting and in competition for use of scarce coastal resources.

The reason for a withdrawal can be diverse. There may exist weaknesses in the development process that may go unnoticed even after the state has submitted its program for approval.

Another situation that could arise would be if there were a number of unresolvable issues which surface during the review process. For instance, a state may decide that the incentives are not strong enough to keep it in the national coastal management program at the sacrifice of what it sees as a compromise of its goals and objectives. Faced with this sort of conflict, a state might withdraw from the national coastal management program and support its efforts with local resources. A review of other related Federal assistance programs and management policies indicates that states could achieve some of their coastal objectives utilizing other Federal programs, but the unique managerial and integrative support contained in the CZMA would be diminished substantially, if not altogether.

It is believed that the CZMA established a process whereby state program withdrawal based on adverse program comments could be avoided and where serious disagreements can be mediated. "The Secretary shall not approve the management program submitted by a state pursuant to Section 306 unless the views of Federal agencies principally affected by such program have been adequately considered." Section 307(b) In case of serious disagreement between any Federal agency and the state in the development of the program, the Secretary, in cooperation with the Executive Office of the President, shall seek to mediate the differences. Section 307(a) and (b) Interim Regulations establish guidance on meeting impasses. As a practical matter, the coastal management program is dependent for success upon reciprocal intergovernmental cooperation as the basis for achieving national coastal zone management goals.

While withdrawal remains a viable alternative, it is not expected that the Delaware Coastal Management Program would be withdrawn.

Part IV
Affected Environment

PART IV

PART IV AFFECTED ENVIRONMENT

Delaware, second smallest of the 50 states, and part of a virtually level coastal plain, possesses an outstanding array of coastal resources, and is subject to a significant threat by virtue of its geography and its metropolitan location.

Delaware is located in the southern part of the north Atlantic metropolitan complex often referred to as "megalopolis". It is bounded on the east by the Delaware River, Delaware Bay, and the Atlantic Ocean; on the south and west by Maryland; and on the north by Pennsylvania. The State has three counties with a total area of 2,057 square miles, including 29 square miles of inland bay. It is 96 miles in length and varies in breadth from nine miles in northern Delaware to 35 miles in southern Delaware.

A. Natural Features

1. Topography

The highest point in Delaware is 442 feet above sea level. It is located in the Piedmont Plateau, northwest of Wilmington near the Delaware-Pennsylvania State Line.

The Fall Line is the division between the Piedmont Plateau and the Coastal Plain. The moderate-to-steep slopes and narrow stream valleys of the Piedmont are along this line. The Fall Line crosses the northern part of the State from northeast to southwest, cutting through Wilmington and Newark. Six percent of the land area of Delaware is located north of this line, that is, in the Piedmont. The remainder of the State is located in the relatively level Coastal Plain.

The low elevation and flat topography of the Coastal Plain limit the effectiveness of natural drainage. Floods occur because entire watersheds receive direct precipitation at the same time. This subject is discussed in CMP Section 5.B.3 and in "Delaware's Changing Shoreline" and "Coast Storm Damage, 1923-1974," both CMP Technical Reports.

As indicated above, Delaware is located in two geological subdivisions: the Appalachian Piedmont Province and the Atlantic Coastal Plain Province. The Piedmont extends along the eastern flank of the Appalachian Mountains from New Jersey to Alabama. The Atlantic Coastal Plain of Delaware is a small emergent portion of a great mass of sedimentary rock known as the Atlantic Continental Shelf, which stretches from Newfoundland to Florida.

The rocks of the Piedmont are very old, hard, and crystalline. Those of the Coastal Plain are younger, largely unconsolidated sediments. A seaward extension of the ancient Piedmont rocks forms a platform upon which the thick wedge of the Coastal Plain sediment is constructed. The layers or beds of rock in the Coastal Plain are arranged like the shingles of a roof, overlapping seaward so that the older units are exposed near the Piedmont and are buried under successively younger rocks to the southeast. A layer of

ice-age sand and gravel forms an almost complete cover over this entire structure. (This subject has been discussed in detail in two CMP Technical Reports - "Delaware's Changing Shoreline" and "Geology, Hydrology and Mineral Resources of the Delaware Coastal Zone".)

2. Streams, Ponds and Other Waterbeds

Delaware has many small streams and fresh water ponds, and three shallow bays. Drainage basins with headwaters lying out of the State are the present and principal future sources of surface water in northern Delaware. Drainage basins with flows mainly originating within the State and drainage basins that are contained entirely within the State encompass the remainder of the State.

The Delaware River, which receives practically all the surface and subsurface water drainage of northern Delaware, is saline along the entire eastern boundary of the State. The streams entering the Delaware River estuary are subject to cyclic tidal fluctuations. During high tides saline water moves inland, contaminating shallow water aquifers in the coastal areas. The rivers, streams, ponds, and bays, while not useable for water supplies, present an excellent opportunity for development of water-based recreational facilities.

The State has a shoreline of approximately 33.5 miles along the Delaware River, 57.0 miles along the Delaware Bay, and 24.5 miles along the Atlantic Ocean. Additionally, the State has a total shoreline of 24.0 miles along the Chesapeake and Delaware Canal which connects the Delaware River and the Chesapeake Bay.

3. Tidal Wetlands

Much of the land area along the State's river and bay shoreline is classified as wetlands. Additional areas are located along the banks of major watercourses. Most of the State's wetlands are tidal-saline except for one large inland, non-tidal fresh water wetland known as the Great Swamp or Cyress Swamp in the southern portion of the State. Approximately 120-130,000 acres fall into the wetlands categories (tidal saline, tidal fresh and non-tidal fresh). Wetlands have been designated as a resource subject to management by the DCMP (See Section 5.A.1). These resources have been discussed in detail in a DCMP Technical Report, "An Atlas of Delaware's Wetlands and Estuarine Resources".

4. Beaches

The 24.5 mile Atlantic Barrier Beach is the State's most important and heavily utilized outdoor recreational resource. This extensive beach resource lies within a day's drive of over 21 million people and generates a significant portion of a travel and tourist industry estimated to net about $202 million per year. The State is fortunate to own three large undeveloped tracts of oceanfront property providing extensive views of ocean beach, inland water bodies, back barrier

marshes, upland pine forests, large "walking dunes", and the rapidly building Cape at Cape Henlopen State Park. Beaches have also been designated as a resource subject to management (see Section 5.A.2 of the CMP) and have been discussed in detail in "Delaware's Changing Shoreline", a CMP Technical Report.

5. Climate

The climate of Delaware is moderate due to the proximity of the large bodies of water surrounding the Delmarva Peninsula. At Dover, the State Capital, the annual average January temperature is about 36 degrees while the average July temperature is about 77 degrees with a recorded maximum of 104 degrees and a minimum of eleven degrees below zero. The annual rainfall at Dover is approximately 45 inches and the growing season averages about 188 days.

6. Forest

Much of Delaware is covered by forests (estimated at 30% or 400,000 acres in 1969). Oak-hickory is the predominant forest type in Kent and New Castle Counties. Loblolly or southern yellow pine is the predominant forest type in Sussex County. The forests are an important natural resource serving as a means of recharging the ground water supply and, in Sussex County, the basis of a significant wood products industry. These resources are discussed further in CMP Section 5.B.1 and elsewhere throughout the document.

7. Soils

Delaware's soil conditions range from the rocky, thin soils of the Piedmont region through rich loams in the center of the State to the poorly drained wetlands and sandy soils nearest the coast. The most productive soils support an extensive agricultural economy. In 1970, over 630,000 acres were being actively farmed contributing to the regional food supply. Soil conditions generally support urban development throughout the State, except in wetlands and other poorly drained areas where utility extensions and construction are constrained. Conflicts between urban uses and the continued vitality of the agricultural economy are discussed in CMP Sections 5.B.1 and in the Development Issues Sections (5.D.).

8. Other Resources

The CMP discusses other resources, particularly coastal waters, underwater lands, natural areas, living resources, and mineral resources in Sections 5.A.3., 5.B.2., 5.C.3, and 5.C.4. respectively. Some of these have also been evaluated in detail in previously mentioned Technical Reports. Natural areas were evaluated in detail in "Critical Natural Areas Study,Kent and Sussex Counties", a CMP special study, later published with a state-wide scope as "Delaware's Outstanding Natural Areas and their Preservation", by the Delaware Nature Education Society, Ashland.

B. Demographic and Economic Setting

Delaware had a 1976 population estimated at 582,000. Until recent times, the State was predominately rural in character with established urban settlements, both large and small, the predominate pattern of development.

Land use surveys conducted during the period of rapid growth have shown the spread of development into previously rural areas of all three Delaware counties, corresponding with the 27 percent decline in farm operations reported in the period between 1945 and 1969.

In the 1950-1960 decade, Delaware was one of the nation's fastest growing areas, with Delaware's population increasing by over 40 percent. In the 1960-1970 period the rate of growth slowed, perhaps as a result of smaller sized families or the attractiveness of other regions, but a 22.9 percent increase was still noted. The 1960-1970's growth still made Delaware the eighth fastest growing State in the nation. Most of the past growth occurred in New Castle County, particularly in surburban areas around Newark and in the Route 2/I-95 corridor.

More than fifty-six percent of the total change in Delaware's population growth since 1940 has resulted from natural increase (excess of births over deaths). After gradually declining during the first four decades, the fertility rate increased sharply in the 1950's to the highest level of the century. The rate began falling again in the early 1960's, and this downward trend has continued through the 1970's.

Delaware's age distribution has changed significantly since 1900 due to varying rates of natural increase and migration. In 1970, there was a disproportionately large population between the ages 5-19, and a smaller than normal number in the age ranges 0-4 and 30-44. As these groups advance through the older age levels, their disproportionate size will have a major impact in terms of the demand for public and private goods and services.

More than 72 percent of Delaware's population lived in urban areas in 1970. These areas experienced a growth of more than 102,000 people during the 1960's compared to a loss of 969 people living in the rural areas. Only half of the fifty-one incorporated towns in Delaware gained in population during this period, however, and the percent of the total population living in these areas declined from 1960 level of 39.4 percent to 32.4 percent 1970.

According to the Delaware Population Consortium, the State's population is expected to increase to 760,555 in the period through 1995, or some 210,000 more than the 1970 population. Much of this growth will occur in New Castle County (88,400), although the rate of growth in this County will be significantly less than in earlier periods. An increase in population of 70,000 and 53,000 for Kent and Sussex Counties respectively is projected through 1995.

Most of the expected economic growth will come as a result of expected growth in key employment sectors. In the 1960-1970 period, the highest absolute gains (i.e., number of new employees) were recorded in Services (21,817), Wholesale and Retail Trade (12,878), and Manufacturing (7,442), although the fastest growth rates were in Services; Finance, Insurance and Real Estate; Wholesale and Retail Trades; and Mining, all with increases of over 40 percent relative to 1960 levels. Long term projections indicate a continued surge in Services (growth of up to 73 percent over 1973 levels by 1995); Finance, Insurance and Real Estate (+51% by 1995) and Trade (+27% by 1995). Government employment, traditionally a significant component of the Delaware economy, is expected to grow drastically during the period, reaching 180% of the 1973 levels.

Land demands will be a function of density, extent of reuse of underutilized or obsolete structures, land prices, public policies on the extension of sewers and other services into undeveloped areas, and the effectiveness of planning and regulatory programs in encouraging concentrated rather than sprawling development patterns. Because these factors are largely unpredictable, estimates of future land needs are suspect. Using a commonly accepted standard of four dwelling units per acre, however, the projected development resulting from a 210,000 population increase could be expected to utilize some 17-20,000 acres. Added to this would be land demands as a result of second-home and resort related development, estimated by the Coastal Sussex Water Quality (208) Program to require over 4,900 acres by 1995. Those needs can be accommodated without undue environmental impact in a manner consistent with the policies recommended, if all levels of government are cognizant of the problems and work together to solve them.

C. Government Structure

In Delaware, as in nearly every sizeable coastal area, management of land and water resources is shared by various levels of government and among many separate agencies within these levels. Planning and zoning actions, particularly those which relate to uses of individual parcels, are primarily the responsibility of local entities. Yet, the State government delivers many services generated by locally approved development, and assumes responsibility for those resources determined to be worthy of regulation for the general public's benefit. Many services and responsibilities are shared, some formally such as schools, and some less formally such as economic recruitment and promotion. Where such actions complement each other, the benefits may accrue to everyone. Where they conflict with each other, the different levels of government often frustrate each other.

As noted, in Delaware, where local units of government exercise the primary control over land use decisions while the State government provides much of the required public services and facilities, coordination is especially important. In the past, a lack of such coordination has resulted in a mis-matching of development and the provision of needed facilities, or location of major developments which conflict

with the plans of local governments or State agencies. To correct this, the Land Use Planning Act was enacted during the 1978 Legislative session which calls for a process that would assure consistency and coordination between levels of government, as well as between government and private enterprise.

In order to address many of the coordination concerns, committees, policy boards, councils, technical advisory groups (TAC's) and a variety of other bodies have been established by virtually every agency and unit of government. Generally, these bodies provide a forum for discussion of concerns, resolution of conflicts, exchange of information, and the "testing" of concepts or recommendations before they are made public, sent to a legislative body, or otherwise acted upon. The DCMP, for example, has its own sounding board, the Coastal Zone Management Committee.

A basic DCMP issue is the need for an effective process whereby the various groups can be heard. The DCMP balances diverse and often conflicting interests. Substantive inputs into the DCMP are necessary to achieve well-informed and reasoned program decisions. By obtaining information necessary for developing the DCMP, as well as views on what is proposed for program implementation, many potential conflicts can be resolved before they ripen. These issues are discussed throughout Part II, particularly in Section 5.E., Coordination.

Part V
Environmental Consequences

PART V

PART V ENVIRONMENTAL CONSEQUENCES

A. Direct Effects of Federal Approval

The Federal action is the proposed approval of the DCMP as having met the requirements of the CZMA and, after approval, the awarding of Federal grants-in-aid to assist Delaware in implementing and administering their program. Also, approval places an obligation on Federal agencies to act in a manner consistent, to the maximum extent practicable, with the approved program, thereby significantly impacting the Federal decision-making process as it relates to land and water activities and funding in the coastal zone.

This Part addresses the impact associated with the above action, as well as the secondary impacts of implementing the state program.

1. General Impacts

The intent of the CZMA is to promote the wise use of the Nation's coasts. The CZMA encourages states to achieve this goal through better coordination of government actions, explicit recognition of the long-term consequences of development decisions, and the institution of a more rational decision-making process. This process, which would affect much of the future activity in the coastal zone, will have a substantial environmental impact.

Both beneficial and adverse environmental and socioeconomic effects will result from Federal approval and state implementation of the DCMP. The fundamental criterion for assessing these impacts should be the CZMA's declaration of policy: "to achieve wise use of land and water resources of the coastal zone giving full consideration to ecological, cultural, historic and aesthetic values as well as the need for economic development."

Protection of the coastal zone may be viewed as beneficial to the environment and to the public welfare for many reasons, but it also may have adverse economic effects on development interests, including property owners and potential property owners whose plans are limited or modified by the program.

The DCMP is a comprehensive program which will be implemented over a period of many years. It is impossible to assess discrete impacts that will occur over this time, but a few points can be made. There are strong safeguards built into the coastal management program system because the CZMA requires that the intent of the National Environmental Policy Act (NEPA) be met. Resource inventories, designation of boundaries, permissible uses, areas of particular concern, areas to be preserved or restored and consideration of alternatives are all a part of the overall process associated with managing coastal resources in Delaware. The overall purpose of this EIS is to determine if implementation of the DCMP process can reasonably meet the objectives which the state has set and meet the broader national CZMA and NEPA goals.

Impacts associated with Federal approval of the DCMP fall into two categories: (1) impacts due to a direct increase of funds and funding options to the State and local governments, and (2) impacts from the implementation of the CZMA.

Although the DCMP could be implemented as a State coastal management program separate from participation under the CZMA, Federal approval offers several advantages to the State and allows a more comprehensive and effective program.

Program Funding

Federal approval of the DCMP will make Delaware eligible for grants and other forms of assistance for program implementation. The primary source of funding (Section 306) will provide for increased resource management capabilities (coordination, administration, and enforcement of authorities), continued programs to expand public awareness of coastal issues and foster participation in policy development, research and other activities to better understand and deal with resource utilization questions, and opportunities to deal with special management concerns that might otherwise not be addressed.

Other funding will enable State and local agencies to continue to plan for and deal with impacts of energy facility and offshore oil and gas development, finance public facility investments, offset environmental damage precipitated by OCS development, provide for public access to beach areas, deal with beach erosion, and develop various coordination mechanisms, particularly at the regional level.

Federal Consistency

Approval of the DCMP will also have implications for Federal agency actions, including Federal projects, permits and licenses and grant-in-aid. The Federal consistency provisions (Section 307) require that activities undertaken directly by Federal agencies or Federal development projects must be consistent to the maximum extent practicable with approved State programs. Federal agencies issuing licenses or permits for any activity affecting the coastal zone are generally constrained from doing so until the State certifies that the proposed activity is in fact consistent with its management program. In addition, Federal agencies in most cases are restricted from approving proposed projects affecting the coastal zone which require Federal assistance unless they are consistent with the coastal management program.

Where the State determines that a proposed Federally regulated or assisted project is consistent with the requirements of the management program, the Federal agency may approve the project which will then be in conformance with the State's management program requirements, including those related to environmental protection. Notwithstanding State approval for the project, the Federal agency is not required to approve the license, permit or assistance application. The proposed project may still require Federal government disapproval based upon NEPA, Endangered Species Act,

Fish and Wildlife Coordination Act, or other overriding national interest grounds where Federal criteria are more stringent than the State's management program requirements. Between Federal and State environmental requirements for the coastal zone, the more stringent apply, thereby fulfilling NEPA's objectives to administer Federal programs in a manner which maintains the quality of the environment.

Although States have previously had the opportunity to comment upon Federal actions, licenses or permits, in the past this comment has not generally been required or mandatory. This new responsibility will provide for more coordinated and comprehensive management of coastal resources and uses, and has the potential for reducing the fragmented, single-purpose and frequently conflicting nature of activities affecting the coastal zone. Procedures for implementing Federal consistency are described in Part II, Appendix F.

The intent of Federal consistency is to provide cooperation and coordination between Federal, State and local government agencies involved in coastal related activities and management. This is considered to be a desirable impact and, indeed, is one of the objectives of the CZMA.

National Interest

Federal approval of the State's program will also certify that the State has an acceptable procedure to insure the adequate consideration of the national interest involved in the siting of facilities so as to meet requirements which are other than local in nature. These facilities might involve energy production or transmission; recreation; interstate transportation; production of food and fiber; preservation of life and property; national defense; historic, cultural, aesthetic, and conservation values; and mineral resources to the extent they are dependent on or relate to the coastal zone.

This policy requirement of the CZMA is intended to assure that national concerns related to facility siting are expressed and dealt with in the development and implementation of a State's coastal management program. The requirement should not be construed as compelling States to propose a program which accommodates certain types of facilities. It works to assure that such national concerns are not arbitrarily excluded or unreasonably restricted in the management program.

This provision might have two impacts. First, it insures that a State has a process and program that does not prohibit or exclude any use or activity dependent on the coastal zone. In the absence of a comprehensive program such considerations might simply be ignored by oversight or default. These requirements will insure they are specifically considered. On the other hand, the existance of a consultative procedure should lead to more deliberate and less fragmented decision-making concerning the siting of facilities in the coastal zone.

B. Indirect Effects and Their Significance

With a program that must be implemented in conjunction with many other Federal, State and local government programs, and which will be implemented in social and economic systems that are constantly changing in response to other demands, potential socio-economic impacts can only be discussed in general terms and trends.

Programs such as the DCMP are intended to have an impact on existing regulatory mechanisms. Some are designed also as environmental protection measures and have an obvious effect on environmental resources. It is the socio-economic impacts of such programs that are usually insufficiently recognized. What follows is an identification of those socio-economic impacts which can be discerned.

1. Costs and Benefits

According to a study of the potential impacts of coastal zone management programs conducted by the Real Estate Research Corporation for the Office of Coastal Zone Management, benefits of coastal management will accrue to people throughout the State and Nation. These benefits will be of various kinds and will occur in different ways and degrees. The following major beneficiaries can be identified: owners of property directly affected by implementation decisions, neighboring property owners, owners of businesses whose productivity or market attractiveness would be enhanced by the DCMP policies, government at all levels, and the general public.

This study also concludes that benefits of coastal zone management will be based on changes in the nature, scale, distribution, and pace of production (including manufacturing, agriculture, mining, fishing), utility services and costs, business sales, employment opportunities, population and the labor force, housing demand and supply, construction, financing and investment, property values, government costs and revenues, educational and recreational opportunities, and aesthetics.

Coastal management consists of the use of foresight in cooperatively determining how to both preserve valuable natural resources and accommodate the needs of an expanding population and economy. Achieving this balance involves trade-offs which include some short-term positive and negative effects. Long-term benefits from enhanced productivity of renewable resources would also be realized.

Potential economic benefits of the coastal zone policies have the following attributes:

- They can be "one time only" or "recurring,"
- They can cause net increases in economic activity or merely shift benefits among individuals or groups,
- Costs may be incurred in their attainment--such as, expenditures for shoreline restoration or pollution control, and

- Secondary "spin-off" effects may be felt--both positive and negative, depending on the nature of the policies and the economic activities affected.

Potential economic benefits can include increased productivity, higher sales, more jobs, greater demand for facilities and services, and heightened satisfaction with one's physical environment. Prudent coastal zone planning, therefore, results in a balance of often competing interests. While some coastal zone actions result in net gains or net losses for the the local economy, in most instances the short-term effects of the program cause a redistribution of assets.

Some lost expectations will be encountered, but gains elsewhere should offset these losses. In those cases where regulations would actually result in a legally-determined taking, the regulations would be declared void or compensation paid. Reduced property taxes could help offset severe losses. Planning stabilizes erratic "swings" in expectations because it results in less uncertainty in future prospects of land investment. While there may be short-term lags as the economy adjusts to changes induced by the DCMP, long-term benefits are likely to balance or exceed costs. For example, some industrial siting regulations may make the siting of certain industries too costly. They would yield an inadequate rate of return on equity when compared to alternative opportunities. However, lower financing costs or an improved marketing outlook could result in a decision to ultimately go ahead with the facility. These same regulations will result in heightened opportunities in coastal dependent economic activities--tourism, recreation, fisheries and commerce.

Impacts Upon Land Values

Land values in Delaware continue to rise as increased pressure for development is constrained by the supply of readily usable land.

The Real Estate Research Corporation cited the following as some of the key determinants of property values in their report which are applicable to Delaware. The key determinants of land values include:

- Natural site characteristics and environment
- Man-made site characteristics and environment
- Community image
- Demand for particular land uses
- Access
- Utilities
- Public facilities and services
- Taxes
- Land use and development regulations

Table 1, also from the Real Estate Research Corporation's Study, summarizes impacts of government action on land values.

TABLE 1

TABLE 1

IMPACT OF GOVERNMENT ACTION ON PROPERTY VALUES

Type of Action	Impact on Values of Subject Property	Impact on Values of Neighboring or Competitive Properties	Net Effect on Property Values	Relative Importance of Specific Actions in Determining Impacts
Restrictions on land use	Value declines	Value rises	Redistributional	Very important
Developer required to make improvements or pay fees	Value declines	Value rises	Slightly negative	Unimportant compared to other public actions
Resource amenities protected or restored by government action	Value rises	Value rises	Slightly positive to very positive	Very important
Shore access by the public maximized and protected	Value declines	Value rises	Slightly negative	Less important than use restrictions or amenity protection
Concentrating development in existing communities	If still undeveloped, value declines; if already improved, value rises	Value rises	Positive	Very important
Providing infrastructure, public facilities, and services	Value rises	Values unchanged	Positive	Important
Tax reduction or deferral for regulated, restricted, or encouraged uses of coastal properties	Value rises	Values unchanged	Slightly positive	Less important than use restrictions or amenity protection

Source: Real Estate Research Corporation.

Impacts on the Regulatory Process

The Delaware CMP will have a variety of impacts on users of the State's land and water resources, and the manner in which management of those resources will take place. The Program represents an effort to provide a policy framework to management decisions such that predictability, balance, efficiency and coordination are achieved. While it is clear that certain decision processes may require additional regulatory or review steps and may result in new burdens on State, county, and local agencies, each component of the program has been evaluated during the development process for the purpose of efficiency and effectiveness. It is expected that the CMP will have a net positive impact on the management processes which are directed at improving the quality of the natural and built environments.

The Delaware CMP relies on direct State regulation to ensure management of fragile coastal resources. In most other areas, it relies on local land use control. Intergovernmental coordination and a right of State involvement is provided where activities are of a greater than local concern.

State minimum standards and, as necessary, State controls are provided over broad environmental quality matters, particularly in the area of:

(1) Air and Water Pollution Control:

- The Environmental Protection Agency esblishes air and water quality standards for State implementation.

- The Delaware Environmental Protection Act (7 Delaware Code, Chap. 60) provides the authority for implementing these standards as they apply to coastal waters and air quality.

- Federal Water Pollution Control Act

- Federal Clean Air Act

(2) Land Use

- Land Use Planning Act
  Enables the State to enter into local decisions which have an effect on more than one locality.

- Coastal Zone Act
  Establishes criteria for the siting of facilities in the Coastal Strip

(3) Beach Preservation

Beach Preservation Act:

- No substantial change in the existing characteristics of any beach may be made without prior written approval of DNREC.

  Approval required for:

  (1) carrying beach materials

  (2) operation of dune buggies

  (3) construction of any structure

  (4) changes which increase the potential for beach erosion

  (5) any other potentially damaging use.

(4) Wetland

- Wetlands Act, authorizes DNREC to exercise direct State control over all lands between the mean low water elevation and two feet above the local mean high water elevation upon which grows or may grow typical marsh plants listed in the Act.

(5) Underwater Lands:

- Underwater Land Act; Regulates five (5) types of projects involving the use of public submerged lands.

  (1) The erection of any structure

  (2) The dredging or filling of such lands

  (3) The excavation of any channel, lagoon, turning basin or ditch on public or private land.

  (4) The filling of lands adjacent to public submerged lands and

  (5) The laying of any pipeline, lines for transmission of electricity or telephone in, on, over or under the beds of public submerged lands.

These policies make it clear that (1) the public interest in these and other areas will be safeguarded from outside activities that will and/or may prove to be detrimental to Delaware's Coastal Zone; (2) Delaware recognizes its Coastal Zone to be a resource of both local and national concern; and (3) The use of Delaware's natural resources for educational, aesthetic, and recreational pursuits will be encouraged and promoted.

Resources subject to management are areas which have been determined to be of such importance as to require State regulatory control. Uses occuring in or adjacent to these resources have the potential to result in direct and significant impacts. These uses, whether they be residential or commercial, dredging, filling, dumping or others are key considerations in program development.

The resources which are subject to management are those which are most coastal in nature. This list includes wetlands, beaches, submerged lands, coastal waters and the coastal strip.

Another group of resources, classified as Areas of Special Interest, are also of importance and in some cases are subject to State regulatory control. Generally consisting of (1) Public Lands (a special class of lands whose title to the State results from colonial times); (2) Natural areas (which included habitats for rare or endangered plants and animals); (3) Flood Hazard Zones (areas which are significant primarily because of the damage that may result from developing in these locations); and (4) the State's major port at Wilmington. In view of the many laws and policies concerning the environment in Delaware it is felt that the problems these areas present within the context of coastal management are relatively narrow and can be effectively addressed without broad mandatory controls at the State level.

For other resources, such as agricultural lands or historic and cultural areas, most development issues are subject to minimum direct State control. In these cases, State level management occurs through programmatic efforts (i.e., Historic Preservation Planning) with primary reliance on local control and required intergovernmental coordination. The exceptions are energy facilities and State-supported public investments where direct State control over major facilities is provided.

The effect of this "tier-of-regulations" approach is two-fold. State involvement is strongest where the nature of the resources or the likely impacts of uses upon them require strict management and control for the maximum public benefit. State financial and staff resources are best utilized in such instances to give priority to the protection and coordinated management of these resources in order to ensure compatible development and preservation of the biological, social, economic and aesthetic values. Local regulation exists in those cases where the impacts and benefits extend only to the immediate area. This split of authority preserves the traditional local responsibility for "local" decisions while recognizing the greater benefit of certain resources to the general public.

The primary impacts of the management program, if approved, on the regulatory/management structure will occur in intergovernmental cooperation and coordination, and in providing greater predictability of State actions regarding development proposals.

2. Probable Adverse Environmental Impacts

The approval of the DCMP will not directly cause adverse environmental impacts. As a result of the resource protection and public investment policies contained in the Program, a concentration of development may occur in those areas which are especially suited for development. In an area where new development is encouraged, some permanent reduction in environmental quality may result; air quality may be reduced, noise increased and the area's visual qualities may be adversely affected. Those areas that are recommended for concentrated growth will ultimately become more congested. It should be noted that air and water quality standards will be strictly enforced to prevent any significant environmental damage.

The impacts from development in certain areas will be more than offset by the corresponding increases in the protection of fragile coastal resources as the Program's policies will limit development affecting coastal resources.

Under the Program, local governments will continue to exercise control over a wide range of land use decisions. Through the passage of the Land Use Planning Act, the Program will ensure that the Coastal policies will be followed by the local governments so that growth will occur in a manner which does not adversely affect coastal resources.

The Program will restrict and, in some cases, prohibit resource extraction and exploitation in some areas and will limit land use options in certain cases. Although these actions may result in some economic disadvantages to the property owner and to some units of government, these adverse impacts should be localized and offset by well planned growth in those areas most suited for growth.

Through habitat protection and through enforcement of game and fish laws, the Program will protect endangered species to ensure, to the extent possible, that such flora and fauna will continue to exist in the State. The Program also realizes that there is an important national interest in the protection of rare and endangered species.

The DCMP promotes the protection and adequate acquisition of natural areas for specific environmental purposes (Part II, Section 5.B.2.), requires activities and projects to be consistent with the Federal Flood Insurance Program (Section 5.B.3.), provides air and water quality standards, preserves living resource habitat to the maximum extent practicable (Section 5.C.3.), and protects beaches (Section 5.A.2.) and wetlands (Section 5.A.1.).

Inland nontidal wetlands (freshwater, swamps, bogs, low-lying and poorly drained) of less than 400 contiguous acres are not subject to DCMP regulatory control (Section 5.A.1. Policies 3 and 4). Probably less than 10,000 of the estimated 120-130,000 acres of wetlands are of this type (there are approximately 25-26,000 acres in the State but approximately 15,000 are in public ownership or otherwise protected, e.g., the Great Cypress Swamp) and these wetlands will be reviewed for their value as part of the preparation of Registries of Natural Areas and the development of Critical Areas Plans.

Impact on Energy Facility Development

The DCMP recognizes the national interest in energy facilties. Section 5.D.3 contains an extensive discussion of the national interest, regional demand, siting criteria, and impact of various energy facilities, as well as State policies to deal with them. The DCMP also provides a mechanism for review and, as necessary, modification of energy policies utilizing the Delaware Energy Facilities Siting Liaison Committee. This group, which is comprised of cabinet-level officials, advises the Governor, General Assembly and the CMP agency on energy facility siting issues and provides an opportunity for parties proposing energy facility siting to obtain advice on State policies, procedures, statutory limitations and the possibilities for favorable State consideration.

In the development of the State's energy facility policies, a Program Working Paper (No. 7, the National Interest in Resources and Facilities of the Delaware Coastal Zone, March 1978) was prepared. This document examined the impacts of energy facility development on the State's resources as well as the impact of the State's authorities and proposed policies on the energy industry. Additionally, meetings were held throughout program development, and especially in the development of Working Paper No. 7, with energy industry representatives in order to obtain their input and to examine possible DCMP policy implications. Energy industry representatives were invited to, and did, participate in "interest workshops" and the Coastal Zone Management Committee (the advisory body to the Delaware CMP agency).

Of the various energy facilities, the major adverse impacts of the DCMP falls on oil refineries and LNG facility location. The former are prohibited in the "coastal strip" (see Section 5.A.4.), but may be located inland if environmental standards are met. The latter are prohibited anywhere in the State due to their potentially serious safety hazards and possible interference with development of offshore oil and gas resources.

The national interest in these faciltiies, potential demands, siting criteria, and impact on resources are discussed in Section 5.D.3.

C. Possible Conflicts Between Proposed Action and the Objectives of Federal, Regional, State and Local Land Use Plans, Policies and Controls For The Areas Concerned.

During program development and the subsequent review, revision and refinement process, an extensive program of consultation and coordination was carried out. Federal, State, county and municipal agencies, industry interest groups as well as the general public have been directly involved in resolving possible conflicts

In general, it appears that Delaware's proposed coastal management objectives are compatible with existing Federal, regional, state and local land use policies and plans.

Federal and State conflicts have been minimized through direct involvement of key Federal agencies in Program development through membership on the Coastal Zone Management Committee.

Delaware has hosted a number of meetings with neighboring states in order to provide them with an opportunity to identify common problems and areas of regional concern and to ensure that compatible approaches to the management of regional resources are being used by the States.

To ensure adequate coordination, Delaware's program will include provisions for a management committee, an on-going public information and participation program, and the Federal consistency process. A primary mechanism will be the land use planning and coordination requirements set forth in the Land Use Planning Act of 1978.

During the period of Program development, still other issues emerged (Home rule, Facility Siting, Wetland Protection, Land Use), some pertaining to uses or resources, others more general. Resulting issues involved the need for better coordination between various levels of government, improvements in the regulatory processes, and more rational public investment decisions.

While the level of State involvement in management will differ, it is important to understand that the management program, to be effective, must balance not only competition for Coastal resources, but also the capabilities of all portions of the State for assimilation of a wide variety of activities.

D. Means to Mitigate Adverse Environmental Effects

Delaware's Coastal Management Program through its policies and general emphasis recognizes the pressures placed upon its coastal area by the diverse uses which are competing for limited resources. Furthermore, Delaware recognizes that its program must protect, preserve and enhance its coastal zone for its citizenry as well as the many visitors who want to enjoy its aesthetic, recreational, biological, and economic values.

Consistent with the concept of protecting its natural and Scenic resources, Delaware seeks to employ management standards and criteria based on existing State authorities such as:

1) The Land Use Planning Act

2) The Wetlands Act

3) The Beach Preservation Act

4) Air and Water Quality Standards

5) The Coastal Zone Act

6) The Underwater Lands Act

7) Natural Areas Preservation System

8) Resource Conservation Measures (and)

9) Land Acquisition

As a means of ensuring that adverse environmental effects are controlled, the following paragraphs site a few specific examples used by the Delaware Coastal Management Program:

1) The Wetlands Act authorizes DNREC to exercise direct State control over all lands between the mean low water elevation and 2 feet above the mean high water elevation upon which grows or may grow typical marsh plants.

Activities requiring a DNREC permit include dredging, draining, filling, bulkheading, excavation, drilling and construction of any kind including piers, jetties and boat ramps.

2) The Beach Preservation Act requires approval for the following activities on public beaches: (1) carrying away of beach material (2) changes which increase the potential for beach erosion (3) operation of dune buggies, autos or other machines and (4) construction of any structure on the landward side of the primary dune.

3) The Coastal Zone Act prohibits new heavy industrial uses in the Coastal Strip and offshore bulk product transfer facilities. Other industrial and manufacturing uses are subject to a State permit.

4) The Natural Area Preservation System dictates that once an area has been dedicated as a nature preserve, it cannot be used for any purpose inconsistent with preservation unless: (1) a public hearing is held; (2) DNREC finds there exists an imperative and unavoidable public necessity for such use; (3) the Governor approves the use; and, (4) the General Assembly, by legislative Act, approves the use.

5) Underwater Lands Act provides that five (5) types of projects involving the usage of public submerged land require State approval: (1) the erection of any structure on such lands; (2) the dredging or filling of such lands; (3) the excavation of any channel, lagoon,turning basin, or ditch on public or private lands; (4) the filling of lands adjacent to public submerged lands; and, (5) the laying of any pipeline, line for transmission of electricity, or telephone line in, on, over or under the beds of public submerged lands.

6) The Delaware Land Use Planning Act establishes a process whereby State, local, regional and Federal agencies are notified when decisions are contemplated which involve adoption or amendment of capital investment programs, actions affecting a critical area or involving the planning for or construction of a major public or private institution, or land use decision having a significant impact on more than one local jurisdiction.

7) The Delaware Environmental Protection Act authorizes DNREC to exercise direct State control over specified activities related to air and water pollution which take place anywhere within the State, and the CMP hereby incorporates the requirements of the FWPCA and the CAA, as implemented by the State's Environmental Protection Act.

In its simplest form, mitigation measures are usually expressed as conditions placed on development permits. Since development is often allowed under a conditional permit containing Criteria and Standards of Conformance, it is often these conditions that become the focus.

PART VI

Comments and Responses

COMMENTS AND RESPONSES

This Part includes a synopsis of all written comments received on the proposed Delaware Coastal Management Program. The full text of all written comments received has been prepared as an attachment to this Final Environmental Impact Statement and will be sent to all those commenting on the DCMP/DEIS. Additional copies of the attachment can be obtained from the Office of Coastal Management.

The Office of Coastal Zone Management, in consultation with the State of Delaware, has responded to the comments listed in this Part. The responses appear directly following each summarized comment. Strictly editorial comments have been forwarded directly to the State for inclusion in the FEIS and do not appear in the synopses which follow.

List of Commentors

Commentor	Page
Environmental Protection Agency	1
Federal Energy Regulatory Commission	3
General Services Administration	5
U.S. Department of Agriculture	5
U.S. Department of Agriculture, Soil Conservation Service	6
U.s. Department of Army, Corps of Engineers	6
U.S. Department of Defense	9
U.S. Department of Energy	9
U.S. Department of Housing and Urban Development(2)	11
U.S. Department of the Interior	11
U.S. Department of the Navy	13
U.S. Department of Transportation	13
Delaware Department of State Division of Historic and Cultural Affairs	14
Delaware Geological Survey	14
New Castle County Department of Planning	15
Water Resources Agency for New Castle Planning	15
Society of Natural History of Delaware	16
Association for the Preservation of Farm Land	17
Cityside, Inc.	17
Delmarva Power and Light Company	18
Delaware Nature Education Society	19
Delaware Oil Men's Association	20
Delaware River Basin Commission	22
EXXON Company, USA	22
Natural Resources Defense Council	22
Save Our Seashores of Delaware	27
William S. Green, Bethany Beach, Delaware	28
Gayle Truitt, Dewey Beach, Delaware	28
United Mobile Sportfisherman, Inc. (Delaware)	28
Watch Our Waterways (Delaware)	29

Environmental Protection Agency
(Pomponio) (5/18/79)

1. The necessity for incorporation of the air and water quality requirements, established pursuant to the Clean Air Act and the Clean Water Act, should be added into the Coastal Management Program, and explicitly stated within the specific CMP policies referenced in §5.A.3. and 5.D.8.

   Response: The Delaware document references the Clean Air and Clean Water Acts, and has sufficiently complied with OCZM regulations. Reference Appendix E.

2. In Policy 2 of §5.D.8., the statement that air quality regulations should "respond to State needs for a balance between economic growth and environmental protection" implies that the air quality provisions of the Clean Air Act are in some sense negotiable, but this is not true.

   Response: The CMP did not intend to imply that air quality regulations are negotiable. See amended language of Policy 2.

3. The DCMP does not develop methods for coordinating land use, transportation, and other coastal policies with the State's efforts to achieve or maintain air quality standards. For example, it does not discuss the air quality implications of the concentrated development patterns that are recommended in §5.D.2.

   Response: The CMP recognizes that concentration of development could have adverse effects on air and water quality. See discussion under management concerns in §5.D.8.

4. EPA seeks clarification of the manner in which the areawide water quality management plans being developed pursuant to §208 of the Clean Water Act will be coordinated with the DCMP, including mechanisms that can be used to resolve any conflicts.

   Response: See discussion following Policy 5 in §5.D.4, which describes the close interaction between 208 and CMP. See also criteria under this Policy to reflect 208 goals.

5. What siting criteria will be used for solid waste disposal facilities? Criteria have been established by EPA.

   Response: Delaware has adopted regulations for the location and operation of land fills in operation after December 31, 1974. The State also uses the proposed EPA guidelines on solid waste disposal and will similarly use the EPA criteria when they become final. See discussion following Policy 7 in §5.D.4.

6. EPA believes that the Delaware CMP fails to demonstrate the State's ability to implement the goals and policies of the program as required by §306(e)(i) of the CZMA. The CMP relies heavily on "encouragement" policies, rather than enforcement, and does not establish practical criteria for resolving conflicts among competing land use alternatives.

   Response: The Delaware program networks existing state authorities and will be implemented by state agencies pursuant to Executive Order 61. Because that Executive Order binds state agencies to all program policies, the distinction between "enforceable" and "enhancement" policies has been eliminated.

7. The CMP does not adequately address the issues of plan coordination raised in §306(c)(2)(A) of the CZMA. There is no substantive discussion of the relationship between existing plans, e.g. 208 projects, local land use plans, et al., and the CMP. There is no identification of conflicts between plans and methods for resolving conflicts.

   Response: The CMP carefully assessed relevant plans and coordinated closely with these plans. There is the remaining issue concerning the the coastal portions of Sussex County. The State is challenging the county in that case (Sea Colony North) for non compliance with the Land Use Planning Act. This Act also requires a review and coordination process for all plans.

8. The DCMP must incorporate dredge and fill guidelines promulgated by EPA pursuant to §404(b) of the Clean Water Act, and develop a coordination mechanism for 404 review.

   Response: See the revised discussion in §5.A.1.,in which the guidelines have been incorporated. Coordinated 404 review will be addressed during the CMP's first year of implementation.

9. State authority in non-tidal wetlands appears to be confined to those wetlands greater than 400 acres.

   Response: The Wetlands Act regulates 400 or more contiguous acres of non-tidal swamps, bog, muck and marsh. 7 Delaware Code §6603. Refer to NRDC response #3.

10. What special treatment will wetlands receive when they are designated areas of particular concern under the DCMP, that they do not now receive under the State's Wetlands Act?

Response: Designation of wetlands as areas of particular concern will make them subject to the Land Use Planning Act and to possible designation as nature preserves under the Natural Areas Preservation System.

11. What is the status of the Port of Wilmington with regard to the policies of the DCMP? What air and water quality policies will govern the Port?

Response: The Coastal Zone Act exempts the Port of Wilmington only from the prohibition against bulk product transfer facilities. The same air and water quality policies govern the Port as govern the rest of the Wilmington area.

12. We recommend that more detailed mechanisms for managing areas for preservation and areas of particular concern be presented.

Response: OCZM has determined that the mechanisms for managing these areas are sufficiently detailed. Refer to §5.B.2., and to Appendix C. Delaware relies on the Natural Areas Preservation Program and the Critical Areas Planning process to satisfy the requirements of §923.21 and 22 of OCZM's regulations.

13. What is the nature of the authority of the Delaware Natural Areas Advisory Council?

Response: The Delaware Natural Areas Advisory Council is a council which advises, consults, and makes recommendations to the Secretary of DNREC on the administration of nature preserves and the preservation of natural areas. 7 Delaware Code §7305.

14. A clarification of the location of Federal lands is needed. Also there is no discussion as to whether activities on excluded Federal lands will significantly affect coastal lands or waters and whether these activities are consistent with the DCMP.

Response: A map noting the location of Federal lands has been added to Appendix D. It would be inappropriate for the state to make a determination of consistency of future activities occuring on excluded Federal lands.

15. With regard to the division of responsibilities between the OMBP and the DNREC, EPA encourages the State to streamline administration of the CMP by placing all of the major programs under the control of one State agency.

Response: The 306 program will result in permit streamlining and better coordination between agencies. The lead agency will be OMBP, but close cooperation in implementation of the program between OMBP and DNREC is essential.

16. EPA does not believe that the choice of the two alternatives in the DEIS is consistent with the provisions of NEPA. The DEIS examines only the administrative alternatives of accepting or rejecting the proposed CMP, and does not evaluate other methods of managing the coastal zone resources of Delaware. In addition, Part IV, "Environmental Consequences", does not contain an adequate analysis of the direct and indirect impacts of CMP approval.

Response: OCZM believes that the alternative section adequately describes appropriate Federal alternatives to the recommended course of action. However, it is also true that some of the State alternatives to other management techniques are not specifically described in this section.

Since this is a State initiated program, the Federal alternatives are, in fact, to deny the application for program approval (or the "No Action" alternatives), to delay approval or give preliminary approval for any one of a number of reasons (under Section 305(d) of the CZMA) if deficiencies or serious disagreements have been identified and not resolved, or to approve the program as it is or with modifications based upon comments received on the DEIS. The three alternatives to delay or deny approval of the program for reasons of national interests in facility siting, uses of regional benefit, and a lack of protection of the natural resources were identified as the major concerns raised in the scoping process. We believe this meets the intent of NEPA and provides the decisionmakers with pertinent and adequate information on which to make their decision to approve or disapprove the State CZMP.

During the four years of program development, Delaware has looked at numerous alternatives to the particular program which they have submitted for approval. The State has had an extensive public participation program (described in Part II, Section 4) in which all aspects of the program were reviewed and discussed including objectives, policies, organization, oil and gas, etc. In addition, Federal agencies, including EPA, received Program materials and were given the opportunity to

review and comment on the developing Program. Modifications are further described in Part II.

This is consistent with the requirements of the CZMA and NEPA. There is no requirement though which says that all such alternatives must be included in the EIS. Viable options for changes to the management program remain throughout the DEIS process and some changes to the program have resulted from this review.

The only other additional alternative which has been added, which is outside the authority of OCZM, is the State alternative to withdraw the CZMP from active Federal consideration.

As a part of its discussions of national interest, the CMP provides information on potential socioeconomic impacts which could result from approval of the program. Although the prohibition of certain facilities from the Coastal Strip may result in some adverse social and economic effects, the CMP has argued strongly that this prohibition is necessary to adequately protect coastal natural and recreational resources for public use and enjoyment. The protection of the coastal resources and the inherent natural and recreational benefits more often offset the additional costs related to inland siting of certain large facilities.

Federal Energy Regulatory Commission
(Shuster) (5/18/79)

1. Table F-1 of Appendix F, (p. 56 of the Appendix) does not include FERC's licensing authority on non-Federal hydroelectric projects.

   Response: Appropriate additions have been made to Table F-1.

2. We question the extension of Federal consistency authority by Delaware to areas beyond the statutory limits of Delaware's coastal management boundary and the State itself as indicated in the third paragraph on p. 51 of the Appendix. A legal interpretation of this certification appears to be needed.

   Response: Under §930.52 of the Federal Consistency Regulations, consistency attaches to activities affecting the coastal zone. These effects may be changes in a use; limitations on the range of uses; and changes in quality of a resource. §923.21. If an entire state constitutes the state's coastal zone, the activities outside the coastal zone which could affect it could logically be activities occurring in neighboring states. This is confirmed by the definition of "applicant" to include any state which files an application for a Federal license or permit to conduct an activity affecting the coastal zone. §930.52. Activities outside the State which effect Delaware are subject to program policies.

3. Page 51 of the appendices states that Federal consistency review will not be required when a State permit for the same action is also necessary. In that event, the State should either remove those Federal licenses and permits from the list to be reviewed or designate the State permits as equivalent permits for which issuance of the State permit will constitute the State's consurrence.

   Response: Please refer to Note 1 after Table F-1 for an explanation of the listing.

4. We object to the tone of the section dealing with LNG facilities in §5.D.3 and must point out that it emphasized outdated analyses and historical historical events which portray LNG as a serious threat to human safety under any circumstances.

   Response: The objection is noted. Please reference changes to §5.D.3. The CMP has used FERC criteria to assess possible LNG sites.

5. On p. 48 of §5.D.3, the LNG facilities at Staten Island, New York, mentioned in the first paragraph have not been approved for LNG importation. The third paragraph states that there are no Federal siting criteria for LNG facilities. This is incorrect. The FERC has prepared suggested LNG terminal siting criteria for evaluating proposed sites and has distributed these criteria to coastal States. In addition, the Department of Transportation has proposed Federal Safety Standards for Liquefied Natural Gas

   Response: Changes have been made to the text to reflect these comments.

6. On p.49 of §5.D.3, the second full paragraph should be deleted. Piping is always required to remove LNG from a ship, regardless of the size of the channel. The cost differential is relatively minor, since the current maximum feasible pipeline length is only 2 to 2.5 miles. Similarly, piping costs, as mentioned in the fourth paragraph, are inconsequential in decisions regarding offshore terminals.

   Response: It has been deleted.

7. The last sentence on p. 50 of §5.D.3, is incorrect. The key issue in current vapor cloud studies is how far the cloud travels before it ignites, not how far it travels before it dissipates.

   Response: The correction has been made.

8. On p. 51 of §5.D.3, we recommend that the first two paragraphs on this page be deleted or significantly revised to reflect the current LNG research and to remove the obvious bias of sentences such as the last one in paragraph one.

   The second paragraph suggests that "vapors entering a confined space might ignite, leading to an explosion that could detonate the whole cloud." It is unlikely that vapor clouds traveling over water would encounter a confined space before ignition, but in any event, an explosion could not detonate the entire cloud.

   Also, the discussion of the Cleveland accident in 1944 makes no mention of the fact that this accident occured in the early years of LNG use and that improved tank materials and the required dikes surrounding a tank would make this accident nearly impossible today.

   Response: Please note changes in the text.

9. On p. 52 of §5.D.3, the accident mentioned in the first full paragraph involved an LNG storage tank, not an import facility. The tank was empty of LNG but was not empty of gas vapors. The fire was not LNG-related, but was thought to result from natural gas vapors which had permeated the lining of the tank.

   Response: See appropriate changes in the text.

10. In reference to the first paragraph on p. 55 in §5.D.3, the staff of the Federal Energy Regulatory Commission regularly visits both the Everett, Mass., and Cove Point, Maryland, import facilities as well as other certificated facilities. In addition, the operators of these facilities and other LNG facilities are required to file semi-annual reports detailing their compliance with safety conditions included in FERC's certificate of public convenience and necessity.

    Response: The text has been altered to reflect this information.

11. The FERC is absolutely opposed to an outright prohibition of LNG facilities in any State. We are not opposed to a State developing reasonable criteria for siting LNG facilities in the coastal zone. However, these criteria must be based on supportable standards and requirements.

    Response: Changes have been made in the discussion to reflect FERC's criteria for siting LNG facilities. Policy #10 is no longer on outright prohibition of LNG facilities.

12. The prohibition against bulk product transfer facilities (Underwater Lands Policy #8) is also unacceptable if it will be used to prohibit LNG facilities. Similarly, Policy #9, restricting offshore pipelines, may also be unacceptable if it restricts landfall sites for OCS pipelines.

    Response: Policy 8 in §5.A.4 is irrelevant to LNG siting since no appropriate areas for such a facility exists in the Delaware coastal strip, as discussed in §5.D.3. Landfall sites for OCS pipelines are not restricted as long as those pipelines do not terminate in the coastal strip.

13. In reference to your views on the viewpoint expressed in the Federal Power Commission correspondence of December 1976 (p. 17, 5.D.3.), it would have been more enlightening if the comments were directed to the July 1978 FERC communication that concluded, "We have no interest in defining the energy future (including energy conservation) of any State, but we consider it necessary and realistic that State officials and the public demonstrate an understanding of the energy supply consequences of their coastal management program."

    Response: Please note appropriate changes in the text.

14. Delaware relies heavily on Working Paper No. 7 to indicate its compliance with the CZMA requirements for the national interest and an energy facility planning process. Obviously, this compliance cannot be determined, since the working paper is only incorporated by reference. The State's program is deficient without this material; therefore, it must be supplied to all Federal reviewers.

    Response: Working Paper No. 7, as well as all other documents utilized in the development of the program, have previously been sent to interested Federal agencies. These materials are still available either in microfiche or printed form. The Paper was sent to FERC Region III in October, 1978, and had also been sent the previous April.

15. On p. 11, §5.D.3., in the discussion of the water needs of a petroleum refinery, it would be worthwhile to indicate whether saline water can be substituted for fresh water for certain uses (such as cooling) and in what amount.

Response: This information is not available to the authors. The current state of the art does permit saline water to be used, however, fresh water is necessary for other processes and is more desirable when available.

16. On p. 59, §5.D.3., the meaning of the phrase, "meaning that transmission penalties are low", is unclear. We assume that what is meant is that transmission line losses are low.

Response: Please note clarification in the text.

General Services Administration
(Penland) (4/30/79)

1. The General Services Administration has reviewed the draft environmental impact statement for the proposed Delaware Coastal Management Program, and has no substantive comments to make.

Response: No response necessary.

U.S. Department of Agriculture
(Davis) (5/11/79)

1. Since much of Delaware's finest farmlands are lands that were formerly wet, the definition of wetlands should be reviewed with an objective toward maintaining agricultural lands as farmland.

Response: Note changes to the agricultural policies in §5.C.1., which show that it is a State goal to preserve agricultural land. The Wetlands Act currently excludes lands being utilized for many agricultural activities. 7 Delaware Code §6603.

2. Water quality policies would restrict agricultural discharges and may cause an increase in farm production costs.

Response: This is true. Discharges from farmlands are not treated any differently than any other business.

3. Rather than use percent of slope as an indicator of erosion problems under the Erosion Control Act, it would be preferable to have the local Soil and Water Conservation District identify areas of critical sources.

Response: The Erosion Control Act specifically exempts agricultural land of less than 6% slope from the permitting requirements of the Act unless a determination is made by the Secretary of DNREC that a need for such control exists. However, the CMP recognizes the expertise of the local Soil and Water Conservation Districts in the determination of erosion problems. The Districts will have an important role in the implementation of the Erosion Control Act.

4. The loss of agricultural production or other agricultural damages should be included in the discussion of flood hazard areas.

Response: Please note changes to §5.B.3. to reflect your comments.

5. The CMP should recommend appropriate amendments to the law governing the preferential tax assessment program with the objective of strengthening farmland preservation.

Response: The CMP will continue to work closely with the Farm Bureau and the Association for the Preservation of Farmlands to explore additional techniques for farmland preservation.

6. In §5.C.1., p. 8, mention is made of the New Castle County 208 program recommendation that conservation plans be in effect before preferential assessment is approved. Does the CMP endorse this statutory change?

Response: The CMP supports the New Castle County 208 program recommendation as it applies to farm preservation.

7. Transportation policies do not appear to consider preserving agricultural land. The direct and secondary impacts of transportation systems affect preservation of agricultural land.

Response: Please refer to the policies regarding highway construction which can be found in §5.D.4. The discussion in this section notes that there are no plans for new highway construction in critical areas. Also please note changes in §5.C.1, to reflect your comments.

8. In §5.D.9., policies aimed at allocating water supplies on the basis of equitable apportionment of needs do not seem to give adequate consideration to agricultural interests. States with limited water supplies have used prior use apportionments as a basis for the allotment.

Response: The requirement that water supplies be allocated on the basis of equitable apportionment of needs is based on Delaware law. 7 Delaware Code §6010, Part F.

U.S. Department of Agriculture
Soil Conservation Services
(Fincher) (4/24/79)

1. In §5.A.2., Beaches and Shorelines, the need for public parking and sanitation areas does not appear to be considered.

Response: Please reference Policy #14 and subsequent discussion in §5.A.2. of the FEIS.

2. How will control of beach access be implemented to assure use will be within limits of maximum capacity? Overuse of beach areas should be measured by (1) degradation to the resources, (2) social effect of overcrowding, and (3) changes in demand as evaluated through updated SCORP.

Response: Please reference the discussion in §5.C.5. of the FEIS, which should address your concerns.

3. We suggest a management protection incentive program be developed for private landowners holding registered areas (§5.B.2.D-15).

Response: The State is also looking into incentive programs which would encourage private landowners to protect registered areas. Various alternatives are currently being considered.

U.S. Department of the Army
Corps of Engineers
(Imhoff) (5/11/79)

1. This report makes statements which seem contrary to the findings and conclusions of previous studies and current research. Two major examples are the discussions on dredging and spoil disposal and deepwater ports. These statements are neither supported nor referenced.

Response: Thank you for your comment. We have determined that it is not specific enough for a response or change to the CMP.

2. The discussion of the Federal Wetlands Permit Program being administered by the Corps of Engineers seems lacking. The nature of this permit program with respect to a coastal management program warrants a more detailed discussion.

Response: Please see changes to §5.A.1 to reflect your comment.

3. The development of an enforcement program to insure implementation is not fully addressed. Strong statements are made on restrictions being placed by the State on future activities including Federal activities. However, the basis for requirements for compliance or enforcement of these restrictions by the State seems lacking.

Response: During the first year of program implementation, the CMP will fund various work tasks designed to improve program enforcement. These tasks include the development of a simplified permit process for State permits and joint permit processing for State and Federal permits, improved monitoring and enforcement capabilities within DNREC, improved Coastal Zone Act implementation and monitoring, and the development and implementation of an erosion and sediment control program.

OMBP will monitor and ensure compliance with the program. Executive Order 61 mandates State agency compliance with program policies. The key administering agencies, DNREC and OMBP, answer directly to the Governor. Under the Delaware Environmental Protection Act, DNREC implements air and water pollution control requirements. Other statutes which provide direct state control for implementation of CMP policies include the Wetlands Act, the Beach Preservation Act, and the Underwater Lands Act, all administered by DNREC. An additional authority, the Coastal Zone Act, is administered by OMBP. Conflict resolution occurs first between agency heads and then among OMBP, the agency head, and the Governor. The Attorney General, pursuant to the constitutional duty to aid the Governor in the execution of laws, may institute litigation against offending agencies.

4. A new and entangled institutional framework is being established for dredging projects within the jurisdictional boundaries of the State.

Response: We are not sure what new framework is being referred to in this comment. The CMP incorporates existing state controls and will insure consistency between state and Federal actions in this area. In enacting the CZMA of 1972, Congress envisioned a unified approach to permitting under an approved CZM program.

5. What is the process and procedure for updating this program?

Response: For certain major program changes the State must submit requests for amendments to the program to OCZM. For more routine changes, the State must simply notify OCZM. OCZM Approval Regulations, §§923.80, 923.84.

6. In §2 B, p. 2, the hazard of marine transportation is approached from a State viewpoint. What about regional considerations?

Response: Please reference changes in §2B.

7. Section 2.C., does not address the impact of State water quality certificates by the Clean Water Act Amendments of 1977.

Response: We are unable to determine the meaning of this comment, since the section cited does not deal with this topic.

8. In § 5.A.1, p. 5, the impact of dredge spoil disposal does not reflect findings of the Corps of Engineers' Dredge Disposal research Program.

Response: The CMP is aware of the Corps of Engineers research program. Please note discussion in §5.A.1.

9. In §5.A.2, p. 17, what recent studies by the Corps of Engineers are being referenced?

Response: Please note references in §5.A.2, #3 and #8.

10. In §5.B.4, p. 6, what is the basis for the statement that "dredging the River . . . is not economically feasible"?

Response: Dredging to accommodate deep draft vessels might adversely affect the aquifer and adequate spoil disposal sites would be a major problem. After a high initial cost, maintenance dredging would be required on a regular basis.

11. In §5.C.3, p. 4, statements on spoil disposal impacts do not reflect clarification shown by the Dredge Material Research Program - for example: compatible spoil types and water-chemical qualities.

Response: See Comment #8

12. In §5.D.3, p. 20, the statement ". . . economics have not yet justified construction of a deepwater port in the mid-Atlantic region" does not agree with the Atlantic Coast Deepwater Port Facilities Study completed by the Philadelphia District in June 1973.

Response: See clarification in §5.D.3.

13. In §5.D.3, p. 20, the statement "Since most oil imported in the Delaware Valley is not brought from long haul distances, a deepwater port today would seem to be economically untenable." does not appear correct. Most oil imports to the Delaware Valley come from the Middle East and North Africa which are long haul distances.

Response: This sentence has been deleted.

14. In §5.D.3, p. 31, what is the basis of the statement ". . . the State would be the licensee of the (deepwater oil) port and exert direct control over it"? Under the 1974 Deepwater Port Act, the Federal government would license all aspects of deepwater ports.

Response: The State would apply for the license in this case and would be the operator. Under the Deepwater Ports Act, the Secretary of Transportation has the authority to issue, transfer, amend or renew a license for the ownership, construction and operation of a deepwater port. 33 U.S.C. 1503.

15. In §5.D.3., p.22, what is the basis for the statement "U.S. Coast Guard regulations, however, do not specify standards for site selection with criteria such as . . ." Under the Outer Continental Shelf Lands Act, overlapping authority regarding regulations for licensing and control of deep ports rests with the U.S. Department of Interior, the U.S. Department of Transportation, the Coast Guard and the Corps of Engineers.

Response: Your statement is correct. Under the Outer Continental Shelf Lands Act, the Secretary of Interior makes rules and regulations governing OCS leasing. 43 U.S.C. 1334(a). The Secretary of Transportation makes rules and regulations concerning the transpor-

tation of oil through pipelines. 43 U.S.C. 1334(e). The Coast Guard has authority to promulgate safety regulations. 43 U.S.C. 1333(d). The Secretary of the Army has the authority to prevent obstruction to navigation. 43 U.S.C. 1333(e).

16. In §5.D.3, p. 23, what is the basis for the statement "there have been no reported serious accidental spills in the Delaware Bay from lightering since its inception in 1959." Several oil spills occur each year due to lightering operations. Other lightering accidents reported to the Coast Guard include grounding of lightered vessels and fires during oil transfer. Offshore deep port facilities reduce spillage from 60% to 90% depending on through-put. This subject was addressed in the District's Atlantic Coast Deepwater Port Facilities Study.

    Response: Note changes in §5.D.3. which address your points.

17. In § 5.D.5, p. 6, what is the basis for the statement "this form of development, along with beachfront development which requires State beach protection projects, is the most uneconomic form of development on a cost/revenue basis in Delaware."

    Response: From the State's perspective, beachfront development which requires the use of State funds for beach nourishment and other beach protection devices which are very expensive is not a cost effective form of development.

18. In §5.D.7, how will the national interest be determined for the purposes of policy 1?

    Response: The national interest has been carefully considered in the development of the CMP. Please reference Working Paper #7 for an exhaustive discussion of national interest. This Working Paper was the basis for the discussion of the national interest included in the CMP.

19. In §5.D.7, Policy 9 is written in a negative tone and, as written, is open to interpretation. We believe that navigation ports and facilities are considerations of national interest and should be explicitly supported.

    Response: The CMP acknowledges that ports are facilities in which there is a national interest. Policy 9 has been clarified to reflect this national interest.

20. In §5.E, the discussion on p. 4 & 5 concerning the national interest appears to postpone consideration of it until program implementation. While such continuing consideration is necessary, it does not abrogate the requirement to address the national interest in program development. Specifically §930.52 has not been adequately addressed.

    Response: See comment #18 and Working Paper #7.

21. In Appendix D, p. 11, the program notes that difficulty in defining the lateral seaward boundary between New Jersey and Delaware, and Delaware and Maryland is anticipated. Why has resolution not been accomplished as part of this program development process?

    Response: Delimitation of Delaware's lateral seaward boundary involves a two-step process. First, the Assistant Administrator will send Delaware and New Jersey a notification of the area in which a line is expected to be issued in late July. The second step involves the actual delimitation of the line. This could take weeks or even months. Delaware and New Jersey have the option of foregoing the actual line-drawing in favor of sharing the resources within the area contained in the notification. This controversy is not likely to be resolved prior to program approval. Since the lateral seaward boundary is beyond the 3 mile territorial limit of the state, the determination of this boundary is not a requirement for program approval.

22. In Appendix F, p. 51, we recommend consideration of joint notice under Corps regulatory authority.

    Response: This is currently being considered and the CMP intends to assess it further as part of its permit simplification work task.

23. There are several references to working papers. These appear to be a significant component of the program and will be used to implement it. Since they are not a part of the official program document, they could not be used for consistency. We question the apparent reliance on these papers. The papers should be provided as part of the CMP.

    Response: The working papers have been widely distributed to Federal agencies and have been incorporated into the CMP. They will not be used in consistency determinations.

U.S. Department of Defense
(Fliakas) (5/31/79)

1. The program document fails to identify two Defense properties: Dover Air Force Base and Port Mahon POL Facility.

   Response: Please note the map in Appendix D: Boundaries.

2. In Part 2, §5.D.6., p. 5, the statement, "At present, however, the state does not adopt the U.S. Department of Air Force recommendation that the Coastal Management Program exempt military departments from development permit requirements for activities undertaken on their property." is inappropriate. The statement is not consistent with the Coastal Zone Management Program Development and Approval Provision (Section 923.53) dated 28 March 1979, and is contradictory with statements in Appendix D, Paragraph 3, p. 13 and Appendix F, Paragraph 3.A, p. 46 of the Delaware Program document.

   Response: Under §923.33 of NOAA's Approval Regulations, lands which are owned, leased, held in trust or subject solely to the discretion of the Federal Government must be excluded from the State's coastal zone. Please note changes in the text.

U.S. Department of Energy
(Langenkamp) (6/4/79)

1. Page 9, Chapter 5.D.3, says that DOE has "acknowledged there is no present or anticipated future need for new petroleum refineries in Delaware." To the contrary, DOE's position for the past several years has been one of endorsing increased refining capacity, especially along the Atlantic Coast.

   Response: The CMP refers to a DOE position on refineries as of December, 1977. Apparently this position has changed since then. Please reference Footnote #72 of Working Paper #7 which has been distributed to Federal agencies. Please note the change in §5.D.3., page 9, to reflect your comments.

2. Page 10 of this Chapter indicates that the Federal Energy Administration felt that direct waterfront access was not a requirement for refineries. We feel that waterfront access is critical from an economic viability standpoint.

   Response: Please reference our response to Delaware Oil Men's comment #3. This position on waterfront access for refineries was outlined in a letter from William Kaplan of DOE, dated 1/18/77 to the CMP.

3. The program indicates on page 17 of Chapter 5.D.3 that the potential for expansion of existing refineries significantly mitigates the need for new refineries. However, a June 23, 1978, DOE survey of expansion potential concluded that, in Delaware, only the Getty Refinery at Delaware City would be able to expand its capacity significantly. Further, for the entire East Coast only two other facilities, AMOCO at Yorktown, Va. and BP-Sohio at Marcus Hook, Pa., had significant expansion potential.

   Response: The CMP was using the 1976 National Energy Survey in making this analysis. To reflect the change in DOE's position, the first sentence on page 18 of §5.D.3 has been deleted.

4. The Delaware Coastal Zone Act prohibits petroleum refineries in the coastal strip of Delaware. This proposed program does not allow site specific consideration of possible future refineries pursuant to a regulatory process based on specific findings of fact. We believe such a process is essential to adequate consideration of the national interest in refineries and other energy facilities necessary to meet more than local needs.

   Response: The CMP permits refineries outside the Coastal Strip and maintains its position that a refinery is not a waterfront dependent facility. National interest considerations are discussed in the CMP and are exhaustively dealt with in Working Paper #7. The CMP has attempted to balance between competing national interests by siting refineries and heavy industries away from the shorefront, while promoting the shore for recreation and preservation of natural resources such as wetlands and beaches in which there is also a national interest.

5. Chapter 5.D.3, page 29, seems to utilize a discussion of the OCS Lands Act Amendments of 1978 as a justification for a "go-slow" policy for OCS development. These amendments were enacted to improve leasing procedures and, thereby, allow "expedited exploration and development" of the OCS.

   Response: The CMP supports OCS development as long as environmental safeguards are adhered to and the State has an opportunity to participate in the development process. The CMP did not intend to use the OCS Lands Act Amendments of 1978 as a justification for slowing OCS development. Policies which permit a deep water port and land based OCS facilities such as platform fabrication yards within the Coastal Strip are evidence of CMP support for OCS development.

6. Although generally supportive of some OCS onshore facilities, the program asserts the Delaware Coastal Zone Act as a basis for outright prohibition of pipeline terminals, storage tanks, and gas processing plants within the coastal strip. Again, we believe that blanket exclusion of these facilities and failure to provide an opportunity for an objective, factual evaluation on a site specific basis is contrary to the national interest.

   Response: Please reference our response to your comment #4 which applies in this case as well as with refineries.

7. LNG facilities are prohibited within the "coastal strip" in Delaware. The DEIS supports this position based in part on the view that LNG imports are not in the national interest (Summary, p. 14). This view may reflect a misinterpretation of recent disapproval of requests for LNG import authority which have been issued from the Economic Regulatory Administration (ERA), DOE. It is essential that there be the willingness (even where there are policy considerations to indicate a particular action may be a low priority at the time in national energy planning and policy) to conduct a regulatory process which provides for objective evaluation of a particular proposal.

   Response: Please note the change in the Summary of the FEIS to reflect your comment. Also, reference changes to Policy 10 and the associated discussion in §5.D.3. The Energy Facility Siting Liaison Committee (EFSLC) will serve as the body to propose energy policy and to consider recommendations for legislative change.

8. We are further concerned that the proposed program, especially Chapter 5.D.3, pages 53 and 54, focuses on various legislative proposals and gives little consideration to the already established authorities of the Economic Regulatory Administration, Federal Energy Regulatory Administration and U.S. Coast Guard to assure that LNG projects are in the national interest and can be operated safely.

   Response: See response #7 above. §5.D.3. of the CMP assesses the possibility of siting LNG facilities in Delaware and concludes, after application of FERC criteria, that no site exists.

9. It should also be noted that page 56 of the program acknowledges that Federal approvals may preempt State and local laws. The DEIS should specifically disclaim any intent to presume or imply a finding on this matter which is under review in administrative law proceedings before both the ERA and the Federal Energy Regulatory Commission.

   Response: The discussion of preemption has been deleted.

10. The requirements for State approval of any nuclear power facility, as discussed on page 64 of §5.D.3, make it appear that the State proposes to assert authority in areas reserved to the exclusive jurisdiction of the Nuclear Regulatory Commission.

    Response: The State will review any proposal for a nuclear generating facility in terms of its impact on land and water resources. It has no intention of violating the authority of the Federal government over considerations of radiological health and safety in the siting of nuclear facilities. Please note changes in the discussion following Policy 13 in §5.D.3.

11. Page 74, Chapter 5.D.3, indicates that "the diversity of facilities, the different possible configurations of each facility, and technological change indicate adoption of a siting procedure which responds to specific proposals, rather than anticipation of all types of proposals." We believe that the prohibitions of the Delaware Coastal Zone Act are in direct conflict with this viewpoint and are an appropriate basis for withholding approval.

    Response: Uses prohibited in the Coastal Strip are permitted inland. This statement indicates that the siting of these facilities away from the coast would be considered on a case-by-case basis, based on criteria and standards contained in various State laws and outlined in the CMP.

12. Notwithstanding the section on page 66 of Chapter 5.D.3 for "Review and Amendment of Energy Policies," the State has no administrative system to provide for meaningful review of individual projects in prohibited categories. There also is no assurance that the legislature will act to review either the general policies of the Coastal Zone Act or to provide special authority to State administrative agencies to allow an objective administrative review of a specific project.

    Response: We believe that the EFSLC will provide such a mechanism during program implementation. It is likely that the General Assembly will also consider such changes. Please reference Executive Order #60 found in Appendix E. The State has chosen to develop policies which provide maximum predictability on where each type of facility can be located throughout the coastal zone. This specificity is an excellent response to NOAA regulations. §923.3.

13. We believe that the fair share siting policy is not a valid basis for assessing national energy interests. The concept of fair shares, submitted to any attempt at widespread application, could not be verified in any objective or consistently acceptable manner, and would be expected to create disruptive relations between producing and refining areas and among different states in both categories. A concept which is generally advanced as a basis for any state to elect to drop out of the collective effort to meet future national energy needs clearly is not an appropriate basis for coastal energy policy or consistent with national energy interests.

Response: The State's decision to prohibit the siting of certain facilities in the Coastal Strip was based on a weighing of resource protection vs. industrial development. As industrial facilities can generally locate inland, natural and recreational resources were thought pre-eminent in the Coastal Strip. The State has not used the fair share argument to avoid doing its part to meet future national energy needs. It has provided a level of clear predictability in these important national interests in line with the positions taken by DOE and other Federal agencies in the past in their review of other coastal programs.

U.S. Department of Housing and Urban Development
(Embry) (5/23/79)

1. The area Office staff expressed the following concerns with regard to the Delaware Coastal Management Program:

   a. Greater involvement of minority and low-income groups in the planning process;

   b. Improved planning and coordination of water and related land resources in relation to future urban growth concentrations; and

   c. Improved coordination of development programs and financial assistance through the A-95 review process as a part of the Coastal Management Program.

Response: The State acknowledges these concerns and will continue to work toward these goals.

U.S. Department of Housing and Urban Development
(Treadwell) (5/11/79)

1. This Office and the local govermental participants in our Community Development programs should have access to and utilize all relevant and available data related to the Program (i.e., wetlands maps, natural areas surveys, etc.).

   Response: All materials utilized in the development of the program have been sent to interested Federal agencies and local governments. Copies of all materials are available in either microfiche or printed form.

2. Through the Project Notification and Review System (A-95), the State agencies responsible for implementation of the Program must routinely communicate relevant comment to the Area Office of HUD and the local community development agency when HUD Applications are transmitted to the Delaware Office of Management, Budget and Planning.

   Response: This coordination is routinely done as described in the discussion in Appendix F.

U.S. Department of the Interior
(Meierotto) (5/31/79)

1. We are concerned that the DCMP does not appear to address those uses and activities which may occur immediately adjacent to critical resources areas and which may have negative impacts upon these areas. We request a discussion of the direct and indirect legal authorities which the DCMP can use to control such development.

   Response: This concern is addressed in the discussion following comment #2 of the Natural Resources Defense Council.

2. We recommend that the State consider providing additional management authority over wetland resources not subject to regulation under the Wetlands Act. This is particularly important for freshwater wetlands of fewer than 400 acres.

   Response: The majority of freshwater wetlands in the State are currently managed. Please see the discussion following comment #3 of the Natural Resources Defense Council.

3. Earlier drafts of the DCMP included a policy statement prohibiting the placement of dredge spoil material in wetlands. We would like to see this policy restored to the final document.

Response: The policy regarding filling of wetlands was deleted because of the pending Marvel court case in which this issue is being litigated. Please reference NRDC comment #7.

4. We recommend that biological concerns be included among those factors considered in processing permits pursuant to the Beach Preservation Act.

   Response: The Beach Preservation Act does not provide for inclusion of "biological concerns" as a consideration in processing permits. The thrust of this legislation is erosion control.

5. We are concerned by the prohibition of common carrier pipelines which terminate in the coastal strip. Policy 7 on p. 39 of §5.D.3., could be rewritten to be more flexible so that environmentally sound means of transfer can be used.

   Response: Please refer to the clarification concerning subject pipelines in the discussion following Policy 7 in §5.D.3. The Delaware Coastal Zone Act prohibits offshore bulk products transfer facilities (which include pipelines) in the coastal strip unless they are located in the Port of Wilmington or serve a single industrial or manufacturing facility.

6. The intent of Policy 10 on p. 7, in §5.A.4., is unclear as to what geological "survey" techniques are of concern due to their impact on water quality.

   Response: See definition of "survey" contained in §5.A.4.

7. We believe that floodplain management is sufficiently important so that the State should be providing guidance to local governments where necessary and should have standby authority to act where local governments fail to enact adequate controls. We also encourage the inclusion of a policy statement supporting the use of non-structural solutions to problems associated with development in floodplain areas, wherever such solutions are feasible.

   Response: The State provides guidance to localities through the annual review of floodplain management programs and the ongoing review of Federal standards as they apply to Delaware. The State utilizes its public investment policies as described in §5.D.4 to help direct development away from floodplain areas. This effort has been strengthened as shown by the change in Policy 6 in §5.B.3.

8. The policies referring to Historic and Cultural areas should be made more specific by defining these areas. Also the processes by which consideration and protection of these areas will take place should be outlined more clearly. For example, Policy 2 could be changed from an "encouragement policy" to an "enforcement policy".

   Response: In response to your concern, please note the language change in Policy 2. Specific Historic and Cultural areas subject to the policies in §5.C.2 are listed in the inventory developed as part of the Annual State Historic Preservation Plan.

9. It would be helpful if the relationship between OCZM's Coastal Fisheries Assistance Program and plans developed by the Mid-Atlantic Fisheries Management Council were clarified.

   Response: Please note the changes in the discussion following Policy 8 in §5.C.3.

10. The problem associated with mineral extraction described on p. 1, of §5.C.4., would no longer occur if the State were to adopt mining and reclamation laws.

    Response: Please note the changes in §5.C.4 which address these problems within the context of existing laws.

11. We recommend that Delaware inventory potential sources of mineral materials and develop plans that will assure continued adequacy of mineral supplies to meet the needs identified in §5.D.2.

    Response: An inventory of potential sources of mineral materials and plans for the development of these resources were addressed in the third technical report developed by the Delaware Coastal Management Program. See reference #1 at the end of §5.C.4.

12. There are four separate agencies and organizations which are or will be involved with energy facility siting decisions. Aside from the designation of the Delaware Energy Office as the lead planning agency, there is no stated process through which these agencies and organizations will coordinate their efforts and activities.

    Response: Coordination among the agencies and organizations involved with energy facility siting decisions is achieved through the Energy Facilities Siting Liaison Committee. Please refer to the discussion of this Committee, its membership and responsibilities in §5.D.3.

13. We believe §5.D.3 would be enhanced by the addition of a discussion of siting problems and considerations associated with the seaward portion of a pipeline located beyond the State's territorial limits as well as the onshore impacts of pipelines on wetlands and other valuable estuarine habitats. The DCMP should also include a description of the new Intergovernmental Planning Program for OCS Oil and Gas Leasing, Transportation, and Related Facilities which will establish regional and State technical working groups to carefully study pipeline corridors.

    Response: The siting of pipelines beyond the State's territorial limits is outside of the state's legal jurisdiction. To the extent that pipelines are within territorial limits, they will be handled in the framework of the policies contained in §5.D.3. The state is aware of the intergovernmental planning program and will participate through the EFSLC.

14. We believe the DCMP could be strengthened by incorporating the specific policies contained in the 1979 SCORP.

    Response: CMP maintains close coordination with the SCORP process and recognizes its policies.

15. We suggest that Delaware should consider the establishment of a technical coordinating committee of resource scientists to serve as a focus for the development of guidelines and specifications for the data to be utilized by the Coastal Information Center discussed in §5.E.

    Response: It is anticipated that such a technical coordinating committee will be established as noted in the discussion in §5.E.

16. We believe it would be useful to have a more detailed discussion of the various techniques utilized to identify special management areas, and their interrelationships both present and proposed.

    Response: Currently the State is working with the localities to develop such techniques using the Department of Interior's Critical Areas Program document. Please note the discussion in Appendix C.

U.S. Department of Navy
(Carnell) (4/19/79)

1. The Strip Map does not indicate Federally-excluded lands. Also, the boundary section should be accompanied by a map showing the relationship of the coastal zone, the coastal strip and excluded lands.

    Response: Please refer to the map in Appendix D showing Federally-excluded lands, which has been inserted to reflect your comments.

2. In accordance with §930.35(d), it is anticipated that many Navy submissions may take the shape of a "negative determination", and thus, it should be given recognition as a form of notification together with "consistency determinations".

    Response: A "negative determination" is a form of notification to the state agency that a consistency determination is not required for the particular Federal activity. §930.35(d) of NOAA's Federal Consistency Regulations requires the Federal agency to give notification setting forth reasons for its negative determination to the state agency at least ninety (90) days before final approval of the activity.

3. In Appendix F, 2(a), the statement should read that "the notification from the Federal agency must contain a brief statement indicating how the proposed action will be undertaken in a manner consistent to the maximum extent practicable with the Delaware Coastal Management Program."

    Response: Under §930.32 of NOAA's Federal Consistency Regulations, "consistent to the maximum extent practicable" describes the requirements for Federal activities affecting the coastal zone.

U.S. Department of Transportation
(Cooper) (5/21/79)

1. The Coast Guard recognizes the consistency determination aspects for the activities listed in Appendix F, and will work with Delaware to attain, to the maximum extent possible, satisfaction of all parties while following the legislative mandates and statutory requirements. Actions will be taken advisedly and with the knowledge and input of Delaware.

    Response: Your comment is accepted.

Delaware Department of State
Division of Historical and Cultural Affairs
(Griffith) (5/14/79)

1. The Division of Historical and Cultural Affairs maintains a more active position than indicated in §5.C.2., p. 2. It assists Federal agencies in the fulfillment of their management/preservation responsibilities by providing expertise to perform preliminary resource assessments, develop Scopes-of-Work and review contract proposals and reports. Non- Federally assisted State, local or private projects are reviewed in much the same manner.

   Response: Please reference changes in relevant sections of the FEIS which address your comments.

2. §106 of the National Historic Preservation Act of 1966 indicates the need to identify those properties listed in the National Register and those determined eligible for such inclusion. Since we have not completed a comprehensive survey of the State for National Register properties, the Federal agency must identify or cause to be identified all properties that may be eligible for the National Register. This issue needs to be made clear.

   Response: Please reference changes in relevant sections of the FEIS which address your comments.

3. On p. 3 of §5.C.2., the 250 entries reflect aproximately 2,000 discrete properties, with approximately another 1,000 buildings to be listed pending submission of two district nominations this year.

   Response: Please reference changes in relevant sections of the FEIS which address your comments.

Delaware Geological Survey
(Pickett) (4/24/79)

Note: The majority of comments received from the Delaware Geological Survey were of an editorial nature and necessitated changes to the FEIS. An exception is the comment concerning water wells, which is addressed below.

1. Is there a permitting system regarding water wells?

   Response: A permitting system for water wells is administered by DNREC under the Delaware Environmental Protection Act. 7 Delaware Code §6023(a).

Representative Gwynn P. Smith
(Delaware House of Representatives) (6/8/79)

1. Federal approval of the Delaware CMP triggers Executive Order #61 which requires all state agencies to work to implement it. This directive is not in place until approval is granted, although wording several places in the program seems to indicate it is now in effect.

   Response: Appropriate changes have been made to the text.

2. The "takings" issue. In several places the CMP seems to assume that laws and/or regulations crumble in the face of opposition if it is based on the constitutional issue of "taking".

   The state has no obligation to insure that private land investment/speculation be insulated from effects of the CMP if the public as a whole would be served by the CMP; there is no inherent "right to develop" implicit in ownership of land. "Development interests," (part V, p.2) "lost expectations" (part V, p.9) and "economic disadvantages" (part V, p.17) are parts of the normal risks of any speculative venture.

   Response: We agree that the regulations incorporated in the CMP will not result in a taking of property in violation of constitutional requirements.

3. The state does not have adequate controls over exploration, development and production of oil and gas, and pipeline transportation of gas and oil in the land areas of the State. Even with the procedures in place, we may not be able to control pipeline landfalls and corridor routes due to sections of the Delaware Code which gives Eminent Domain with the Right of Condemnation (Title 26, Chap. 13) to corporations organized for the production, distribution, and sale of gas or for the transportation and storage of oil. These corporations may take land "for all necessary purposes of the corporation".

   Response: OCZM and the CMP are aware of the problems associated with certain regulations concerning oil and gas onshore activities relating to pipelines. Delaware is in the process of preparing a CEIP Application which will, among other things, request assistance for review and revisions of the State's oil and gas and mineral resources regulations. Even with the exercise of eminent domain, the State environmental restrictions will still apply to such activities.

4. There are some parts which seem to shut out public knowledge of and participation in proposed changes to the CMP early enough in the process to be effective.

   In part II, Section 5.D.3., p. 70, Citizens and Respresentatives of citizens groups seem to be shut out of interaction with the Energy Facilities Siting Liaison Committee.

   Also on the same page, Land Use Planning procedures indicate a hearing on a proposed land use change if OMBP requests it, but there seems to have no requirement to tell any member of the public about a proposed change, or if some other party can request a hearing.

   Response: During program development, the CMP has been most concerned with public input. During the 306 phase, the CMP will continue to involve the public and will ensure that the public is aware of proposed changes to the CMP and will also keep citizens informed of the activities of the Energy Facilities Siting Liaison Committee. Please see Policy 1 on 5.E. which requires State and local governments to keep the public informed of major land use matters.

New Castle County Department of Planning
(Bauer) (5/15/79)

1. On p. 2 of the summary, the statement "North of Wilmington to the Pennsylvania State line, the area continues to be heavily urbanized with highways predominating," is not entirely a correct statement.

   Response: This statement has been changed to more clearly reflect the characteristics of the areas north of Wilmington.

2. New Castle County takes the position that the entire State should not be included in the boundary of the coastal zone.

   Response: OCZM believes that the statewide boundary makes sense from both an administrative and from a scientific point of view. Many states have selected the coastal counties as the determinant of the inland boundary. In the case of Delaware's ability to manage its coastal resouces, this statewide boundary seems reasonable in that no part of the State is more than about eight (8) miles from coastal waters.

3. In §5.D.2., it would be desirable to use more recent State population estimates and the newly revised Sussex County population projection.

   Response: The population figures have been revised to reflect your concerns.

4. An Urban Waterfront Study has recently been initiated in New Castle County (§5.D.2., p. 11).

   Response: The Urban Waterfront Study has been noted in §5.D.2.

5. Due to the various statewide concerns, problems, etc., expressed with the actual implementation of Delaware Land Use Act (Senate Bill 358), what effect will this delay have on program approval, 306, etc. funding?

   Response: OCZM has determined that any problems associated with the implementation of the Delaware Land Use Planning Act will not delay program approval. The first year 306 work tasks will include the development of procedures for implementation of the Land Use Planning Act. Critical area plans will be completed and intergovernmental agreements will be established.

Water Resources Agency for New Castle County
(Dworsky) (5/15/79)

1. The proposed all-encompassing approach of the DCMP may ultimately jeopardize our coastal resources because it does not concentrate on the coast's problems, but rather becomes involved in all aspects of development.

   Response: The Delaware Program must necessarily concentrate on managing development which might have a direct and significant impact on coastal waters. In Delaware, since most land is in close proximity to coastal waters, most forms of development must be managed by the program.

2. We object to the inclusion of the entire State as being in the coastal management area.

   Response: Please refer to our response #2, to the New Castle County Department of Planning.

3. Although there are presently no conflicts between the EPA's §208 water quality program and the CMP activities, basic understandings need to be worked out at the Federal, State, and local levels.

   Response: OCZM and Delaware agree. Work tasks in the first year of program implementation include cooperative projects between the Federal, State and local levels which should ensure that conflicts between 208 and the CMP do not develop.

Society of Natural History of Delaware
(Matlack) (5/7/79)

1. The commercial fishery must take precedence over sport fisheries in any allocation system. In the management of estuaries and adjacent wetlands, the highest value must also be given to the production of food.

   Response: Please reference Policies 8 & 9 and subsequent discussion in §5.C.3, concerning the coastal fisheries program.

2. The need to protect the State's best farmland is imperative. Governmental action to reduce public investment decisions which promote urban sprawl and to provide incentive or regulations for farm preservation are needed.

   Response: Please reference the change in Policy #1, in §5.C.1, to reflect your comments.

3. In §2B, p. 4, the statement that "summer traffic bottlenecks are a common occurance demanding greatly improved roadway systems to accommodate peak usage" ignores the tremendous need for energy conservation. Innovative methods for conserving energy and improving air quality while maintaining the tourism industry need to be addressed.

   Response: The wording of this section has been changed to reflect your concern.

4. Some consideration should be given to siting power plants so that their waste heat can be used for space heating and cooling.

   Response: The State is exploring innovative ways to use waste heat from power plants. Please refer to the discussions in §5.D.4.

5. In terms of non-point source pollution, would the California law on recycling waste engine oil be applicable to Delaware?

   Response: The California law does not apply to Delaware. Maryland recently enacted an oil recycling law which prohibits the disposal of used motor oil and requires that used oil be deposited in designated collection facilities. If passed in the General Assembly, such a law could be applied in Delaware.

6. In §5.A.2, p. 7, consideration should be given to the use of a dredge at Indian River Inlet to replenish eroded sand.

   Response: The Corps of Engineers, in cooperation with the State, is currently investigating the use of a sand by-pass system to solve this problem.

7. The building line set-back at the beach should be further back than the landward toe of the primary dune.

   Response: A survey is currently being conducted which will establish an exact building line. This new line will generally be further back than the landward toe of the primary dune.

8. Is the Pigeon Point landfill leaking into the Delaware River?

   Response: There is no evidence at the present time that this landfill is leaking into the Delaware River.

9. The siting of support facilities for offshore oil should be a multi-state decision.

   Response: Please refer to the section on coordination in §5.D.3., and in §5.E.

10. The establishment of a system of natural preserves to assure diversity is an immediate and pressing priority. It may require national legislation to provide sufficient funds to the states.

    Response: The Natural Areas System Preservation Act was enacted in 1978 to address this pressing concern.

11. A general criticism of the whole document under review is that additional legislation, tax incentives, etc. to implement the policies are not spelled out.

Response: With regard to existing authorities, Delaware has adopted a technique of program implementation whereby land and water uses will be controlled at the State level. The State will review local planning decisions to ensure their consistency with the management program. Existing legislation is presently sufficient to enforce program policies.

12. In §5.D.5., p. 6, there is a need to provide recreation closer to home, i.e., revitalized urban waterfronts, which will save energy and travel time relative to distant areas.

    Response: Please refer to §5.D.2., which describes an ongoing urban waterfront study which will recommend areas for recreation use.

Association for the Preservation of Farm Land
(Taylor) (4/12/79)

1. This Association supports Delaware's Coastal Management Program. It did not fail to consider agricultural concerns and interests. Agriculture's long term benefit is not curtailed and is accurately depicted.

    Response: No response necessary.

Cityside, Inc.
(Thompson) (4/27/79)

1. Although the economic importance of the Port of Wilmington and its future needs for expansion support the inclusion of all areas within the City limits into the Port, such a definition exempts the entire city from certain environmental measures as outlined in Appendix C. We do not believe this is desirable and, therefore, request that you do not include the entire city of Wilmington in the Port for purposes of the CMP.

    Response: Only that portion of Wilmington to the east of Route 495 is included within the jurisdiction of the State's Coastal Zone Act. For the purposes of the Coastal Zone Act, this area is defined as the Port of Wilmington. Within the Port area, bulk product transfer facilities are permitted, but all heavy industrial uses are prohibited. Both within the Port area and in the rest of the City, all the environmental laws apply including the Wetlands Act and the Environmental Protection Act. The language in Appendix C has been changed to clarify that the Coastal Zone Act exemption applies only to the Bulk Product Transfer facilities.

2. There is a discrepancy between the generalized wetlands maps in §5.A.1., and the wetlands shown in Figure 12 in the SCORP Preliminary Draft of September, 1978, as regards wetlands along the Christiana River in Wilmington. We believe that all tidal waters and wetlands along the River extending into the City should be included in the Coastal Management Program.

    Response: The maps referenced above are from the same source and we see no discrepancy. All tidal waters and wetlands along the Christiana River are included in the Coastal Zone Management Program and are managed by the Wetlands Act and by the Underwater Lands Act.

3. In order to adequately protect tidal water, wetlands, and river banks, we believe it is necessary to make a complete inventory of these areas within the City of Wilmington.

    Response: During the first year of program implementation, DNREC will use CZM funds to update its wetlands maps.

Delmarva Power
(Molzahn) (5/18/79)

1. One of DP & L's main concerns is the manner in which the federal consistency provisions apply to existing facilities within the coastal strip as defined by the Delaware Program. We would propose that our existing facilities are grandfathered under both the CZMA of 1972 and the Delaware CMP.

   We believe that the legislative history would indicate that federal consistency be limited to only ". . . any new activity in the coastal zone, directly, significantly and adversely affecting the coastal waters . . ." and not the "maintenance of existing facilities or activities."

   We believe the certification of existing facilities to be a redundant regulatory requirement serving no useful environmental or economic purpose. We, therefore, believe that neither state nor federal consistency review of existing facilities within Delaware's coastal strip (as of June 28, 1971) should be required, except for expansions having significant effects on increased production capacity, land use area, or environmental impact.

   We believe that facilities in existence after June 28, 1971, but before finalization of the Coastal Zone Management Act of 1972, as amended, should not be subject to the federal consistency certification process.

   Response: Under NOAA's Federal Consistency Regulations, further review of existing facilities is limited to renewals or major amendments of a Federal license or permit activity falling within two categories. These are: (1) where the management program has been amended or changed through routine program implementation since the time of prior consistency finding; or (2) where the effects on the coastal zone will be significantly different from those existing at the time of the original State agency review. The only limitation on Federal consistency expressed in the referenced letter to Mr. Donald Myers, written by NOAA's General Counsel on October 12, 1978, is its application to enforceable policies and not to enhancement policies. Thus, major amendments or renewals of Federal licenses or permits will be subject to Federal consistency review if one of the two conditions listed above applies. §930.51.

2. We are concerned with the lack of an accurate and formal definition of supporting facilities as regulated under Wetlands Policy 6 on p. 5.A.1-12. We would request that supporting facilities be defined as those facilities within the wetlands confines which are required for the maintenance and support of the integrity of the proposed wetlands facility.

   Response: Please refer to the revised language in this section and to the appropriate provisions of the Wetlands Act regulations. (§7.04 of Regulations)

3. If Policy 7 on p. 5.A.1-12, were strictly interpreted, the water access or water use criteria of this regulation could effectively eliminate the maintenance, renewal, or construction of distribution and transmission lines within wetlands boundaries. In some areas this would not appear to be in the public's best interest. We suggest that another category be added to the regulation which reads ". . . or (c) There exists a specific need for the general public welfare or convenience for the proposed facility".

   Response: The regulations adopted pursuant to the Wetlands Act recognize this and contain provisions to accomodate the siting of transmission facilities in wetlands provided certain environmental standards are met. Please refer to §5.D.3. p.59.

4. We request that all sections of the document containing enforceable policies have a list of the authorities for those policies at the end of each section.

   Response: Please note new authorities tables.

5. The Electric Power Plant section (5.D.3.6) contains some information which we feel insufficiently qualifies the industry as a whole and DP&L in particular. Under 5.D.3.6 (a), the last sentence of the second paragraph on p. 57 implies a judgement by the authors that new technology developments are required to reduce the risks associated with nuclear powered generating facilities. While this may be a valid conclusion, it is not appropriate that it be evinced in the draft EIS of the Delaware CMP.

   Section 5.D.3.6 (b) indicates a connection between the national power supply capacity and projected load with that of Delaware. This may not be the case, but rather the PJM Interconnection capacity and our own capacity and load projections is indicative of Delaware or Delmarva Peninsula needs.

   Our planning unit is not the MAAC, but rather the PJM Interconnection. MAAC-member commitment to nuclear energy probably is less affected by local public or private opposition than it is by comparative economics, financing, and national policy directives. Indeed, our postponement of the Summit facility was in part a reflection of the greatly reduced rate of growth in both energy and peak demand. Our current generating plans call for a 1987 coal-fired generating unit in Maryland. A plan for a nuclear facility at Summit has been postponed past 1989. The excess generating capacity figure of the Environmental Action Foundation is easily verifiable. We do contend that our excess capacity is not that much above a prudent and required reserve level for our system.

Response: We believe that the information relating to this issue is appropriate and should remain in the CMP. Please note changes in the discussion relative to Delmarva's energy capacity.

6. Section 5.D.3.6 (d) reflects some basic qualitative misunderstandings. The act of entrainment is not a killing process; but rather the process by which organisms too small to be captured by the intake screen pass through the cooling system. Survival of the process is entirely species dependent. Younger life stages of local commercial important species can be included as entrained organisms.

   The Clean Air Act offset policy refers to the siting of additional sources of emissions within non-attainment areas if offsetting decreases can be secured from existing sources. Incremental additions to ambient air pollutant concentrations are permitted in attainment areas.

   We perceive a decidedly anti-nuclear bias in this section which is supposed to be a balanced assessment of electric generation alternatives. An equivalent emphasis should be placed on the hazard assessment for all alternative energy sources. There is no plan to permanently store nuclear wastes in Delaware yet this section seems to dwell on the issue.

   Cooling tower drift is caused by evaporated water being transported by wind currents. Results at operating salt water towers do not indicate significant adverse effects on native species in the general area, although some localized effects have been observed. The pessimism in this section is unwarranted.

   The effects of electromagnetic fields associated with transmission lines is a subject of ongoing research through various organizations including the Electric Power Research Institute (EPRI). Lines energized upward to 765KV are generally not considered to be a source of any significant health hazards. DP&L is actively involved in an EPRI supported study to assess the impact of power line collisions on bird populations

   Response: Please refer to this section of the CMP, which has been changed to reflect your comments. Refer to §5.D.3 relative to air quality.

7. Policy 13 on p. 64 of §5.D.3 contains an alternative fuels recommendation in lieu of nuclear energy generation. We feel that this recommendation may be based on a superfluous and cursory assessment of the issues of nuclear safety and waste disposal. The policy is one of purely local design which we feel may not adequately reflect CMP provisons for national interest. Because the issues of nuclear safety and waste disposal are outside the realm of Delaware's CMP authority, we request that the alternate fuels recommendation be deleted from the policy.

   Response: Please note the changes to the discussion following Policy 13 and the deletion of the words health and safety. Nuclear power plants will be required to comply with State environmental quality and other regulations. Although the alternate fuels language is a part of the policy, it is only a recommendation.

Delaware Nature Education Society
(Wilder and Fleming) (5/24/79)

1. We believe the document does an excellent job of addressing the environmental and socio-economic impacts of implementation of Delaware's proposed Coastal Management Program.

   The competing, and often conflicting, interests in the resources of the Delaware coastal zone, which fortunately includes the whole state, are well balanced. In a state the size of Delaware - little more than 2,000 sq. mi. - resource management policy and its implementation is immediately critical. The Delaware CMP provides a much needed comprehensive approach to resource management planning, enabling coordination of all government levels.

   The program is commendably designed to protect the fragile coastal strip while directing development to less sensitive and more appropriate locations. The policies pertaining to "resources subject to management are particularly well stated, and we feel confident that they will safeguard Delaware's vital resource base.

   Response: No response necessary.

Delaware Oil Mens' Association
(Galloway) (5/16/79)

1. Approval of the DCMP by the Secretary of Commerce would trigger the application of the Federal consistency provisions of the U.S. CZMA and its implementing regulations. It should be noted that only the enforceable provisions of the DCMP are properly governed by the consistency requirement. "Encouragement" policies should be clearly labeled since they are not subject to consistency.

   Response: Executive Order #61 makes all policies contained in the CMP enforceable on State agency actions. Consistency will thus apply to all the CMP policies.

2. The DEIS cites as alternatives the delay or denial of approval by reason of (a) inadequate consideration of the national interest in the siting of facilities or the protection of natural resources in the coastal zone; (b) lack of provisions in the program to insure that uses of regional benefit will not be unreasonably restricted or excluded by local governments; and (c) lack of adequate comprehensiveness to ensure that the goals of the federal Coastal Zone Management Act are achieved. In our view, the Program does not meet the first two requirements and also fails to address the national objectives of attaining greater energy self-sufficiency. This is due to the restrictive state statutes which contain an absolute prohibition against the location of certain energy facilities in the wetlands or "coastal strip".

   Response: The Delaware program defines uses of regional benefit to be land use planning actions having a significant impact upon more than one local jurisdiction. 7 Delaware Code §9211. An exclusion or restriction of a use is actionable if it is unreasonable or fails to consider State comments. 7 Delaware Code §9222(a)(1,2). The administrative mechanism established to deal with use exclusions or restrictions is a system of referral to the Council on State Planning which is empowered to reverse the local decision, requiring its reconsideration by the locality. 7 Delaware Code §9222(b). This process satisfies Federal requirements. For an in-depth discussion of national interest considerations in the development of the CMP, please refer to Working Paper #7 which has been widely distributed and is available from either OCZM or Delaware's OMBP. This Working Paper has been summarized in the CMP. The CMP has attempted to balance the national interest in energy facilities with the national interest in wetlands, beaches and recreational areas. The CMP is supportive of OCS development and permits the siting of platform fabrication yards and pipeline yards in the Coastal Strip. It also permits an OCS pipeline to transect the Coastal Strip and permits the siting of oil refineries outside the Coastal Strip. This is indicative that the CMP has considered the national objective in attaining greater energy self-sufficiency.

3. The DCMP states too simplistically that direct waterfront access is not a requirement for a refinery. A case-by-case examination that would of necessity review, inter alia, competitive aspects, crude availability, total environmental impact and energy efficiency is necessary.

   Response: Please note the CEQ statement concerning refinery requirements for waterfront access found in §5.D.3. As the Coastal Strip is narrow in the northern half of the State and as refineries are most likely to need to site in the State's northern portion, the Coastal Zone Act prohibitions should not place an undue burden on refinery siting.

4. Section 5.D.8 improperly determines that the activities of industry are incompatible with recreation, fishing and other water uses.

   Response: The Delaware CMP has argued convincingly that major industrial sitings adjacent to public recreational lands have a negative impact on recreational activities.

5. In an attempt to deal with the federal statutory requirement that uses of regional benefit are not unreasonably restricted by local jurisdictions, the DCMP incorporates a device found in the Land Use Planning Act (LUPA). We are fearful that the rigid application of the device outlined in LUPA and the DCMP has the potential for allowing local jurisdictions to act in contravention of the state and national interests, since there is no provision for ultimate arbitration.

   Response: Please refer to response #2.

6. The EFSLC should be given the authority to resolve conflicts that develop over the various competing uses of state coastal resources. The EFSLC should also serve an arbitration and mediation function and take the lead role as the umbrella group for monitoring interagency coordination and policy development for the state.

   Response: The EFSLC does not have the authority to resolve conflicts among competing uses. It is at present primarily an

advisory body. In the future, its role will be re-evaluated as experience is gained, and its required annual report to the General Assembly will include any needed changes concerning conflict resolution and arbitration and mediation.

7. Section 5.A.4.--(p.7) Policy 9-- The phrase "if such pipelines. . . generate pressure for construction of industrial plants in the coastal strip . . .should be qualified to identify the State entity that will make a determination of what would constitute "pressure for construction."

   Response: The State Planner makes this determination. The State Planner's decision can be appealed to the Coastal Zone Industrial Control Board. §§7002(c), 7004(b)(1).

8. Section 5.A.4--(p.8) Policy 12--This policy, which conditions the development of the State's underwater lands to the prior approval of the Department of Defense is confusing since that agency is not the lead agency in the regulation of offshore development of either State owned lands or Federal lands. It appears that permission to develop the state's underwater lands should not be given unless the U.S. Department of Defense determines a national security need.

   Response: Please note that this policy conforms to §6139 of the Underwater Lands Act and reflects the special conditions associated with military operations in Delaware waters. Approval of the Department of Defense is necesarry to avoid interference by mineral development activities with national security or public safety considerations. Also please note that the discussion under Policy 12 has been amended.

9. The comment paragraph following Policy 7 (§5.D.3., p. 39) provides for a pipeline from the OCS or a deepwater port to an existing refinery as long as the pipeline is not a common carrier line and serves only that facility. This seem to create an impossible situation because oil and gas lines from the OCS are required to be common carrier pipelines in accordance with the OCS Lands Act, as amended, §5(f)(1)(A).

   Response: Please refer to the clarification concerning subject pipelines in the discussion following Policy 7 in §5.D.3. The Delaware Coastal Zone Act prohibits offshore bulk products transfer facilities (which include pipelines) in the coastal strip unless they are located in the Port of Wilmington or serve a single industrial or manufacturing facility.

10. Policy 7 (§5.D.3., p.39) should be reworded to indicate that pipelines are permitted if state-designated wetlands are avoided to the maximum extent practicable. The rationale for this is the industry experience that pipelines can frequently be located in wetlands with minor or no adverse environmental impact.

    Response: Please note change in Policy 7 to reflect your comment.

11. An improbable suggestion has been made to have the inland town of Georgetown in Sussex County designated as an onshore support base.

    Response: This suggestion has been deleted.

12. It is suggested that offshore-discovered crude be transported in tank cars from Sussex County to the refinery. This is unrealistic.

    Response: The tank car suggestion has also been deleted.

13. The DCMP relies upon outdated pollutant inventory data and happenings that preceded the establishment of stringent environmental controls, e.g. air pollution damage in 1968 and 1973, contaminant levels in 1975, an LNG wartime spill in 1944. Since this information does not reflect the current situation, it is an unsound basis for the justification of program policies.

    Response: The CMP recognizes that there may be a need for updated data. It has used the best data available to it to date. The Delaware Oil Men's Association has indicated that they will provide new data for CMP use. However, such data was not available prior to publication of the FEIS.

14. The DCMP is incomplete because it does not reflect the good record of lightering operations which have been safely conducted in the Big Stone Beach area.

    Response: We believe that the discussion in §5.D.3. does reflect this record.

Delaware River Basin Commission
(Thursby) (5/16/79)

1. The protection of Delaware's valuable wetland areas and fragile coastal resources through the review procedures established by the proposed plan should include pre-decision discussions between the developer and the agency to avoid dispute later on.

   Response: Pre-decision discussions are always standard practice in all permit decisions involving valuable wetland areas and fragile coastal resources.

2. Our recent review of the subject document indicates that the anticipated growth and development in the State of Delaware and the inevitable impact on the State's resources will require the proposed management program. Both second home and large industrial development will place an added burden upon the water resources of Delaware, and we agree that the State's small size and proximity to coastal waters supports the decision that the entire State be included within the coastal boundary.

   Response: No response required.

Exxon Company, USA
(Dudley) (5/21/79)

1. In response to the concern described in §5.D.3.(d), operations in Delaware Bay (or other offshore areas) should use the tested well control and the cutting disposal systems now in general use by industry. Specific mud disposal sites should, therefore, not be required (replacement language suggested).

   Response: Please note the changed language in this section.

2. The statement contained in the first paragraph on p. 10 in §5.A.4 is untrue and should be deleted. Private (petroleum) industry's normal care does adequately protect the environment.

   Response: See changes in the text.

3. In the discussion of coal reserves on p. 3 of §5.D.3., it should be stated that "full utilization of America's coal resources has been hampered by governmental constraints rather than lack of supply or demand".

   Response: See language change to reflect your comments.

4. In Appendix E, §3,e, the first sentence in paragraph 4 on p. 21 is incorrect. It should read "Permit application must include an environmental impact report or assessment. As EIS (Environmental Impact Statement) may thereafter be required, should the action have appropriate significant impact potential."

   Response: Under the Coastal Zone Act, reference is made to a State environmental impact statement, not an environmental impact report or assessment. 7 Delaware Code §7002(c).

5. The Program document should be revised to state that following receipt of State agency objection, Federal agencies may not issue any licenses or permits for activities described in detail in the OCS plan "pending decision on the appeal."

   Response: Section 930.65 of NOAA's Federal Consistency Regulations provide that following State agency objection, the Federal agency may not issue the Federal license or permit except as provided in Subpart H. That Subpart permits the Secretary of Commerce to determine that the activity is consistent with the purposes and objectives of the CZMA, although inconsistent with the approved program, or that the activity is necessary in the interest of national security.

Natural Resources Defense Council
(Mullin) (5/11/79)

1. The program fails to define how the policy to preserve and protect wetlands will be implemented with respect to small scale activities which individually cause little damage, but cumulatively cause degradation of the resource.

   Response: Please refer to the new Policy #8 in §5.A.1, which now requires DNREC to consider cumulative impacts in its wetlands permitting decisions. Better wetlands mapping, a work task planned for the first year of program implementation, should give DNREC better capacity to assess the damage caused by small scale activities.

2. It is unclear what authority the State will use to control activities in areas adjacent to wetlands. We request an Attorney General's opinion regarding the geographic applicability of the Wetlands Act to determine whether adjacent uses could be regulated. Similarly, the State must demonstrate what other statutes provide an adequate enforcement mechanism to implement Policy 2, p. 10, §5.A.1.

Response: Activities in areas adjacent to wetlands will be regulated under other authorities including the Erosion and Sediment Control Act, the Delaware Environmental Protection Act, and the Land Use Planning Act. Please refer to the changes to the discussion associated with Policy #2, §5.A.1.

3. In §5.A.1, p. 10, Policy 3 is inconsistent with Policies 2 and 4 with regard to what wetlands are to be managed. It also excludes the 10,000 acres of wetlands discussed on p. 5.A.1-11 of the program, which are subject to Policy 4.

   Response: Please note the change in wording in Policy #4 in §5.A.1. The new wetlands maps to be produced as a task of the first year of program implementation should include most of the tidal saline and tidal fresh wetlands of less than five acres in size which are currently not mapped. Tidal saline and tidal fresh wetlands and inland freshwater wetlands greater than 400 acres are regulated by the Wetlands Act. Many of the freshwater wetland areas of less than 400 acres are in State or county ownership or are owned by conservation organizations. Examples include the Brandywine River System and Red Clay and White Clay Creeks in Newark. The State also owns many impoundment areas. In general, the freshwater wetlands which are not regulated by the Wetlands Act and not preserved are small wooded swamps. During the first year of program implementation, the CMP will examine issues relating to the needs for management of freshwater wetlands and will consider designation of some as critical areas under the Natural Area Preservation Act.

4. In §5.A.1, p. 11, Policy 4 should begin: "Wetlands not subject to the Wetlands Act ... " The listed areas are subject to the coastal program although they are not covered by the Wetlands Act.

   Response: Please note changes to Policy #4.

5. In §5.A.1, p. 12, Policy 6 fails to set forth enforceable standards for permitting. It also fails to consider aesthetic effect.

   Response: Once the Marvel Case has been decided, the CMP will assess whether new wetland regulations should be promulgated. In that case (Randy E. Marvel and Harvey G. Marvel vs. the Department of Natural Resources and Environmental Control and the Commissioners of the Town of Slaughter Beach. Delaware Supreme Court 337,1978), the Marvels sought to fill 13 acres of wetlands which they owned in order to develop the land for residential purposes. DNREC determined that this permit application violated Regulation 2.01D which prohibits deposit of spoil on wetlands unless pursuant to a DNREC approved plan for the restoration or creation of wetlands. Although the Wetlands Board exceeded its authority by determining the case on the merits, the Delaware Superior Court held that it correctly determined that the Regulation in question exceeded the authority of the Wetlands Act. Since the Act does not impose a total ban on wetland activities, statutory criteria must be applied in passing on a permit application. Since the Regulation precludes permit applications which are allowed under §§ 6606 and 6608 of the Act, the Regulation is contrary to legislative intent. The decision was remanded to the Secretary of DNREC to determine the merits of the application, based upon statutory criteria. This decision has been appealed to the Supreme Court of Delaware. See changes in Policy 6.

6. In §5.A.1, p. 12, Policy 7 should use the term "coastal-dependent" rather than "water-dependent". Also, there is no support in the Wetlands Act for allowing an activity which would damage wetlands simply because there is "no reasonable alternative on adjoining non-wetland property of the owner".

   Response: Under §2.01 E of the Wetlands Regulations, no permit may be granted for an activity in wetlands unless it requires water access or water for its central purpose. The Wetlands Act does not permit an activity to occur in wetlands merely because there is no reasonable alternative on adjoining non-wetland property of the owner; this criteria is merely established as a threshold against which to measure the activity. Both criteria must be considered. Please note changes to Policies #6 and 7, in §5.A.1.

7. We recommend that the additional policy related to filling of wetlands which was found in the Discussion Draft be incorporated into the FEIS.

   Response: The policy regarding filling of wetlands was deleted because of the pending Marvel court case in which this issue is being litigated. Please note response to #5 above.

8. There is confusion as to the definition of "beach" in the coastal program. Does the Beach Preservation Act include all primary and secondary dunes?

   Response: The Beach Preservation Act defines beach as the portion of a shore of any body of water which extends from the mean high water inland 1000 feet or

within the 1000 feet to a roadway for automobiles. The only secondary dunes in Delaware are included within the Cape Henlopen State Park. The beach system has only a single line of dunes in the other areas.

9. It would be desirable to use the Beach Preservation Fund to purchase lots which do not permit construction entirely landward of the building line.

   Response: The Beach Preservation Fund was established to provide funding for projects which deal with erosion, such as beach nourishment. It is not likely that this could be used for acquisition. The purchase of isolated beach lots would be too expensive and might lead to severe land speculation with associated price rises.

10. The beach regulations fail to set forth specific standards as criteria for development located landward of the building line.

    Response: The Beach Preservation Act was intended to deal with erosion problems. It has not been demonstrated that building landward of the building line causes erosion. DNREC staff will review regulations in other states relating to beaches and dunes, including regulations which are in the North Carolina and Rhode Island Coastal Programs, to determine whether Beach regulations should be modified to encompass more activities.

11. The prohibition of vehicular access across the primary dune should be expanded to include non-State land. Further, private off-road vehicles should be prohibited altogether on publicly-owned beaches.

    Response: State control over privately owned dunes is limited to the regulation of construction activities under the Beach Preservation Act. The State does not have authority to exclude vehicular access across privately owned dunes. On public beaches, access through dunes is restricted to designated accessways. Access to beach areas which serve as nesting areas for least terns have been prohibited to both vehicles and to all the public.

12. The coastal program should include specific performance standards to govern the use of erosion control measures so that those measures which are shown time and again to accelerate erosion of adjacent shorelines are strictly limited.

    Response: As the situation differs so dramatically in different parts of the coastal zone, no one solution with appropriate performance standards is possible. In some areas, beaches heavily used for recreation are eroding rapidly and need to be nourished. In others, beaches are being naturally nourished. In some areas, where there are already structures, those structures need to be maintained and in some cases expanded slightly. When feasible, the CMP supports non-structural methods of erosion control.

13. The excellent priority list for expenditure of beach preservation funds which is found on p. 15, §5.A.2, must be established within the program itself.

    Response: This priority list is now established as part of the program.

14. OMBP should propose stronger policies to govern State actions in the floodplains. The State should attempt to direct development outside the hundred-year floodplain through its public investment actions. Reliance on the National Flood Insurance Program is inadequate to properly manage the State's floodplains.

    Response: Please note the language change in Policy #6 in §5.B.3., to reflect your concern that floodplain policies should be strengthened.

15. In §5.B.3., Policy 4 on page 8, the program should contain a timetable for review of the effectiveness of local floodplain management programs.

    Response: Local floodplain management programs are reviewed on an annual basis. Please note change to Policy #4 in §5.B.3.

16. To regulate the siting of industrial facilities, regulations must be promulgated for implementation of the Coastal Zone Act, or enforceable policies must be established in the program itself. These regulations or policies should take into account the coastal dependency of industrial facilities and attempt to direct them away from the coastal strip.

    Response: During the first year of program implementation, the CMP staff will assess the need for regulations. If it is determined that additional standards and criteria beyond those contained in the Coastal Zone Act are needed, OCZM will ensure that the Director of OMBP exercises the mandate contained in §7005(c) of

the Coastal Zone Act to develop a comprehensive plan and guidelines concerning acceptable types of manufacturing uses, and to promulgate regulations to further define the term "heavy industry." In 1973, OMBP submitted a plan and guidelines for regulating industrial facilities, held public hearings, and submitted the plan and guidelines to the Industrial Control Board in compliance with §7005c. However, the Board did not adopt the submission, but favored instead a review on a case-by-case basis. The State and OCZM believe that, while the letter of the law in §7005(c) has been complied with, the spirit of the law requires the State to consider a new round of submission during the first year of program implementation.

17. There are no policies which address residential and commercial development on barrier islands, high-rise development, or marinas in non-wetlands areas.

    Response: Residential and commercial development, including high-rise development which is sited near the shorefront but landward of the dunes, will be controlled by a variety of authorities and public investment policies. Relevant laws include the Wetlands Act, the Environmental Protection Act, the Erosion and Sediment Act and the Land Use Planning Act. State agencies are also required to comply with the CMP's development policies and with its public investment policies which are found in §5.D.2. These policies serve to direct development in already developed areas with adequate existing services. If such development meets the test of the laws mentioned above and the development and public investment policies do apply (e.g., when a package plant is used for wastewater treatment), the CMP would not directly control this development. As an example, OMBP has recently initiated an action under the Land Use Planning Act in the Sea Colony North development proposal. In this case the State argues that services are not adequate to meet demands likely to be placed on the area by the new proposed development.

    Due to the geography of the Delaware coastline, few sites exist which are suitable for marina development and are not adjacent to wetland areas. Marina development in wetland areas are addressed in Policy 4, §5.C.3.

18. In Policy 10 (p. 7, §5.A.4), it is unclear if this policy refers only to environmental safeguards during exploration. Is a similar assurance required for production?

    Response: Policy #11 in this section requires similar environmental safeguards during the production phase. Reference 7 Delaware Code 6151A.

19. In Policy 13 (p. 8, §5.A.4), the discussion of easements for mineral extraction underlying State-owned shorelands includes a prohibition against "permanent interference with the surface of the Atlantic shore". What does this mean? Is a drilling "permanent"?

    Response: There is no statutory definition of "permanent interference". To date, no actions have taken place to clarify this nor have regulations as yet been promulgated.

20. In the leasing of underwater lands, the program must set forth a mechanism and demonstrate that the State has the authority to protect sensitive environmental areas such as important fishery habitat, rather than relying on "encouragement" policies.

    Response: Sections 6104, 6108 and 6119 of the Underwater Lands Act give the State authority for protecting sensitive environmental areas. See additional discussion following Policy 14 in §5.A.4.

21. In §5.D.3., p. 8, does "incorporation by reference" of the State Energy Conservation Plan mean that this plan is binding on State agencies pursuant to Executive Order No. 61?

    Response: Incorporation by Reference of the State Energy Conservation Plan binds State agencies to it under Executive Order 61. Also relevant are Executive Orders 15 and 9, which require energy conservation on the part of State agencies and encourage all Delaware citizens to conserve energy.

22. NRDC is appalled that the prohibition against siting new refineries in the coastal strip is not applied to expansion of existing refineries. We also feel that the implication that the prohibition is temporary is unwarranted since it is established in the Coastal Zone Act.

    Response: The Coastal Zone Act prohibits heavy industrial uses not in operation on June 28, 1971, from locating in the coastal zone. The expansion of facilities built prior to that date is permitted under the Act. 7 Delaware Code §7003. The CMP does not imply that the prohibition of refineries is temporary.

23. It is unclear what governs the inland siting of refineries. The "State and local environmental, land use, and site development standards" must be specifically set forth.

Response: The document "Delaware and Outer Continental Shelf Development Roles and Systems at Various Levels of Government," June 1976, contains an exhaustive summary of authorities related to inland siting of refineries and other facilities. Such facilities will be subject to local zoning and site plan approval, air and water quality laws, the Erosion and Sediment Control Act and the Land Use Planning Act. The location of these facilities will also be affected by the CMP's public investment policies which are binding on State agencies.

24. Deepwater ports should be prohibited in all of Delaware's coastal waters, not just the Delaware River and Bay. A deepwater port 20 or 30 miles offshore still poses threats to the coast from major oil spills.

Response: Deepwater ports are prohibited in all of Delaware's coastal waters including its Atlantic waters which extend three (3) miles from the coastline. A deepwater port could be permitted 20 or 30 miles offshore if it met environmental standards, if the associated pipeline did not terminate in the Coastal Strip, and if it were developed in accordance with the Federal Deep Water Port Act. Evidence shows that such a facility would cause less environmental damage than existing lightering operations.

25. Platform fabrication yards and pipeline yards must be considered prohibited industrial uses. That the coastal program does not consider these uses as such underscores the need for a proper definition of "heavy industry" required by §7005(a) of the Coastal Zone Act.

Response: Although platform fabrication yards and pipeline yards characteristically involve an area of greater than 20 acres, these uses do not generally fit the other characteristics contained in the Coastal Zone Act and can typically be considered outside the definition of "heavy industry". The need for further definition of "heavy industry" will be considered during the first year of program implementation as a part of the assessment by CMP staff of the need for CZA regulations.

26. In §5.D.3., p. 39, Policy 6, to which "strict environmental safeguards" for petroleum exploration and development does this policy refer?

Response: Environmental safeguards for petroleum exploration and development are contained in oil and gas regulations promulgated pursuant to the Underwater Lands Act, 7 Delaware Code §§6101 et.seq. Please refer to expanded discussion following Policy 6 and the document cited in the response to comment #23.

27. The State and local standards relied upon in the policies in §5.D.3. should be specifically identified.

Response: Please refer to comment #23.

28. In managing "public lands", unrestrained administration flexibility is given to the implementation of Policy 5. There must be more specific controls over these uses which have the potential for serious impacts on coastal resources. It is also unclear to what extent the priority of uses not drawn directly from the State park master plan are enforceable.

Response: The policy specifically states that these lands, which are located in State parks, shall be managed for recreation, conservation, and preservation. Lowest priority is given to other uses. OCZM feels that these management guidelines are of sufficient strength to implement the intent of this section.

29. How will port expansion along the Delaware River affect the geographic delineation of the port of Wilmington for purpose of regulation by the Coastal Zone Act?

Response: Port expansion along the Delaware River will not affect the geographic delineation of the Port of Wilmington. The Port is defined as that area of Wilmington which is within the Coastal Strip, i.e., that area to the east of Route 495. Only bulk product transfer facilities are exempted in the Port area. Heavy industrial uses are prohibited.

30. The woodlands Policy on p. 4 of §5.C.1, should read "State actions shall avoid unnecessary damage or destruction of woodlands".

Response: Please note the change to this policy.

31. The coastal program should contain an enforceable policy ensuring that the State's own actions, particularly its public investments, do not contribute to further loss of productive agricultural land.

Response: Please note change to Policy 1, §5.C.1.

32. There are no specific performance standards for mineral extraction and processing. It is also unclear how the coastal program encourages re-use of mineral extraction sites and alternatives to landfills.

Response: Please refer to changes in §5.C.4., to reflect your concerns.

33. The policy concerning State-owned coastal recreation and conservation lands should be modified to explicitly cover protection of conservation lands.

Response: Reference changes in the policy in §5.C.5.

34. In the section on public investments, the program fails to insure that the problem of improperly managed septic systems and package plants will be addressed.

Response: These questions are being addressed. Please reference the discussion following Policy 5 in §5.D.4.

35. Are the "suggestions" for sewer facility planning set forth in §5.D.4., Policy 5, binding on State agencies pursuant to Executive Order 61?

Response: Note discussion following Policy 5 in §5.D.4. The CMP has incorporated these suggestions as criteria which are now binding on State agencies.

Save Our Seashore of Delaware
(Kane) (4/28/79)

1. The primary goal of SAVE OUR SEASHORES OF DELAWARE over the last five years has been the preservation for public use of 1 1/2 miles of undeveloped privately owned barrier beach running south from Cotton Patch Hills to the notherly borders of Bethany Beach. With respect to "protection" of this private No. Bethany Beach, totaling some 150 acres and 8000 feet of beach front, Policy 1 (§5.A.2., P. 10) amounts to saying you can build anything you want, viz. (1) condominiums at the rate of 18 units to the acre, or (2) medium density housing units at the rate of 4 units per acre, so long as you adhere to the County zoning and build west of the landward toe of the dune. The Sussex County Council has demonstrated by its actions over a period of the last 8 years and as late as December 1978 that it intends to grant high rise zoning for this tract. Stripped of all the verbiage in the CMP, it is clear to SOS that this conerstone beach management policy is a sham and a delusion and will not save this key No, Bethany tract from private development. As a result of our inquiries. we are told in essence, that access to private beaches is not a subject for coverage in the DCP.

Response: Please refer to NRDC response #17. Public investment policies and State permits other than the Beach Act permit and Land Use Planning Act actions must be relied upon to manage beachfront landward of the building line. The Beach Act controls beach erosion and is applicable to development landward of the building line only when it can be shown that this development will have an effect on beach erosion.

2. DNREC has recently approved the Ocean View Wastewater Facility Planning Grant Application. The planning is intended to lay the basis for sewering or otherwise promoting the development of 12,000 acres of coastal zone, half of which is wetlands or prime barrier island beach and the rest of which is prime agricultural land. We regard this project as a litmus test of planning intentions in the coastal zone.

Response: A Step 1 Facilities Plan is an assessment of a whole array of alternatives, including the areas that should be sewered and how much capcity will be needed. OMBP has recently reviewed this grant application for consistency with the CMP and has suggested several changes, including that the plan be confined to the communities of Ocean View and Millsville and to the White's Creek area, that a meeting of all concerned parties be held prior to grant award, and that the application be revised to reflect OMBP's suggestions or that these suggestions be reflected as conditions to the grant award. This review was

part of the State clearinghouse review process (A-95). After program approval, DNREC will be required to ensure that its projects are in compliance with CMP policies prior to circulating the grant application.

William S. Green
(4/28/79)

1. The document should have an appendix which contains the text of the statutory authorities.

   Response: This text is available upon request at OMBP. Those who have already requested copies have received them with the FEIS.

2. One basic weakness of the Delaware Program is its inability to control local land use planning actions (§9220 of the Land Use Planning Act). This problem is evident in the Sussex County plan to allow high rise development in the coastal area.

   Response: Besides the Land Use Planning Act, other authorities can be used to control development in the coastal area. These include the Wetlands Act, the Erosion and Sediment Act, and the Environmental Protection Act. The use of these authorities and the Program's public investment policies to control development are elaborated upon in the reporse to NRDC's comment #17.

3. The document also incorporates the findings of the Delaware Tommorrow Commission, which it says, were incorporated into the state Development Plan in February 1976 by Executive Order. That report (p. 19) recommends that sewers not be contructed, and that no capital be expended for large areas containing huge tracts of vacant land.

   With their stated goal being part of the program, we are surprised at the action of the DNREC on forwarding to one A-95 clearing house for EPA action, the request by Sussex County to construct a sewer system in the so called Ocean View area. This sewer system will serve the area which is now vacant and which the Sussex County Council wants to see developed into a Coastal Ocean City.

   Response: Please refer to response #2 of the comments by Save Our Seashores. OMBP has submitted comments which reflect your concern, and after program approval, DNREC will be required to insure that its projects are in compliance with CMP policies.

4. The distinction between enforceable and non-enforceable policies should be made more clear.

   Response: The CMP has been clarified to indicate that all policies are enforceable at the state level.

Gayle Truitt
(5/16/79)

1. Portions of the "Coastal Strip" in Sussex County are basically retirement communities. The needs of these areas should be recognized in the evaluation of land use.

   Response: The State does recognize the particular needs of these communities. Please see the discussion in §5.D.2.

2. There is a need for State level restrictions on development of high rise condominiums and other housing in the coastal area.

   Response: Please see the discussion concerning comment #17 of the Natural Resources Defense Council. The CMP will use its environmental laws, including the Wetlands Act, the Erosion and Sediment Act, the Environmental Protection Act and the Land Use Planning Act, along with its public investment authority to manage housing development in the coastal area.

United Mobile Sportfisherman, Inc.
(Miller) (4/18/79)

1. We request that our use of the coastal zone be considered and provided for, both for existing areas of use as well as for areas where the potential for future use exists.

   Response: Please note the change in the wording of Policy #8 in §5.A.2. of the FEIS to reflect your comments. Access is currently provided and will be provided in the future to State parks for certified mobile surf fishermen. Also note response to NRDC comment #11.

Watch Our Waterways
(Pierce) (4/28/79)

1. A plan should be developed and incorporated into Delaware's Coastal Management Plan for the evacuation of coastal areas in the case of energy related accidents or severe flooding. A method should also be devised to evacuate or save fish and wildlife from any accident that would threaten the extinction of the animal life or their habitat.

   Response: Your point is well-taken, although evacuation of coastal areas is a more acute problem in the southeastern states than it is in Delaware. There is a State emergency preparedness program that addresses this issue along with county civil defense agencies which are responsible for storm warning and evacuation procedures. As the major storm season in Delaware is in the early fall and winter when populations are low in low-lying coastal areas, evacuation from coastal areas should be a problem only during a small portion of the year. For an in-depth discussion of related issues, see the Proceedings of the Governor's Workshop on Management of Erosion and Floodplain Areas (March 6, 1978).

2. To protect Delaware's most significant coastal resource, the wet lands, Watch Our Waterways feels that a restoration plan for lost or despoiled wetlands be formulated.

   Response: As a 306 work task, the CMP will be producing new wetlands mapping which should pick up most of those areas under five acres which are not presently mapped. As a part of this work task, methods of wetlands restoration will be considered. Please see revised Policy #7 in §5.A.1. to reflect your comments. Also see Policy 4 in 5.C.3. and the discussion following Policy #3 in 5.B.4.

3. We are concerned that lack of adequate funding weakens the utilization of the State's authority to implement the Coastal Zone Act's program and endangers the efficacy of the CZA to protect the State's coastal resources.

   Response: The 306 work program will include a funding request which should substantially improve implementation of the Coastal Zone Act.

4. The Secretary of Delaware's Natural Resources and Environmental Control Department should be required to develop and implement a systematic survey and an inventory of environmental data, constantly updated, that would prevent loss of significant areas of coastal lands, water and life due to an unawareness of existence and value.

   Response: The series of technical reports and working papers produced during the program's development phase serve as a strong technical base for implementation. This data base will be updated during program implementation. The CMP also supports the concept of a Coastal Zone Information Center to promote public coastal awareness, see §5E.

5. We suggest that the wording on p. 1 of Part 3 should be changed to: "The purpose of the program, therefore, is to provide a systematic approach to decisions regarding the use of Delaware's resources which will conserve and protect our irreplaceable resources while wisely controlling growth and development.

   Response: Although this is a sound statement and is descriptive of the program's intent, we believe that the existing discussion in Part III adequately takes note of your comment.

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