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COASTAL ZONE BIBLIOGRAPHY
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March 1973

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INTRODUCTION

This bibliography is part of a series of documents prepared for the Delaware Coastal Zone Management Study. Its purpose is to: develop a data bank readily available to the State Planning Office and others concerned with Coastal Zone Planning and Management. The collection, organization and evaluation of information on the Natural and Man-made Resources of the Coastal Zone is essential to the development of a comprehensive management plan for the Coastal Zone and for administrative decisions under the Coastal Zone Act.

This bibliography is not intended to be a complete survey and listing of every book, publication, map or other material which has some relevance to the Coastal Zone. It is a selected listing of materials which would be of value to planners and others concerned with the broader levels of Coastal Zone Management. The bibliography includes descriptive statements for those materials of special interest as resource documents.

The bibliography is organized on a major category or subject basis. These categories represent major resource groupings and the materials were assigned to each category based on their major subject content: Each listing includes one or more reference indicating where the material may be obtained. The following source abbreviations may be used throughout the bibliography:

DSPO - Delaware State Planning Office, Dover, Delaware

DNREC - Delaware Department of Natural Resources and Environmental Control, Dover, Delaware

DRBC - Delaware River Basin Commission, Trenton, New Jersey

SCS - Soil Conservation Service, U.S. Department of Agriculture, Dover, Delaware

USACE - U.S. Army, Corps of Engineers, Region, Custom House, Philadelphia, Pa.

WILMAPCO - Wilmington Metropolitan Area Planning Coordinating Council, New Castle, Delaware.

It is hoped that this bibliograpahy will add to the growing number of such listings of coastal zone resources, and that it may serve to bridge the gap between the very specialized bibliographies and those who interests and responsibilities require a broader base of knowledge and concern.

SECTION I

COASTAL ZONE REFERENCE DOCUMENTS

COASTAL ZONE PLANNING AND MANAGEMENT

1. Bennett, O. W., (1970). Questions for the Endangered Coastal Zone. American Littoral Society.

   Pamphlet

   REF: DNREC

2. Bradley, Earl and John Armstrong, (1972). A description and Analysis of Coastal Zone and Shoreland Management Programs in the United States. Technical Report 20. The University of Michigan Sea Grant Program.

   History of Coastal Zone and shoreline management programs at state level. Description of program type: wetlands preservation, beach access, power plant siting, shorelands zoning, Coastal Zone planning programs, site location regulation programs, etc. Issues and areas for future research. Ten state's approaches to Coastal Zone Management that includes Delaware, Maryland and Virginia.

   REF: DSPO
   College of Marine Studies, University of Delaware

3. California Advisory Commission on Marine and Coastal Resources, (1970). Reports on Annual meeting.

   a. Principles to be incorporated in Coastal Zone Management Plan.
   b. Legislation, Federal Concern for Coastal Zone Management.
   c. The Development of the Comprehensive Ocean Area Plan.
   d. Multiple Uses of Channels.

   REF: DNREC

4. California Advisory Commission on Marine and Coastal Resources,(August 1971). Recommendations Regarding the 1971 California Coastal Zone Management Legislation.

   REF: DNREC

5. California Advisory Commission on Marine and Coastal Resources, (1971). The Monterey Bay Pilot Planning Project: An Experiment in Decision-Making in Coastal Zone Planning.

   REF: DNREC

6. Center for the Environment and Man, (1972). Guidelines for Marine Resources Planning and Policy on Long Island. Prepared for the Marine Resources Council Nassau-Suffolk Regional Planning Board.

   Water supply and waste water disposal guidelines, dredging guidelines; coast stablization and protection guidelines; wetlands guidelines.

   REF: College of Marine Studies, University of Delaware

7. Coastal Zone Workshop, (1972). Co-sponsored by the Institute of Ecology and Woods Hole Oceanographic Institution. Ed., Bostiwick Ketchum. MIT.

   Primary text on the problems and prospects of effective planning, management, and legislation regarding man's activities in the Coastal Zone. Consideration of the ecological effects of waste disposal and of engineering developments, socio-economic and legal aspects of Coastal Zone Management, and recommendations for action.

   REF: DSPO
   College of Marine Studies, University of Delaware

8. Commission on Marine Science, Engineering and Resources, (1969). Science and Environment: Panel Reports Volume I. Selected Reports.

   Report of the Panel on Environmental Monitoring.
   Report of the Panel on Management and Development of the Coastal Zone.

   REF: Government Printing Office, Washington, D. C.

9. Commission on Marine Science, Engineering and Resources, (1969). Marine Resources and Legal-Political Arrangements for Their Development: Panel Reports Volume 3.

   Report of the Panel on Marine Resources.
   Report of the International Panel.

   REF: Government Printing Office, Washington, D. C.

10. Department of the Army Corps of Engineers, (1971). Report on the National Shoreline Study.

    One of eleven reports, primarily addressed to local and state authorities, that provide management guidelines and broad conceptual plans for shore areas of the United States. Study finds that management to minimize adverse effects of erosion appears appropriate for 17,800 miles of shores undergoing significant erosion. Present shore protection law and procedure. Eleven tables: List of priorities for action to halt erosion.

    REF: DSPO

11. Federal Interagency Commission on Multiple Use of Coastal Zones, (November 1968). Proceedings from Seminar on Multiple Uses of Coastal Zones.

Current means of control and regulation of the Coastal Zone with particular reference to state and local powers. Management recommendations. Present and future demands.

REF: DNREC

12. Florida Coastal Coordinating Council, (1971). Coastal Zone Management in Florida.

Status report to the Governor and legislature of Florida. Various approaches to Coastal Zone planning. Suggested state zoning system for land and water areas. Zoning maps.

REF: College of Marine Studies, University of Delaware

13. Foster, Charles, (1964). Report of the Department of Natural Resources Relative to the Coastal Wetlands in the Commonwealth. Senate Report Number 855, Massachusetts.

Coastal wetlands issues in Massachusetts.

REF: DNREC

14. Forste, Robert, (1970). Proceedings: The New England Coastal Zone Management Conference. Sponsored by the New England Council, Inc.

Papers, speeches, reports prepared and presented during conference. Selected articles include: (a) The Federal Role in Coastal Zone Planning by John Drauss; (b) Alternatives in the Public Control of Private Land Use by Mary Hancock; (c) Coastal Zone Planning in Connecticut and Massachusetts by Horace Brown; (d) Regional Planning and the Chesapeake Bay Environment by J. Mihurskey and Cities in the Coastal Zone: Conflicts and Opportunities.

REF: College Marine Studies, University of Delaware

15. Governor's Task Force on Marine and Coastal Affairs, (1971). Coastal Zone Management.

A preliminary report of Governor Peterson's Task Force containing some recommendations toward the forming of policy guidelines and certain key recommendations for the management and conduct of marine and coastal affairs for the State of Delaware.

REF: College of Marine Studies, University of Delaware, Newark, Delaware

16. Harold Wise and Associates, (1971). Intergovernmental Relations and the National Interest in the Coastal Zone of the United States. Prepared for Interagency committee on Multiple Use of the Coastal Zone.

Describes the role of the states and the federal government in the present Coastal Zone Management systems. Lack of policy coordination identified as major problem. Case studies. Six tables.

REF: College of Marine Studies, University of Delaware

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REF: College of Marine Studies, University of Delaware

18. Klemas, Vytautas, (1972). Remote Sensing of Coastal Environment, Paper Presented to 18th Annual Meeting of the Institute of Environmental Sciences.

REF: College of Marine Studies, University of Delaware

19. Marine Advisory Extension Service, (1971). Proposed Coastal Zone Management. Ambolt State college.

Twelve papers on general issues dealing with Coastal Zone concept. Jurisdiction, responsibility and role of local government.

REF: College of Marine Studies, University of Delaware

20. Mississippi Marine Resources Council, (January 1972). Coastal Zone Management Program.

Management, organization and procedures. Program outline. Conceptual framework of the Master Plan for development of a Coastal Zone Management program. Budgetary estimates.

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Cost-benefit analysis. Region-wide development strategies.

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22. New England River Basin Commission, (1971). Regional and National Demands on the Maine Coastal Zone.

Estimates of regional and national demands on the water and related land resources of the Coastal Zone.

REF: DNREC

23. New England River Basin Commission, (1971). Federal Interest and Capability for Assisting in the Management of Maine Coastal Resources.

Listing of federal authorities and activities affecting the Maine Coastal Zone.

REF: DNREC

24. Proceedings of the Conference on Evaluation of Atlantic Coast Estuary Zone, (1968). Compiled by George Skinner and John Bivens.

Aesthetics, interchange of ideas among various disciplines. Zoning effects and possible protection actions.

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25. Rhode Island Department of Natural Resources, University of Rhode Island and Rhode Island Statewide Comprehensive Transportation and Land Use Planning Program, (March 1970). Report of the Governor's Technical Committee on the Coastal Zone.

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26. Thompson, Steven M. and Dean Phillips, (October 1972). Existing Land Use Plans and Policies Relating to Delaware Coastal Wetlands: Intergovernmental Context. Delaware State Planning Office.

Land Use Plans and policies inventory. General listing of uses permitted in Coastal Zone by zoning laws.

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Preliminary design of a comprehensive planning and management system for dealing with the complexity of interrelated marine resource problems of the Long Island Coastal Zone region. Identification and description of problems. Possibilities for managing resources and interrelated uses of Coastal Zone. Problems include: wetland destruction, domestic and industrial waste disposal, wastewater from duck farms, oil spill pollution, shoreline recreation, etc.

REF: College of Marine Studies, University of Delaware
Travelers Research Corporation
250 Constitution Plaza, Hartford, Connecticut

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Survey. Recommendations for action from the federal perspective.

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Management and recommendations.

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   Over cases. Generally covers those land-use controls as eminent domain, urban renewal, zoning, subdivision regulations, and so forth. Other chapters acquaint reader with uses of official map, master plan, grant-in-aid, nuisance law.

   REF: DSPO

2. Child, Richard et al., (November 1968). "Legislation To Preserve and Control Open Space Land." Harvard Journal or Legislation. Volume 6.

   Selected model legislation.

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3. Cornell Law Review, (April 1971). "Eminent Domain and the Environment." Legal Notes. Volume 56.

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   Discusses use of police power as an open space device relative to flood plain, conservation, agricultural, forest and wetland control. Also analyzes the role of eminent domain and taxation as land use devices.

   REF: WILMAPCO
   Water Resources Center, University of Delaware

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Description of various tools available in the states for controlling development. Analysis of their effectiveness.

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REF: College of Marine Studies, University of Delaware

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15. Slade, Sondra, (November 1972). Delaware Law and Potential Land Use and Performance Controls for the Christina Basin. Water Resources Center, discussion paper number 10. Prepared by Institute for Environmental Studies, Philadelphia, Pennsylvania.

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REF: WILMAPCO
Water Resources Center, University of Delaware

16. Strong, A. L. and Slade, S. K., (1971). Legal Survey for Governor's Task Force on Marine and Coastal Affairs. Institute for Environmental Studies.

Discusses the various methods available to Delaware for regulating use or acquisition of land in a coastal zone area. Recommendations for coastal zone legislation.

REF: DSPO

17. Teclaff, Ludwik, (January 1970). "The Coastal Zone-Control over Encroachments into the Tidewaters." Journal of Maritime Law and Commerce. Volume 1.

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REF: DSPO
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18. Texas A&M University, (1970). Selected Papers, Law and the Coastal Margin.

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19. Wagensell, Harris, (November 1970). "Property Taxation of Agricultural and Open Space Land." Harvard Journal on Legislation. Volume 8.

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20. Wetlands Symposium. (1966) Legal Wetland Protection Devices. Boston, Massachusetts.

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21. White Terrence, (Fall 1971). "Scenic Easements." Idaho Law Review. Volume 8.

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   Compilation of ideas and proposals relative to the future economic growth and development of Kent County. Primarily concerned with economic impacts of Dover Economic Development Area.

   REF: Department of Community Affairs and Economic Development, Dover, Delaware
   DSPO

3. Chemical Week Magazine, (1967). Chesapeake and Delaware Canal.

   Chemical operations located along canal area.

   REF: DSPO

4. Cook, R. W., (1969). The Socie-Economic Development of Delmarva During the Seventies.

   A definitive statement of Delmarva characteristics today, what the historic trend has been, and what we can expect to occur in terms of population changes and economic activity broadly classified by type and geographic distribution. An overlay map accompanied the original presentation. Has 14 pages.

   REF: Greater Salisbury Committee, Inc., One Plaza East, Salisbury, Maryland

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7. Devanney, J. W. et al, (1970). Economic Factors in the Development of a Coastal Zone. MIT Press.

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REF: College of Marine Studies

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REF: DSPO

9. Division of Urban Affairs, University of Delaware, (1963). Economic Analysis of The Wilmington Metropolitan Region, Current Status and Future Prospects, A summary and 11 working papers, prepared for Greater Wilmington Development Council.

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An economic land use study of the core area of the city of Wilmington, Delaware
Analysis of income for New Castle County and Wilmington, Delaware
Population Analysis of Wilmington and New Castle County
An Economic Base Study of the Greater Wilmington Region
The Long-term Unemployed in Wilmington, Delaware
Transportation and Traffic in New Castle County
Journey to Work Study, Wilmington Downtown Employees
Consumer Habits and Attitudes Toward Wilmington as a Plac to Live, Shop, and Recreate
Analysis of City of Wilmington Finances
The Relocation of Retail Businesses in the Wilmington, Delaware Area

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Greater Wilmington Development Council, 411 Washington Street, Wilmington, Delaware

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13. Jones, Lamar, (1972). An Economic Base Study of Coastal Louisiana. Center for Wetland Resources, University of Louisiana.

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21. Strong, William, (1971). The Use of Market Segmentation in Planning for a Recreation - Based Economy. University of Wisconsin.

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Population, vital statistics, health, and nutrition, immigration and naturalization, education, law enforcement and prisons, area geography and climate public lands, employment, national defense, social insurance and welfare. Income, prices, elections, federal government, state local government and employment, banking finance and insurance, business, Communications power, science, transportation, agriculture, forests, fisheries, mining, construction, manufacture, distribution, foreign commerce and aid, outlying areas, comparative international statistics, metropolitan area.

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LAND DEVELOPMENT

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   From Maine to Cape Hatteras 1302 miles of shore was studied with one sample area in Delaware covering 8% of the state shore (at Bethany Beach). The history of the Bethany area is described, as well as the physical features--sand dunes, mean low and high tide areas, zonal uses: industrial, commercial public, residential, recreational, agricultural. The emphasis is on the adjustment to storm damage, and human use of the shore.

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   Appraisal of effectiveness of agricultural zoning in controlling encroachment on agricultural land.

   REF: Delmarva Advisory Council, Salisbury, Maryland.

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   REF: Water Resources Center, University of Delaware.

4. Maryland Department of State Planning (1972) Maryland Chesapeake Bay Study. Prepared by Wallace McHarg, Roberts and Todd, Inc. Philadelphia, Pennsylvania.

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   REF: WILMAPCO
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5. Report to the Water Resources Council by the Special Task Force (1969) Water Resources Council, Washington, D. C.

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Water Resources Center, University of Delaware

9. Westmacott, Richard and Joachin Tourbier, (August, 1972). Specifications for On-Site Environmental Protection Measures in the Christina River Basin, Discussion paper number 8. University of Delaware

Specifications are drawn up for varying intensities of residential land use and for various site classes.

REF: Water Resources Center, University of Delaware
WILMAPCO

10. Workshop on Potomac Basin Land Use: Who will control it?, (1968). Edited-transcript, prepared by Potomac Basin Center, Washington, D.C.

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NUCLEAR POWER AND UTILITIES

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   Describes in general terms all existing major electric generating projects for all public utilities using water resources of the basin and includes all such projects proposed or planned for the ensuing 15 year period. Summarizes the impact of each proposed project in terms of its potential impact on water resources and related resources of the basin.

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   Analysis of the roles now being played by local, state and federal agencies in New England and New York is the expansion of electric power generators and transmittors. Set of recommendations on law the state agencies could participate more effectively in these decisions.

   REF: College of Marine Studies, University of Delaware

4. Report of the Southern Governor's Task Force for Nuclear Power Policy, (1970). Nuclear Power in the South.

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   REF: DNREC

TERMINALS-PORT DEVELOPMENT

1. American Waterways Operators, Incorporated, (1967). Waterside Site Plant Locations and Expansions 1966.

   American Waterways Operators has recorded the growth of industrial material production facilities and water borne commerce shipping facilities since 1953. Lists individual facilities built, expanded, or planned for construction on waterfront sites in 1966 by individual rivers and bays.

   REF: American Waterways Operators, Washington, D. C.

2. City of Wilmington, (1968). Future Development of the Port Terminal: Volume I, Economic and Administrative Considerations and Volume II, Physical Facility Analysis. Prepared by Cresap, McCormick and Paget.

   REF: Wilmington Planning Commission

3. Commission on Marine Science, Engineering and Resources, (1969). Our Nation and the Sea: A Plan for National Action (Stratton Report).

   The Commission has undertaken an intensive investigation of a broad array of marine problems ranging from the preservation our coastal shores and estuaries to the more effective use of the vast resources that lie within and below the sea. As a result, it has made recommendations for a program which it expects will assure the the advancement of a national capability in the oceans and will go far in meeting the needs of the future.

   REF: Government Printing Office, Washington, D. C.

4. Cresap, McCormick and Paget, (1968). City of Wilmington, Delaware Port Terminal: outline of significant findings and preliminary recommendations on administrative and financial management, prepared for City of Wilmington. (Confidential)
   REF: Wilmington Planning Commission

5. Cresap, McCormick and Paget, (1968). Future Development of Port Terminal: Volume I, Economic and administrative considerations. (Confidential)

   REF: Wilmington Planning Commission

6. Cresap, McCormick and Paget, (1968). City of Wilmington, Delaware Port Terminal: Summary report on the scope of future operations. (Confidential)

   REF: Wilmington Planning Commission

7. Cresap, McCormick and Paget, (1968). Interim Status Report: study of existing facilities at Wilmington Marine Terminal, prepared for City of Wilmington.

   REF: Wilmington Planning Commission

8. Delaware Bay Oil Transport Committee, (January 1973). Energy, Oil and The State of Delaware.

Proposals for safeguarding the Delaware estuary and coastline by safer transport of oil. Available alternatives. Present status of oil transport in Delaware Bay.

REF: DSPO

9. Delaware Bay Transportation Company Feasibility Study Group, (1970). Statement Submitted to the Governor's Task Force on Marine and Coastal Affairs, State of Delaware.

Delaware Bay Transportation Company is owned by four oil companies; has been joined by nine others to form and finance the feasibility study group. Their plan, presented December, 1970 at Dover, consists of the following elements: Use of large supertankers; an offshore terminal located 6 1/2 miles off Big Stone Beach. Two submerged pipelines connecting this receiving terminal to the shore, offshore tank storage facilities on property owned by the above oil companies, an onshore pipeline from the storage facilities to the participating refineries. There is complete assurance that these plans are in line with concern for the preservation of the environment. The history and details of the project are discussed, map, graph and 2 engineering drawings of proposed facility.

REF: Delaware Bay Transportation Company, c/o Atlantic Richfield Company, Philadelphia, Pennsylvania

10. Delaware River Port Authority, (1968). Ameriport, Ports of Philadelphia: Foreign Trade Cargo, Imports and Exports.

Comprises ports of Philadelphia, Camden, Chester, Gloucester, Trenton, Paulsboro, Marcus Hook, and Wilmington. World's largest freshwater port. Third busiest port in the world. In U.S.A., No. 1 importing port, handles over 11% of the nation's foreign waterborne commerce, etc. Statistics are given in tables and graph.

REF: Delaware River Port Authority

11. Gaither, W. S., (1972). Deepwater Ports and the Environment: The Environmental Concern. Proceedings of Symposium on Deepwater Ports.

REF: College Marine Studies, University of Delaware

12. Louisiana State University, (1972). Louisiana Superport Studies: Preliminary recommendations and Data Analysis.

Four reports comprising an initial study of Louisiana's coastal areas as possible sites for a deep draft harbor. Recommendations.

REF: DSPO

13. Soros Associates. Feasibility Study on the Evaluation of Deep Water Offshore Terminals for the Maritime Administration.

REF: DSPO
Soros Associates, 575 Lexington Avenue, New York, New York

14. Tannian, Francis, (1968). Port of Wilmington, a preliminary report prepared for the mayor's fiscal study committee. Division of Urban Affairs, University of Delaware.

REF: Wilmington Planning Commission
Division of Urban Affairs, University of Delaware

15. USACE, (March 31, 1970). Deepwater Terminal in Delaware Bay: Proceedings of Public Meeting.

A complete transcript of the meeting in Dover on 30 March 1970 with about 30 speakers and copies of 75 letters, statements, and maps.

REF: Channel Dimensions and Anchorages Study, Delaware River - Philadelphia to the Sea, Department of the Army, Philadelphia District, Corps of Engineers, Custom House, Philadelphia, Pennsylvania

16. USACE, (April 1, 1970). Deepwater Terminal in Delaware Bay: Proceedings of Public Meeting.

A transcript of the meeting held 1 April 1970 in Philadelphia with 18 speakers and 81 exhibits.

REF: Channel Dimensions and Anchorages Study, Delaware River - Philadelphia to the Sea, Department of the Army, Philadelphia District, Corps of Engineers, Custom House, Philadelphia, Pennsylvania.

17. USACE, (1969). Feasibility Report: Offshore Terminal.

Local interests have requested information on the possibility that the Corps of Engineers will provide a channel 72 feet deep to a proposed deep water terminal to be located Delaware Bay. The terminal would be used to offload super tankers up to 250,000 d.w.t. Preliminary investigations indicate that the terminal is a feasible alternative to further deepening of the Delaware River. The most desirable project would provide for the terminal an access channel 72 feet deep and 1000 feet wide and no further deepening of the Delaware River. The annual transportation benefits would be $34,955,000. The annual cost would be $13,010,000. The District Engineer intends to proceed with a detailed study of the terminal.

REF: Delaware River - Philadelphia to the Sea, Department of the Army. Philadelphia District, Corps of Engineers, Custom House, Philadelphia, Pennsylvania

18. USACE, (1966). The Port of Wilmington, Delaware, and Ports on Delaware River Below and Above Philadelphia, Pennsylvania.

Detailed reports on port and harbor conditions; port administration and federal services; port and terminal services and charges; facilities; and transportation services. Detailed maps.

REF: Port Series number 8, Department of the Army, Philadelphia District Corps of Engineers, Custom House, Philadelphia, Pennsylvania

19. Zapata Bulk Systems, Inc., (1971). Delaware Transfer Terminal: A current assessment prepared for the Delaware Task Force.

REF: Zapata Bulk Systems, Inc., Houston, Texas

RECREATION

1. Delaware Board of Game and Fish Commissioners, (1958-1968). Land and Water Acquisition Program Report.

   Summary of state lands owned, leased or licensed.

   REF: DNREC

2. National Capital Regional Planning Council, (1963). Public Open-Space Programs and Activities National Capital Region. Technical Report 1.

   Extensive survey of agencies which have programs related to the acquisition and management of open space; determines the potential of each agency in preserving and managing open land and water; goal to avoid duplication of work, and to work out cooperative relationships between agencies.

   REF: DSPO
   National Capital Regional Planning Council, Washington, D. C.

3. Penjerdel, (1961). The Penjerdel Conference on Open Space Preservation: New Programs and Proposals

   Program of a conference on 18 October 1961 at the Cherry Hill Inn, Haddonfield, New Jersey

   REF: Penjerdel (Pennsylvania-New Jersey-Delaware Metropolitan Project, Inc.), 1500 Walnut Street, Philadelphia, Pennsylvania

4. Outdoor Recreation Resources Review Commission (ORRRC), (1962). Outdoor Recreation for America

   The final report of the Commission created by Public Law 85-470, 72 Stat 238, June 28, 1958, contains findings of the Commission and its recommendations for action to meet the nation's outdoor recreation needs in 1976 and 2000. There are 27 of these ORRRC Study Reports; the 27th report is a 100-page survey of the literature.

   REF: Outdoor Recreation Resources Review Commission, Councils and Commissions, Washington, D. C.

5. Seidenstat, Paul, (July 1966), The Market for Water Based Outdoor Recreation Services in New Castle County, Delaware. University of Delaware

   REF: Water Resources Center

6. Seidenstat, P.,(1966).The Market for Water Based Outdoor Recreation Services in New Castle County, Delaware

An attempt to explore the demand for water-related recreation in an outdoor setting. The chapters cover: Recreation as a use for water; Present market for water-based recreation; Future market; Procedures used in estimating water-based recreation demand and capacity.

REF: Water Resources Center, University of Delaware

7. Strong, A. L.,(1961).Open Space for the Penjerdel conference on open space.

REF: Penjerdel (Pennsylvania-New Jersey-Delaware Metropolitan Project, Inc.), 1500 Walnut Street, Philadelphia, Pennsylvania

8. Toi, T.,(1969)."Projections of Recreation Demand" Working Paper for MIT New Town Group, (Unpublished).

REF: College of Marine Studies, University of Delaware

9. Vaughn, G. F.,(1968).Agricultural Land: Delaware's Retreating Open Space

A comprehensive series of tables detailing the acreages of open land for every section of the state in 1931 and in 1964.

REF: Extension Circular 128, May 1968, Delaware Cooperative Extension Service. College of Agricultural Sciences, University of Delaware

10. Water Resources Association of the Delaware River Basin,(1959).Water for Recreation: Today and Tomorrow

Popular discussion of recreational uses of the water of the Delaware River Basin.

REF: Water Resources Association of the Delaware River Basin

11. Hugg, David S. III, M. Kenneth Bessinger, and John C. Williams, (1970). Delaware Comprehensive Outdoor Recreation Plan, Delaware State Planning Office.

Detailed studies on inventory, demand and needs, uses of existing property, plan and program for acquisition and development of state facilities. (also Executive Summary).

REF: DSPO

FOREST

1. Delaware State of, (1968). Annual Reports of the State Forester.

REF: DSPO

2. Ferguson, Roland H., (1959). The Timber Resources of Delaware.

REF: DSPO

GEOLOGY

1. Jordan, R. R., (1964). Columbia (Pleistocene) Sediments of Delaware

   The Columbia Deposits of Delaware form a sheet of sand with maximum thickness of 150 feet which covers most of the coastal-plain portion of the state. Columbia sediment is essentially medium sand, but coarser admixtures are typical in the north and finer admixtures, in the south. Geographical distribution used of a sampling grid bases on meridans and parallels spaced 5 minutes apart; quadrangles measured 4.5 to 6.0 miles; 75 quadrangles were studied with 2 outcrops in each. Samples were tested for texture, mineralogy, lithology, and heavy mineral content. Has 9 plates, 17 figures, 3 tables, 79 references.

   REF: Bulletin number 12, 1964. Office of the Delaware Geological Survey. University of Delaware

2. Jordan, Robert, Thomas Pickett and Kenneth Woodruff, (1972). Preliminary Report on Scenic Events in Northern Delaware. Geology Department, University of Delaware.

   REF: Office of the Delaware Geological Survey, University of Delaware
   DSPO

3. Jordan, R. and E. H. Watson, (1963). Geology of the Delaware Piedmont and the Chesapeake and Delaware Canal, Guidebook Philadelphia Geology Association.

   REF: Office of the Delaware Geological Survey, University of Delaware

4. Kraft, John, (1972). A Guide to the Geology of Delaware's Coastal Environments. Geology Department, University of Delaware.

   Illustrated guide to Delaware's various coastal environment types. Topographic and other maps. Selected air photos.

   REF: Office of the Delaware Geological Survey
   College Marine Studies, University of Delaware
   DSPO

5. Kraft, J. C., (1971). Sedimentary Facies Patterns and Geologic History of a Holocene Transgression

   Holocene sediments in coastal Delaware show complex sediment distribution patterns resulting from lateral and vertical movement of successive environments of deposition over a Pleistocene unconformity. These sediments are infilling a drowned topography. Larger depositional features forming around eroding Pleistocene headlands and infilling the estuaries include characteristic shoreline environments, such as dunes, spits, and baymouth barriers, a network of intertidal deltas, nearshore marine erosional-depositional sands and gravel, and lagoons or estuaries, with adjoining marshes.

   REF: Geological Society of American, Bulletin, Volume 82, pages 2131-2158, 1971. Boulder, Colorado

6. Kraft, J. C., (1968). Transgressive Facies Patterns in the Delaware Coastal Area. Abstracts: Annual Meeting of American Association Petroleum Geology.

REF: Office of the Delaware Geological Survey, University of Delaware

7. Kraft, J. C. The Geology of Recent Sedimentary Environments in Coastal Delaware. Guidebook of the Society Paleontologista and Mineralogists.

REF: Office of the Delaware Geological Survey

8. Kraft, J. E., and M. D. Maisano (1968) Geologic Cross Section of Delaware

A chart 31 inches by 55 inches showing stratigraphic correlations, aquifer distribution, and geologic setting within the Atlantic Coastal Plain/Continental Shelf geosyncline.

REF: Office of the Delaware Geological Survey, University of Delaware
Water Resources Center

9. Kraft, J. C. and G. Margules, (1968). Correlation of Forminifera Distribution with Sediment Facies Patterns and Physical Data in Indian River Bay, Coastal Delaware. Abstracts: Annual Meeting of the Noreastern Geology Society of America.

REF: Office of the Delaware Geological Survey, University of Delaware

10. Pickett, T. E., (1970). New Geologic Mapping in Delaware

The Cretaceous Formations present in the Chesapeake and Delaware Canal area are the Potomac, Magothy, Merchantville, Englishtown, Marshalltown and Mount Laurel. Structural contour and isopach maps of lower Delaware reveal the following subsurface configuration of Paleocene, Eocene and Miocene units; Rancocas and Piney Point Formations and Cheswold, Frederica, Manokin and Pocomoke Aquifers. Pleistocene (Columbia Group) fluvial and marine deposits in Delaware cover all older units as a veneer about 50 feet thick in northern Delaware and usually 80-100 feet thick in southern Delaware.

REF: Office of the Delaware Geological Survey, University of Delaware

11. Soil and Water Conservation Commission, (1966). The Natural Resources of Delaware.

REF: Office of the Delaware Geological Survey, University of Delaware
SCS, U.S. Department of Agriculture, Dover, Delaware

Stanley, D. J. (1969) Atlantic Continental Shelf and Slope of the United States: Color of Marine Sediments

REF: Department of the Interior, Geological Survey, University of Delaware

13. Turner, P. A., (1968). Shoreline History of the Atlantic Coast, Delmarva Peninsula

REF: Abstracts of papers presented to the 1968 Annual Meeting, Northeastern Section, Society of Economic Paleontologists and Mineralogists at Washington, D. C. 1968.

14. USDI Heck, L. W. et al., (1966). Delaware Place Names

Alphabetical list of known geographic names in Delaware. Gives graphic coordinate for most of the streams, bays, islands, lakes, and populated places.

REF: Bulletin 1245 USDI Geological Survey, Washington, D. C.

15. USDI Minard, J. P., H. E. Gill, J. F. Mello, J. P. Owens, and N. F. Sohl, (1969). Cretaceous-Tertiary Boundary in New Jersey, Delaware and Eastern Maryland.

Discussions of stratigraphy of the Cretaceous-Tertiary Boundary in New Jersey, Delaware, and Eastern Maryland. Present geologic quadrangle mapping of more than 600 square miles in Coastal Plains of New Jersey and detailed reconnaissance in parts of Delaware and Maryland offer evidence of the unconformable nature of the control for 120 miles along the strike.

REF: Bulletin 1274-H USDI Geological Survey, Washington, D. C.

16. University of Delaware, (1968). Geology and Earth Resources of Delaware

A 4 page booklet briefly describes the geological history of Delaware and the earth resources of the state.

REF: Office of the Delaware Geological Survey, University of Delaware

MARSH-WETLAND

1. Byron, G., (1969). Delaware's Wetlands

Wetlands comprise 1/8 of the state's area. Flora & fauna of wetlands and estuaries form interdependent pattern in which all elements contribute and share. In 1930's some marshes were ditched and drained to decrease number of mosquitoes, only to threaten survival of black ducks and muskrats that lived in these wetlands. Reviews history of muskrat trapping.

REF: Delaware Today, Volume 8, Number 4, October-November, 1969. Wilmington, Delaware

2. Canadian Wildlife Service Report Series, (1969). Saskatchewan Wetlands Seminar. Department of Interior Affairs and Northern Development.

Classification of wetlands. Evaluation methods for soils. Legal consideration of water use. Economic values of small wetlands areas.

REF: DNREC

3. Chamberlin, Everett B. (1951) A Survey of the Marshes of Delaware.

REF: DNREC

4. Daiber, Franklin C. et al., (1972). Environmental Impact of Dredge and Fill Operations in the Tidal Wetlands Upon Fisheries Biology in Delaware. College of Marine Studies, University of Delaware.

REF: College of Marine Studies, University of Delaware
DNREC
DSPO

5. Daiber, F. C., D. Aurand, F. L. Gooch, and R. Reimold, (1969). Further Studies in Tidal Marsh Ecology in Delaware

A paper presented at American Fisheries Society meeting, February 1969. Evaluates the role of the salt marsh in estuarine productivity and the effects of man-made changes in the wetlands areas of Delaware.

REF: College of Marine Studies, University of Delaware

6. Daiber, Franklin, (1969). Tidal Marshes in Delaware Report to the Federal Water Pollution Control Administration.

REF: College Marine Studies, University of Delaware

7. Delaware State Planning Office and others, (1969). Environmental Study of Rehoboth, Indian River and Assawoman Bays.

Report to Governor Peterson of the unified effort by Delaware's natural resources and planning agencies to document the need for preserving Delaware's inland bay areas, and to outline a specific program for achieving that goal. Conclusions: The inland bays of Sussex County, while still prime recreational areas, are in danger of being despoiled through increasing and uncontrolled development.

REF: DSPO
DNREC

8. Floris, A. J., (1970). Little Creek Wildlife Area Management Plan.

REF: DNREC

9. Florio, A. J., (1950). Salt Marshes: Notes on Their Origin and Management.

Discusses effect of mosquito control and ditching on marshes; stresses the adverse effect. Has no table, no graphs, 10 pages.

REF: DNREC

10. Florio, A. J., (1970). Woodland Beach Wildlife Area Management Plan.

Location to population centers. Topography, soil and water types. Reference maps. Capital improvements, nonconforming uses, recreational uses, general land use categories.

REF: DNREC

11. Godwin, Richard, (1951). Connecticut's Coastal Marshes. A Vanishing Resource. Bulletin 12 Connecticut Arboretum.

REF: DNREC

12. Hawkes, Alfred, (1966). Coastal Wetlands - Problems and Opportunities. Audubon Society of Rhode Island.

Definitions of wetlands.

REF: DNREC

13. Johnson, Peter, (1972). Wetlands Preservation. Open Space Institute.

Model Ordinance for wetlands. Appendix of 26 local and state laws and regulations.

REF: The Open Space Institute, Publications Department, 145 East 52nd Street, New York, New York
College of Marine Studies, University of Delaware

14. Kalber, F. A., (1959). Where Does The Shoreline Begin?

Two types of shoreline identified: the tidemarsh and the sandy beach; changes with the tides, nutrient materials in the tidemarsh.

REF: DNREC
The Delaware Conservationist (Summer)

15. Klemas, V. et al., (1972). Application of Automated Multispectral Analysis To Delaware's Coastal Vegetation Mapping. College of Marine Studies, University of Delaware.

REF: College Marine Studies, University of Delaware
DSPO

16. Newsom, John, (1967). Proceedings of the Marsh and Estuary Management Symposium. Louisiana State University.

Practices affecting marshes (e.g. channelization, municipal and industrial wastes dredging and filling, farming operations and management mistakes.

REF: DNREC

17. Stachecki, C. J., Jr., and A. W. Wheatley, (1969). Salt-Marsh Water Management in Delaware Accomplished Under Senate Bill 75, 1965-68.

A report from the Mosquito Control Division of the State Highway Department, Milford, Delaware. Describes the ditching and impoundment started under Bill 75. The permanent control measures initiated, performed beyond all expectations.

REF: Proceeding of the 56th Annual Meeting of the New Jersey Mosquito Extermination Association, pages 225-227; 1969. Rutgers State University, New Brunswick, New Jersey

18. Steenis, J. H., R. A. Beck, H. P. Coter, and N. G. Wilder, (1954). The Marshes of Delaware, Their Improvement and Preservation.

Popular discussion (with illustrations) of the Delaware marshes as a great natural resource. Includes briefly use of marshes as source of muskrats, for duck hunting, for fish and crabs. Tidal Marshes of Delaware and their fresh water tributaries occupy 8% of the state's area. Methods of management to maintain the marshes in a form that will maintain wildlife.

REF: DNREC

19. Strong, A. L., J. C. Keene, and J. Hillsberg, (1971). The Next Ten Years: Some Recommendations to the Delaware River Basin Commission.

Programs and procedural recommendations to the Delaware River Basin Commission for preservation of wetlands, allocation of water resources, financing of programs, and enforcement of water quality standards.

REF: Institute for Environmental Studies, University of Pennsylvania, Philadelphia, Pennsylvania. Reprinted by the Delaware River Basin Commission

20. Todd, Mike, (1970). Milford Neck Wildlife Area Management Plan.

REF: DNREC

21. Todd, Mike, (1970). Augustine Wildlife Area Management Plan.

REF: DNREC

22. Todd, Mike, (1970). Prime Hook Wildlife Area Management Plan.

REF: DNREC

23. Todd, Mike, (1970). Gordon Pond Wildlife Area Management Plan.

REF: DNREC

24. Todd, Mike, (1970). Assawoman Bay Wildlife Area Management Plan.

Location to population centers. Topography, soil and water types. Acreage breakdown by uses. Reference maps. Capital improvements, nonconforming uses, recreational uses.

REF: DNREC

25. USDI, Fish and Wildlife Service, (1953). Wetlands Inventory of Delaware.

A summary of the areas of wetlands in Delaware, broken down percentagewise into the uses to which they are put.

REF: DNREC

26. U.S. Department of the Interior. Wetlands of Delaware. Inventories.

Supplements of years 1953, 1959, 1965

REF: DNREC

27. USDI, Fish and Wildlife Service, (1956). Wetlands of the United States.

Quanitative data on the areas in the U.S. occupied by wetlands, borken down percentage-wise into the uses to which they are put. Flood plains, geology; marshland.

REF: DNREC
WILMAPCO

28. U.S. Army Corps of Engineers, (1968). Delaware Coast, Beach erosion Control and Hurricane Protection. Senate Document 90, 90th Congress.

REF: Geology Department, University of Delaware

29. Governor's Wetland Action Committee, (January 1973). Preliminary Report. Recommendations for coastal wetlands use policy and management of coastal wetlands.

REF: DSPO
DNREC

SOILS

1. Southwestern Wisconsin Regional Planning Commission, Waukesha, Wisconsin, (1969). Soils Development Guide. Planning Guide 6.

   Provides an understanding of how to undertake a detailed soil survey and its accompanying interpretive analyses. Illustrates how such a survey can be used in local, state and regional planning and development.

   REF: WILMAPCO

2. U.S. Department of Agriculture, (1967). The 1967 Agriculture Conservation Program for Delaware.

   Conservation practices, costs of carrying out approved soil-building and soil and water conservation practices.

   REF: DNREC

3. U.S. Department of Agriculture, (1968). Soil Survey Interpretation for Delaware.

   REF: DNREC
   Soil Conservation Service, U.S. Department of Agriculture, Dover, Delaware

4. USDA, (1966). Delaware's Conservation Needs.

   Soil and water conservation needs inventory.

   REF: SCS, Department of Agriculture, Dover, Delaware

5. USDA, Soil Surveys of New Castle, Kent and Sussex Counties, Delaware, (1970, 1971 and 1973 publication dates respectively). Soil Conservation Service.

   REF: SCS, Department of Agriculture, Dover, Delaware

6. Water Resources Center, (May 1972). A Computerized Inventory of Ecological Site Classes in the Christina River Basin. Discussion Paper Number 6. University of Delaware.

   Inventory of land and water types in the Christina River Basin including but not limited to marshes, woodlands, floodplains, slopes, poorly drained soils, developed areas.

   REF: WILMAPCO
   Water Resources Center, University of Delaware

7. Soil Conservation Service, (December 1972). First State Resource and Conservation and Development. Project Plan.

Resource development. Each of six resources categories contain data pertaining to present situation. Identifies major resources problems associated with agriculture and forests, water resources, fish and wildlife resources, community development, and recreation. Delineates possible corrective measures.

REF: SCS
New Castle Planning Department

8. New Castle County Planning Department, (November 1967). Natural Physical Characteristics Study. Background report for County Comprehensive Plan.

General discussion of the part that the county's natural physical characteristics play in the county development plan process. Collection, analysis and interpretation of the physical components to be utilized as research for the plan: land forms, geology, water resources, mineral resources, engineering soils, climate.

REF: New Castle County Planning Department
DSPO

WATER RESOURCES

1. Baker, W. W. D. Varrin, J. J. Groot, and R. R. Jordan, (1966). Evaluation of The Water Resources of Delaware

At present, Delaware has an abundance of water for the foreseeable future. However, the studies of water use are far too narrow to provide the broad answers needed for water management. It is recommended that a master plan for the development of Delaware's Water resources be prepared to assure an adequate supply of high-quality water as the state's economy continues to expand.

REF: Geology Department, University of Delaware

2. Chamberlain, E. B., (1952). Waterfowl in Delaware Bay

Examples: Waterfowl population in Delaware by aerial count, percentage of 4 leading waterfowl killed in Delaware, total population by salinity zones, waterfowl population per square mile, etc.

REF: DNREC

3. Chamberlain, E. B., (1951). Survey of the Marshes of Delaware

Systematic study of principal marshlands. History of Delaware marshes since 1638.

REF: DNREC

4. Cohen, B., McCarthy, L. T., Jr., (1963). Salinity of the Delaware Estuary Delaware Geological Survey Bulletin.

REF: DSPO

5. Delaware Geological Survey, (1961). The Story of Your State Geological Survey's Search for Water

A brief story about water and the ways in which the Delaware Geological Survey helps insure that you will always have a plentiful supply.

REF: Office of the Delaware Geological Survey, University of Delaware, Newark, Delaware

6. Delaware Water Resources Study Committee, (1954). Water in Delaware; Preliminary Report of the State's Water Resources

Detailed discussions of the water resources of Delaware. Specific sections of report deal with surface water; ground water; quality of water; beneficial use of water; existing water problems, e.g., shortages, salt-water encroachment, pollution, drainage, soil erosion, chemical quality, economies of salt water; basic principles and history of water-right doctrine; and water-right laws in Delaware (also federal water-right laws affecting

Delaware). Use of water in all three counties discussed in terms of municipal, industrial, commercial, domestic, irrigation and farms.

REF: Delaware Water Resources Study Committee, University of Delaware

7. DNREC, (1951). Survey of Pollution and its Effect Upon the Streams Within the Mispillion River Drainage Basin

Detailed analyses as affected by the pollution were made and suggestions for improvement deducted.

REF: Report by the State Board of Health to the Water Pollution Commission. DNREC

8. DNREC, (1955). What's Ahead for Delaware's Coastal Areas.

Summary of transactions of conference.

REF: DNREC

9. DRBC, (1965). Second Water Resources Program, 1964-1969

Compressive report on the prospective supply of, and demand for water and related goods and services in the Delaware River Basin during six calendar years (1964-1969). 26 tables on water quality; streams, runoff, flood, and storage volumes; water demands and withdrawals, export, etc. 16 figures on dissolved oxygen, chlorides, temperature, geohydrologic sections, maps, etc.

REF: Delaware River Basin Commission, Tenton, New Jersey

10. EPA, (1971). Bibliography of Water Quality Research Reports

Project Reports System assembles and furnishes reports of EPA-sponsored research and development grant, contract, and inhouse projects. Biblio lists Publications on results and progress in control and abatement of pollution in our national waters with source and price.

REF: Water Pollution Control Research Series, Research Information Division, Environmental Protection Agency

11. Geological Survey, (1964). Hydrologic Investigations Atlas

Water-table, Surface-drainage and Engineering soils map of various areas in Delaware. The maps are on a scale of 1:24,000; they show specific locations of various types of soil in the particular areas. Samples of soil are taken from several pits at 2 to 4 depths. Samples are analyzed for mechanical properties and plasticity index and the results tabulated. Soils are classified by HRB (Highway Research Board) systems and by unified (unified soil classi-

12. fication) systems in Tables 2, 3, and 4. Maps show water-table contours at 10 foot intervals and engineering characteristics of soils, perennial and intermittent streams; they also show marine tidal-marsh deposits. Figure 2 shows ground-water levels over a period of 12 years in 13 observation wells in entire state of Delaware (1951-1962). There are separate abstracts for those areas showing tidal-marsh lands along Delaware Bay.

REF: U.S. Department Interior, Washington, D. C.
Atlas HA-Series of Maps, Geology Department, University of Delaware

13. Grunkemeyer, Gary L., (1972). The Effect of Urbanization on Runoff Quantity. Masters thesis. University of Delaware.

REF: Water Resources Center, University of Delaware

14. Hoeh, R. S., (1966). Water Resources Administration in Delaware

Discusses primarily the legal doctrines that were operating in Delaware in 1965-66 to determine the allocation and use of water and what governmental agencies influence, by statute and administrational action, the use and development of water resources in the state. Chapters (1) The Legal Framework; (2) Administration Organization; (3) Intergovernmental Relations; (4) Conclusions and Recommendations, Figures A, B, & C summarize the organization. Appendix (1968) discusses local agencies related to water resources.

REF: Division of Urban Affairs, University of Delaware

15. Kaplovsky, A. J., and D. B. Aulenbach, (1956). Comprehensive Study of Pollution and its Effect on the Waters within the Indian River Drainage Basin.

Chemical, physical, bacteriological and biological determinations were made in a study of the pollution entering the Indian River and its effect upon the quality of the receiving waters.

REF: DNREC

16 Krimgold, D. B., (1969). Hydrologic, Physiographic, Edaphic, and Vegetation Aspects of the Climatic Water Balance, Delmarva Peninsula

Notes the severe deficiencies of data on the determinable elements of the hydrologic balance in the peninsula. Presents ways of deriving essential data from existing information. Recommends data-collecting scheme for future and intermediate procedures until complete format is available. Information obtained is essential to planning use of available water resources.

REF: Water Resources Center, University of Delaware

17. MacKichen, K. A. and J. C. Krammorer, (1961). Estimated Use of Water in the United States

Estimates for 1960 are given for each state for irrigation, industrial use,

public utility, air-conditioning, water power, and as public supplies for rural use.

REF: Geology Department, University of Delaware
U.S. Department Interior, Washington, D. C.

18. Marine, I. W., and W. C. Rasmussen, (1955), Preliminary Report on the Geology and Ground-Water Resources of Delaware

The Agricultural Experiment Station and the U.S. Geological Survey. Extensive study of the geology and ground-water resources of Delaware. Discusses Piedmont and Coastal Plains Provinces of Delaware, geologic history, ground-water hydrology; recovery by wells; chemical quality; utilization; water supplies in northern suburbs of Wilmington, (surface water) and south of Wilmington (ground water). Maps give well locations, geologic structure, specific aquifers forming principal ground-water sources and water use. Tables include location of wells, logs of wells published previously, records of wells, wells for which records have been published in previous reports.

REF: Geology Department, University of Delaware

19. Miller, John, (August 1971). Ground-Water Geology of the Delaware Alantic Seashore. Report of Investigations Number 17.

Wells, Seashore population growth and present and project water use. Five tables. Map referenced to Atlantic coastal and wetlands areas.

REF: Geology Department, University of Delaware
DSPO

20. Miller, John C., (1971). Ground Water Geology of the Delaware Atlantic Seashore

Present water use in the shore area between Philadelphia and Washington is about 4 million gallons per day and will reach 9.3 MGD by 2000, showing the need for locating additional sources of ground-water for the Delaware Atlantic seashore.

REF: Geology Department, University of Delaware

21. Otton, E. G., (1955). Ground Water Resources of the Southern Maryland Coastal Plains

Describes the aquifers and geology of the area, the water available and used in 1951. There are chemical analyses of 275 samples.

REF: Bulletin 15, 1955. Maryland Department of Geology, Mines and Water Resources, The Johns Hopkins University, Baltimore, Maryland

22. Rasmussen, W. C., and L. B. Haigler, (1953), Ground-Water Problems in Highway Construction and Maintenance

Includes maps and figures locating quicksand deposits, subdrainage problems, tide marshes, etc.

REF: Geology Department, University of Delaware

23. Rasmussen, W. C., J. J. Groot, R. O. R. Martin, E. F. McCarren, V. C. Behn, et. al., (1957). Water Resources of Northern Delaware

The surface and ground-water resources of northern Delaware (north of the Chesapeake and Delaware Canal) are evaluated. There are 10 principal aquifers capable of sustained yields of several million gallons per day. Chemical contamination and pollution are discussed. Hydrologic evaluation is necessary from outpost wells to adjust pumping to restrain salt-water encroachment.

REF: Geology Department, University of Delaware

24. USDI Rasmussen, W. C., J. W. Odell, and N. H. Beamer, (1966). Delaware Water

Based on cooperative work with Delaware Geological Survey, Delaware State Highway Department, and others. Geological structure, topography, quality of water, pollution, salt-water intrusion, ground-water reservoirs. A popular review of all facets of water supply and use in Delaware. Many statistics and percentages are included.

REF: Geology Department, University of Delaware
U.S. Department Interior, Washington, D. C.

25. Rima, D. R. O. J. Coskery, and P. W. Anderson, (1964). Ground-Water Resources of Southern New Castle County, Delaware

The geologic formations and water resources of the 190-square-mile area are described, and the chemical and physical properties of waters from representative wells are given. If large-scale pumping near the shoreline of bay is necessary, they suggest placing a line of "injection wells" between the shoreline and the area of withdrawal. Has 2 plates, 18 figures, 6 tables, 30 references.

REF: Geology Department, University of Delaware

26. UDML Shuster, C. N., Jr., F. C. Daiber, and K. P. H. Frey, (1961). Shallow Water Research at the University of Delaware

Review of organization and programs on pages 211-221 of the proceedings.

REF: Presented at the First Coastal and Shallow Water Research Conference. Marine Laboratories, Department of Biological Sciences, University of Delaware, Newark, Delaware

27. Slaughter, T. H., (1962). Beach-area Water Supplies Between Ocean City, Maryland and Rehoboth Beach, Delaware: U.S. Geological Survey, Water-Supply Paper.

REF: Delaware State Planning Office

28. Slaughter, T. H., (1962). Beach-Area Water Supplies Between Ocean City, Maryland, and Rehoboth Beach, Delaware

A summary of the occurrence, quantity, and quality of ground water. The potential for development of aquifers along beach is good at Rehoboth and Ocean City. Only sands and gravel in the uppermost 300 feet of sediments are used for ground water. Some wells are capable of sustained yields of 500 gpm. Discussion of chemical analyses and salt-water infiltration.

REF: Geology Department, University of Delaware
U.S. Department Interior, Washington, D. C.

29. Stevens, Thomas H. and Gerald Cole, (July 1970). Economic of Water Use and Waste Disposal in Delaware Vegetable Processing. Agricultural Experiment Station Bulletin #380.

REF: DSPO

30. Sundstrom, R. W. and T. E. Pickett, (1967). The Availability of Ground Water from the Potomac Formation in the Chesapeake and Delaware Canal Area, Delaware. University of Delaware

REF: Water Resources Center, University of Delaware

31. Sundstrom, R. W. and T. E. Pickett, (1969). The Availability of Ground Water in Eastern Sussex County, Delaware. University of Delaware

REF: Water Resources Center, University of Delaware

32. Sundstrom, R. W. and T. E. Pickett, (1968). The Availability of Ground Water in Kent County, Delaware, With Special Reference to the Dover Area. University of Delaware.

REF: Water Resources Center, University of Delaware

33. Tourbier, J. and Richard Westmacott. Concern Models for the Christina River Basin. Discussion paper number 7. University of Delaware, Water Resources Center.

Primary topics are interrelationship of hydrologic problems (the removal of vegetation and earthing during construction, the increase in the area of impermeable surfaces and the increase in volume of wastes requiring treatment) as a threat to water resources; ground-water pollution; surface water withdrawal and surface water pollution from runoff; flood drainage; direct discharge of effluents. Description of each problem or concern. Quantification of the damage caused by these problems and recommendations relative to setting performance standards for amelioration of each problem.

REF: Water Resources Center, University of Delaware
WILMAPCO

34. Tyler, D. B., (1955). The Bay and River, Delaware

Photographs, maps and history

REF: Cornell Maritime Press, Inc., Cambridge, Maryland, 1955

35. USACE, (1959). Water Resources Development in Delaware

Discusses projects completely underway in Delaware by the Corps of Engineers. The projects primarily concern river and harbor improvements for benefit of commercial navigation, sea food production, and recreation. There are few projects on shore protection (Rehoboth Beach to Indian River Inlet). Tables give annual tonnage of foreign and domestic commerce in Delaware River from 1925 to 1957; tonnage in C & D Canal 1831 to 1957; tonnage of commerce in Wilmington Harbor 1930 to 1957. Flood control projects are under way in Delaware River near New Castle and Delaware City and in the Nanticoke River.

REF: Corps of Engineers, Atlantic Region, Philadelphia Pennsylvania

36. USACE, (1969). Water Resources Development in Delaware

Summary of projects completed, underway, and authorized but not yet started by the Corps of Engineers in Delaware on 1 January 1969. Mentions work on navigation channels and harbors, beach erosion control, Delaware River Basin projects; no major projects are authorized in Delaware. North Atlantic Regional Water Resources (NAR) study is one of 20 regional comprehensive water and related land resources studies being conducted throughout the nation.

37. USDI Delaware Estuary Comprehensive Study 1966: Preliminary Report and Findings.

Chapters (1) Background and objectives. (2) The study area, geography, geology, climate, principal communities and industries, hydrology. (3) The economic environment and its waste inputs. (4) Water quality. (5) Water uses. (6) Water quality improvement.

REF: Federal Water Pollution Control Administration, Washington, D. C.

38. USDI (1970) Water Resources Data for Maryland and Delaware. Surface Water Records. Part 1.

Statistical Abstract

REF: DSPO
Geology Department, University of Delaware

39. Water Resources Association of the Delaware River Basin (1966) Delaware Basin Bulletin

Summarizes the Delaware Estuary Comprehensive Study (DECS); a preliminary report and findings of the 6-year study of pollution in the Delaware estuary. The organic waste load to the estuary found to be 1 million pounds of organic waste per day: municipalities 65%, industries 35%. Water quality evaluation made by mathematical modeling and use of new techniques of systems analysis, etc. Five objective sets of different water quality standards proposed with different achievements and costs.

REF: Water Resources Association of the Delaware River Basin,
21 South 12th Street, Philadelphia, Pennsylvania

ECOLOGICAL FACTORS

1. Battelle Columbus Laboratories, (December 1972). Definition of Heavy Industries and Guidelines for Acceptable Types of Manufacturing Uses in Delaware's Coastal Zone. Final Report.

   Provides data and documentation useful in formulating the definition of heavy industries. Recommendations as to the most acceptable types of industries for the Coastal Zone.

   REF: DSPO

2. Battelle Columbus Laboratories, (June 1972). Environmental Effects of Development in Delaware's Coastal Zone. Proposed Program to Delaware State Planning Office.

   Work elements include: (a) criteria, standards and a procedure for evaluating the environmental impact of proposed manufacturing land uses in the Coastal Zone, and (b) definition of heavy industry and guidelines for acceptable types of manufacturing uses in the Coastal Zone.

   REF: DSPO

3. Earth Week Committee, (1970). The Delaware Valley Environment: Status and Prospects.

   Technical symposium on air pollution, water quantity and quality in the Delaware Valley; solid waste management in Philadelphia metropolitan region, radiation, biological aspects of pollution; systems analysis and environmental management; ecological planning and design, environmental law and public policy.

   REF: Earth Week Committee, Philadelphia, Pennsylvania, 1970

4. Environmental Protection Agency, (1968). Municipal Waste Facilities.

   Inventory

   REF: DNREC

5. Gowanloch, N. J., (1935). Pollution By Oil in Relation to Oysters.

   REF: American Fisheries Society, Transactions, volume 65, page 293, 1935.

6. Kaplovsky, A. J., (1959). Tidewater's Delaware Refinery: Waste Control and Treatment: Evaluation of Treatment Methods

Sampling points to 5 miles from the refinery into Delaware Bay. Sanitary and chemical data from the same area are presented for 1956 through 1958.

REF: Sewage and Industrial Wastes, Journal, volume 31, Federation of Sewage and Industrial Waste Associations, Washington, D. C.

7. Kraft, J. C., (1968). Transgressive Facies Patterns in Delaware Coastal Area

Studies of recent sediments in coastal Delaware show complex sediment-distribution patterns resulting from lateral and vertical movements of successive environments of deposition over a Pleistocene unconformity. Recent sediments are infilling a drowned topography with a local relief of 70 feet and possibly up to 125 feet eroded on highly variable Pleistocene sediments. Cores of sediments taken under shallow bays (Rehoboth, Indian River and Assawoman Bays) and in fringing marsh environments show that the depositional units are thin, highly irregular in a real extent, extremely variable in thickness, and difficult to project. Sedimentary processes active in the shallow bays include shoreline marsh erosion and formation of think possibly ephemeral beach-dune complexes of clean well-sorted sand.

REF: Abstracts, Annual Meeting, Oklahoma City, (1968) in American Association of Petroleum Geologists, Bulletin, volume 52, page 537, 1968

8. Kraft, J. C., (1968). Coastal Sedimentary Environments Lewes-Rehoboth Beach, Delaware

Many varied sedimentary environments are under study. Environments include bays, inlets from open marine and tidal deltas, baymouth bars and dunes, marshes and tidal creeks, transgressive beaches and marsh fringes of Delaware Bay. Preliminary results are summarized. Has 13 pages.

REF: Guidebook, Annual Fieldtrip of the Northeastern Section, Society of Economic Paleontologists and Mineralogists, Tulsa, Oklahoma, September 1968

9. Ketchum, B. H., (1953). Preliminary Evaluation of the Coastal Water Off Delaware Bay for the Disposal of Industrial Wastes

Summary of data for 1951-1952; salinity and temperature of the waters and recent studies for the U.S. Navy Hydrographic Office. About 3000 drift bottles were released in the area immediately off Delaware Bay extending about 50 miles along the coast and 40 miles offshore. The local currents and rates of exchange have been evaluated. Enumerates general coastal conditions, conditions of circulation, distribution of salinity and temperature off the bay, the rate of circulation, drift-bottle returns, flushing and diluting volumes in the bay, and recommentions on waste disposal in the proposed disposal area.

REF: Reference 53-31, 1953. Woods Hole Oceanographic Institute, Woods Hole, Massachusetts

10. Mather, J. R., R. T. Field, and G. A. Yoshioka,(1967).Storm Damage Hazard Along the East Coast of the United States

Study of damage during the past 40 years has revealed a significant increase in the past decade. Reasons for this increase are analyzed. Man's generally unrestricted development of the outer coastal margin, as well as a slight intensification of coastal cyclones, has contributed, A storm as damaging as the one in March 1962 would be expected once every 20 years. The New Jersey, Maryland and Delaware coasts and that from South Carolina to Florida seem to have a relatively low storm damage potential.

REF: Journal of Applied Metorological Volume 6, Number 1, pages 20-30, 1967. American metorological Society, Boston, Massachusetts

11. Mather, J. R.,(1968).Metorological and Air Pollution in the Delaware Valley

The 11 county lower Delaware Valley area was investigated with regard to availability of data, air flow, atmospheric stability conditions, varying air quality, use of meteorologic conditions to forecast pollution, and detailed interpretation of specific high pollution events. Serious, but not extreme, pollution conditions exist in the highly industrialized Delaware Valley. The potential for very serious pollution certainly exists.

REF: Publications in Climatology, volume 21, number 1, 136 pages, 1968

12. Mather, J. R.,(1969).Factors of the Climatic Water Balance Over the Delmarva Peninsula

Chapters: climatic water balance; evaluation of long-term records of the water balance; geographic distribution of the factors of the water balance; influence of soil storage capacity; application of the water balance to water resources problems; computer program to determine monthly water balances.

REF: Publications in Climatology, volume 22, number 3, 129 pages, 1969

13. Odum, H. T., B. J. Copeland, and E. A. MacMahay, (1969). Coastal Ecological Systems of the United States: A Source Book for Estuarine Planning

A report to the Federal Water Pollution Control Administration. Volume 3 of 3: Bibliography. About 5800 references are listed.

REF: Educational Institute of Marine Sciences, University of North Carolina, Chapel Hill, North Carolina

14. President's Science Advisory Committee, (1965), Report of the Environmental Pollution Panel

Discusses the effects and sources of pollution; recommendations are included. There are several appendices: Challenging tasks to improve environment; index of chemical pollution; standards; metropolitan problems; air problems; water quality; soil contamination; atmospheric carbon dioxide; solid wastes; effects of chlorinating wastes; agricultural wastes; aquatic blooms; pest control.

REF: Government Printing Office, Washington, D. C.

15. Public Service Electric and Gas Company, (1968), Dispersion and Cooling of Waste Heat Released into the Delaware River Estuary

This report presents the results of studies made to determine the probable effect on the distribution of temperature in the Delaware River Estuary of the discharge of waste heat in the condenser cooling water from the Salem Nuclear Generating Station to be built on Artificial Island.

REF: Prepared by D. W. Pritchard and J. Carpenter, Chesapeake Bay Institute, The Johns Hopkins University, for Public Service Electric and Gas Company, Newark, New Jersey

16. Sangster, Robert P., (1971), Environmental Degradation: A Selected Bibliography. Council of Planning Librarians.

Bibliographical reference to books and articles about subjects ranging from open space to recreation. Extensive list of conservation and environmental organization as well as professional groups involved in environmental matters.

REF: Council of Planning Librarians, Monticello, Illinois
College of Marine Studies, University of Delaware

17. Shuster, C. N., Jr.,(1959), Biological Evaluation of the Delaware River Estuary

Morphometry, extent, role of tidemarshes, shore-zone fishes, ecology of invertebrates, evaluation of fisheries. Tidemarsh productivity due to (1)"Nutrient buildup" and (2)organic breakdown and storage in rooted aqufiers.

REF: College of Marine Studies, University of Delaware

18. Smith E. T., and E. Mehr, (1968). Cost Allocation Model for Zoned Optimization of Waste Treatment Requirements

Three cost allocation models have been developed for achieving desired water quality: (1) a uniform-treatment model; each source must remove a uniform percentage of its raw waste load. (2) a cost-minimization model; it requires construction of a cost function relating dollars spent on waste-treatment facilities to amount of waste removed. This method will be difficult to implement. (3) Zoned-optimization model; it combines elements of (1) and (2) in that it seeks treatment levels which are uniform for various groups of sources, but not necessarily uniform for the whole estuary: it also seeks a combination of such zone removals which yields a minimum overall cost. This is the model selected by the DRBC for implementation on the estuary.

REF: Paper presented at Second Mid-Atlantic Industrial Waste Conference, Drexel Institute of Technology, Philadelphia, Pennsylvania, November 1968

19. University of Pennsylvania, (1966). Delaware River Basin Study

The quality of the water of the Delaware River Basin is analyzed by starting at the upper basin and following the conditions affecting the quality of the River through the sub-basin, estuaries, and down to the lower estuary and bay. Includes a table of typical water quality analysis of summer conditions in selected locations in the Delaware sub-basin (1962-64) and unpublished maps.

REF: Department of Landscape Architecture and Regional Planning, The Graduate School of Fine Arts, University of Pennsylvania, Philadelphia, Pennsylvania

20. U.R.I. Marine Advisory Service, (1970). Environmental Protection Checklist and Guide for Site Selection. U.S. Government Printing Office.

Provides a checklist for fossil or nuclear fueled power plants with an indication of minimum standards for site selection under the following areas of concern: (1) land use planning and design, (2) water and air quality protection, (3) noise control, (4) radioactive waste.

REF: College of Marine Studies, University of Delaware

21. USACE, (March 1972). Proceedings of Public Hearing on Delaware River Branch Channel in Vicinity of Delaware City, Delaware.

REF: DSPO

22. USACE,(1966).Beach Erosion Control and Hurricane Protection Along the Delaware Coast

A revision of the 1956 report.

REF: Department of the Army, Philadelphia District, Corps of Engineers

23. USACE,(1956).Beach Erosion Control Report on Cooperative Study of the Delaware Coast From Kitts Hummock to Fenwick Island

State comprises a frontage of 32 miles to Cape Henlopen-Contents:Description of study area. The problem factors pertinent to problem: (1)Littoral material (2) Littoral forces (3) Shore history - plan of protection-Analysis of problem costs, etc.

Appendices: (a) Geomorphology of Delaware shoreline (b) Littoral forces etc.
Plates: Maps-comparative profiles, shoreline and offshore depth changes, storm, wind and wave data.

REF: Department of the Army, Atlantic Region, Corps of Engineers

24. USACE,(1968). Delaware Coast: Beach Erosion Control and Hurricane Protection

The study area consists of the Delaware coast extending 34 miles from Pickering Beach to Cape Henlopen and 34 1/2 miles along the Atlantic Ocean to the state line at Fenwick Island. All public and private beaches have been damaged by erosion. Plans for improvement are presented for control which consists in the placement of beach fill, periodic nourishment of beaches, etc. Sufficient justification exists to warrant federal participation at Broadkill Beach, South Bowers, and Lewes, Only. Plans are also provided for the entire Atlantic coast of Delaware

REF: Department of the Army, Philadelphia District, Corps of Engineers.

25. USDA,(1970).Report of Preliminary Studies of Sedimentation in Delaware

REF: Soil Conservation Service, U.S. Department of Agriculture, Dover, Delaware

26. USDI,(1969).National Estuarine Pollution Study

This report presents an analysis of the importance of estuaries in the economic and social environment and the effects of pollution on the natural ecosystem, as specified in the Clean Water Restoration Act of 1966 (Public Law 89-753). The study recommends a national program based on institutional management with multiple long-term use as a common denominator; it presents a technical analysis of the estuarine zone, identification of scientific knowledge gaps, and an inventory of the available knowledge.

REF: Federal Water Pollution Control Administration, Washington, D. C.

26. Weedman, Parmula et al,(1972).Sea Grant Publications Index 1968-1971. Volumes I and II. Environmental Science Information Center. Rockville, Maryland.

Categories of information topics and sources includes: oceans and seas, technical reports, universities, grants, endowments, fellowships and other current research. Provides functional guidance to libraries.

REF: Environmental Science Information Center
College of Marine Studies, University of Delaware

SECTION 2

SELECTED MAP AND PHOTOGRAPHIC REFERENCES

FILMS AND PRINTS

Films and Prints (Black and White) (1930)

1. U.S. Department of Agriculture (1930) Sussex County Coastal Area Scale 1:20,000

   REF: National Archives and Record Service, Cartographic Branch GSA, Washington, D. C.

   MAP INDEX: Area numbers 7-10, 16-19, 24-27

2. U.S.D.A. (1930) New Castle and Kent County Coastlines. Scale 1:20,000

   REF: College Marine Studies, University of Delaware
   Geology Department, University of Delaware

   MAP INDEX: 39-43

3. U.S.D.A. (1954) Sussex County Coastal Area. Scale 1:20,000

   REF: College Marine Studies, University of Delaware
   Geology Department
   Agriculture Department

   MAP INDEX: 7-10, 16-19, 24-27

4. U.S.D.A. (1960-61) Sussex County Coastline. Scale 1:20,000

   REF: College of Marine Studies, University of Delaware
   Agriculture Department

   MAP INDEX: 7-10, 16-19, 24-27

5. U.S.D.A. (1960-61) Kent County Coastline. Scale 1:20,000

   REF: Geology Department, University of Delaware

   MAP INDEX: 23, 33, 34

6. U.S.D.A. (1968) New Castle County, Kent County and Sussex County Coastlines. Scale 1:20,000

   REF: College of Marine Studies, University of Delaware
   Agriculture Department
   Geology Department

   MAP INDEX: 7-10, 16-19, 23-27, 32-35, 28, 29, 39-43

7. U.S.D.A. (1937) New Castle and Kent County Coastline. Scale 1:15840

REF: Agriculture Department, Dover, Delaware

MAP INDEX: 23, 24, 32-35, 39-43

8. U.S.D.A. (1959) Northern New Castle County Coastline. Scale 1:24,000

REF: Geology Department, University of Delaware

MAP INDEX: 28, 39-41

9. U.S.D.A. (1963) Northern New Castle County Coastline. Scale 1:12,000

REF: Geology Department, University of Delaware

MAP INDEX: 28, 39-41

10. U.S.D.A. (1968-69) Northern New Castle County Coastline. Scale 1:36,000

REF: Geology Department, University of Delaware

MAP INDEX: 28, 39-41

11. National Space Administration (1970) State of Delaware. Scale 1:60,000 or 1:120,000.

REF: Earth Resources Observation System, Data Center, Sioux Falls, South Dakota

12. NASA (1970) New Castle County. Scale 1:60,000 or 1:120,000

REF: Earth Resources Observation System, Sioux Falls, South Dakota

13. NASA (1971) Sussex County and New Jersey Coastline. Scale 1:60,000 or 1:120,000

REF: Earth Resources Observation System, Sioux Falls, South Dakota

14. U.S. Geological Survey (1953) Sussex County Coastline. Scale 1:20,000

REF: Alantic Region Engineer
U.S. Geological Survey 1109 N. Hyland Street, Arlington, Virginia

15. USGS (1963) Sussex County Coastline. Scale 1:24,000

REF: U.S. Geological Survey, Arlington, Virginia

16. USGS (1954 & 1956-58) New Jersey. Scale 1:60,000 and 1:28,400

REF: U.S. Geological Survey, Arlington, Virginia

17. USGS (1959-60) Delaware. Scale 1:60,000

REF: U.S. Geological Survey, Arlington, Virginia

18. USGS (1965) Northern New Castle County Coastline. Scale 1:24,000

REF: U.S. Geological Survey, Arlington, Virginia

19. NASA (1970) Entire Region/Delaware. Scale 1:458,000

REF: College of Marine Studies, University of Delaware

20. National Oceanic and Atmospheric Administration (1971) Sussex County Coastline. Scale 1:10,000 or 1:20,000

REF: National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D. C.

21. USC & GS (1971) Kent and New Castle County Coastlines. Scale 1:10,000 or 1:20,000

REF: National Oceanic and Atmospheric Administration, Washington, D. C.

22. USC & GS (1971) Cape May Coastline. Scale 1:10,000 or 1:20,000

REF: National Oceanic and Atmospheric Administration, Washington, D. C.

23. New Castle County Planning Department (1962, 1964, 1968) New Castle County. Scale 1:400, 1:200, 1:100

REF: New Castle County Planning Department

<u>Films and Prints</u> (Color, Infra-red)

24. NASA (1970) Entire Region/Delaware and Sussex, Kent and New Castle County Coastlines. Scale 1:60,000

25. NOAA (1971) Sussex, Kent, New Castle and Cape May County Coastlines. Scale 1:10,000 or 1:20,000

REF: College Marine Studies, University of Delaware

(Infra-red, Multispectral)

26. NASA (1971) New Castle, Kent and Sussex County Coastline. Scale L;60,000 or 1:120,000

REF: Earth Resources Observation System, Sioux Falls, South Dakota

MAPS

Coastal Zone Maps

1. Wilmington Blueprint (1948-1956) Topographic, Sussex, Kent and New Castle County Coastline. Scale 1:24,000 or 1,62:500

   REF: Wilmington Blueprint, Wilmington, Delaware
   College Marine Studies, University of Delaware
   Geology Department, University of Delaware

   MAP INDEX: 7-10, 16, 23, 24, 32-34, 40-43

2. Geologic Survey (1964) Hydrologic Survey (Water Table, Surface Drainage and Engineering Soils Maps). Sussex, Kent and New Castle County Coastline. Scale 1:24,000

   REF: U.S. Geological Survey
   College of Marine Studies, University of Delaware

   MAP INDEX: Same as above

3. Geologic Survey (1964) Geologic Maps. Entire Region/Delaware. Scale 1:24,000

   REF: U.S. Geological Survey
   Geology Department, University of Delaware

4. Geodetic Survey (1960) Tidal Current Maps. Entire Region/Delaware.

   REF: Environmental Services Administration, Coast and Geodetic Survey, Rockville, Maryland
   College of Marine Studies, University of Delaware

5. Geodetic Survey (1954 and 1956) Index Map of Tidal Beach Marks. Delaware

   REF: Coast and Geodetic Survey, Rockville, Maryland
   College Marine Studies, University of Delaware

6. Geodetic Survey (1970-71) Navigation Charts. Delaware. Scale 1:40,000 or 1:80,000

   REF: Coast and Geodetic Survey, Rockville, Maryland
   College Marine Studies, University of Delaware

7. Geodetic Survey (1835 - 1965) Hydrographic Survey Maps. Delaware. Scale 1:10,000 or 1:30,000

   REF: Coast and Geodetic Survey, Rockville, Maryland

8. Agriculture Soils Maps (1970) Sussex, Kent and New Castle Counties. Scale 1:15,840

   REF: Delaware State Department of Agriculture
   DSPO
   WILMAPCO

9. Base Maps - Forest Inventory for New Castle County Available on Acetate.

   REF: WILMAPCO

10. WILMAPCO (1971) Physiographic Features Map: Slope (in excess of 15%), Floodplains, Meadowlands, Drainage Basins for New Castle County. Scale 1:6000

   REF: WILMAPCO

11. Delaware State Highway Department (1959) Road Maintenance Maps. New Castle, Kent and Sussex Counties. Scale 1:125,000

   REF: Division of Highways, Planning Section, Dover, Delaware

12. Bureau of the Census (1960) Population Density Maps. Delaware

   REF: Geography Division, Bureau of the Census
   College of Marine Studies, University of Delaware

13. Delaware Geological Survey Office (1964) Water Resources Evaluation Map of Delaware. Prepared for Delaware State Planning Office.

   REF: DSPO
   Geology Department, University of Delaware

14. Delaware Geological Survey Office (1966) Generalized Geologic Map of Delaware.

   REF: Geology Department, University of Delaware
   DSPO

15. Adams, J. K. and D. H. Boggess, (1964) Water-Table, Surface-Drainage, and Engineering Soils Map of the Wilmington Area, Delaware

REF: See U.S. Documents, Department of the Interior

16. Adams, J. K., D. H. Boggess, and C. F. Davis (1964) Water-Table, Surface-Drainage, and Engineering Soils Map of the Lewes Area, Delaware

REF: See U.S. Documents, Department of the Interior

17. Adams, J. K., D. H. Boggess, and C. F. Davis (1964) Water-Table, Surface-Drainage, and Engineering Soils Map of the Dover Quadrangle, Delaware

REF: See U.S. Documents, Department of the Interior

18. Adams, J. K., and D. H. Boggess (1964) Water-Table, Surface-Drainage, and Engineering Soils Map of the Taylor's Bridge Area, Delaware

REF: See U.S. Documents, Department of the Interior

19. Adams, J. K., D. H. Boggess, and O. J. Coskery (1964) Water-Table, Surface-Drainage, and Engineering Soils Map of the Frankford Area, Delaware

REF: See U.S. Documents, Department of the Interior

Other Maps Applicable to Coastal Zone in Delaware State Planning Office

1. Paper Positive & Negative of State Line in River & Bay
2. 8 1/2 x 11 State with CZ Boundary
3. 1" to 1 mile Three County Maps with CZ Boundary
4. 1" to 800' Aerial Mosaics (1963-1964), Entire State
5. 1" to 800' Vernon Graphics Planimetric Base (1963-1964), (Kent County Updating 1972), Entire State
6. 1" to 2000' Vernon Graphics Planimetric Base (1963-1964), Entire State
7. 1" to 1667' Photographs (1938), Entire State
8. 1" to 1667' Photographs (1954), Entire State
9. 1" to 1667' Photographs (1961), Entire State
10. 1" to 1000' Photographs (1961), Kent & Sussex Counties
11. C & D Canal Booklet (1965)
12. 1" = 24,000' USGS Maps (Various Dates), Entire State
13. 1" = 1 mile Three County Maps, Soil Interpretations
14. 1" to 2 miles State Map, Soil Interpretations
15. 1" to 800' Zoning Maps, Kent & Sussex Counties (1972)
16. 1" to 1 mile Zoning Map, Sussex County (1971)
17. Various Scales NASA Photographs (1970)
18. 1" - 400' CZ New Castle County (1968), 1" - 200' Getty Property
19. 1" = 1667' Soil Survey (May 1970)
20. State Soil Associations Map
21. 1" to 2 miles Swamplands
22. 3/4" to 5 miles Value of Wetlands (1953)
23. 1" to 2 miles Existing Land Use (1973) State Map
24. 1" to 2 miles Severe Soil Limitations (1973), State Map
25. 1" to 2 miles Existing & Proposed Conservation Lands (1973), State Map
26. 1" to 2 miles Existing Industrial Ownerships (1973), State Map

27. 1" to 2 miles Existing Zoning & Plans (1973), State Map

28. 1" to 1 mile Composite District Studies NCC (1973)

29. Photos and Maps of Towns - Parks - State and Federal Properties (assorted scales)

SECTION 3

SELECTED LIST OF SOURCE AGENCIES

Selected List of Source Agencies for Coastal Zone Information

Delaware State Agencies:

State Planning Office
Thomas Collins Building
Dover, Delaware

Department of Natural Resources and Environmental Control
Tatnall Building
Dover, Delaware

Delaware Geologic Survey
University of Delaware

University of Delaware, Newark, Delaware:

College of Marine Sciences
University of Delaware

Division of Urban Affairs
University of Delaware

Water Resources Center
University of Delaware

County and Regional Agencies:

New Castle County Planning Department
Robert Kirkwood Highway
Box 165
Wilmington, Delaware

Kent County Planning Department
56 The Green
Dover, Delaware

Sussex County Planning and Zoning Office
Courthouse
Georgetown, Delaware

Delaware River Basin Commission
Trenton, New Jersey

Wilmington Metropolitan Area Planning Coordinating Council
2062 New Castle Avenue
New Castle, Delaware

Federal Agencies:

Department of Agriculture, Soil Conservation Service
Dover, Delaware

Department of the Interior, Bureau of Outdoor Recreation
Philadelphia, Pennsylvania

Department of Commerce, National Oceanic and Atmospheric Administration
Washington, D. C.