REVIEW DRAFT

January, 1978

P O R T S A N D C O A S T A L M A N A G E M E N T

A STUDY OF U.S. PORT DEVELOPMENT

AND

COASTAL MANAGEMENT PROGRAM DEVELOPMENT

by

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1978

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Summary of Recommendations and Conclusions

This study describes areas of conflict between advocates of port expansion and development and advocates of coastal protection and recreational uses for U.S. coastlines. It also describes the public port authorities and the coastal management programs whose role it is to resolve those conflicts.

The central questions addressed by this study are:

- How are port and coastal management officials getting along?
- Do they communicate effectively?
- What issues do they debate?
- Are policies emerging to resolve conflicts?
- Where is policy and program improvement most needed?

The study showed that for the most part port authorities and state coastal management programs have been meeting together and working toward solutions to common problems. Despite this interaction, both sides will agree that there is room for improvements, and the recommendations that follow have been written toward that end.

At a regional or national level.....

- Coastal management policies in states across the nation are generally accommodating, not frustrating, port facility development needs. Nevertheless, states need to assess the impact of coastal program decisions on the competitive posture of ports when specific development decisions and land allocations are made. To assist this effort, regional and national interest studies of port facility development are needed. Studies should involve the port industry, federal agencies with maritime interests and the federal Office of Coastal Zone Management.

(Recommendations 1 and 2)

- Project delay resulting from permit redundancies is wasteful and unnecessary. Coastal management programs must take their intergovernmental coordination mandate more seriously and develop rational permit review systems that avoid duplication and time delay.

(Recommendation 6)

For early action.....

- Many ports own unused waterfront property that could be developed to improve shoreline environments in urban areas. In these instances the capital improvement capabilities of ports should be married to coastal management program activities to revitalize urban waterfronts for commercial, recreational and aesthetic benefits.

(Recommendation 8)

- Ports need material for landfill and they also need deep channels. Since dredged material is no longer viewed as "spoil" but as a resource with multiple-use potential (habitat islands, wetland development, erosion control), coastal management programs and ports should jointly plan the use of dredged materials to achieve port development, recreational improvement and environmental enhancement objectives.

(Recommendation 9)

- Funds are needed to redevelop urban waterfronts and use dredged material creatively. A state-level coastal conservation and development fund should be established to give coastal management programs a capital improvement capability.

(Recommendation 10)

- Technical information and advisory assistance are essential for workable coastal management programs. Federal agencies, with the assistance of the Office of Coastal Zone Management should give priority to developing and disseminating information on:

  --port facility needs, port capacity and techniques for intensive port land use
  --redevelopment of obsolete port facilities in urban waterfronts
  --planning for disposal and use of dredged material

  (Recommendation 7)

At state and local levels.....

- Ports must become active participants in coastal management programs, not outside adversaries, through:

  --inclusive definitions of the coastal zone covering all water-related port lands and facilities
  --port membership on coastal advisory committees and panels
  --active technical information exchange and joint study sponsorship
  --direct port implementation of economic development objectives of coastal management programs where appropriate

  (Recommendations 3, 4 and 7

- Substate plans are needed, within regions such as estuaries, to balance port facility needs with environmental constraints. Plans should be:

  --developed by a multiagency task force, including ports as members
  --designed to allocate shoreline for port development, recreational use, environmental enhancement and other purposes over the long term
  --preceded by interim performance standards
  --implemented and monitored by the participating agencies and port authorities

  (Recommendation 6)

PREFACE

In recent years ports have been frustrated, and sometimes enraged, at the increasing number of environmental regulations and the resulting delays in developing new piers and channels for waterborne trade. Many ports viewed emerging coastal management programs as simply another permit requirement and predicted more bureaucracy, longer delays and higher costs. They were skeptical that coastal management programs could help ports through better advance planning, as claimed by coastal management advocates.

When this study began, in mid-1976, only one state (Washington) had begun to implement a federally-approved coastal management program. By the time we completed the study in the fall of 1977, five states had approved programs, and many other states had submitted draft programs to the Office of Coastal Zone Management for review. The content of coastal management programs was beginning to take shape.

This study asks how coastal management programs are dealing with port development problems and how port and coastal management officials are working together to plan use of coastal resources. It is to the officials of these two programs that this report is addressed and dedicated.

A number of groups and individuals, were particularly helpful to us in the conduct of our study. In particular, the project would have been impossible to complete without the participation of our Technical Advisory Panel composed of nationally prominent experts in port development and coastal management. Special thanks are due all members of that panel, but the contributions of five were so significant that we note their names here: Dick Schultz, executive director of the American Association of Port Authorities; Joe Moseley, III, executive director of the Texas Coastal and Marine Council and a member of the national Coastal Zone Management Advisory Committee; Eldon Opheim, affiliate professor of marine studies at the University of Washington and retired general manager of the Port of Seattle; Eric Schenker, professor of

economics at the University of Wisconsin; and Peter Wise, director of the Illinois coastal management program; and John Clark, Senior Associate, The Conservation Foundation.

We are also grateful to Douglas Fleming, associate professor of geography and adjunct professor of marine studies, University of Washington, and to Michelle Tetley, Paul Stang, and Dick Gardner, Office of Coastal Zone Management, for their support and assistance throughout this project.

Although many individuals reviewed early drafts of this report and provided valuable advice and guidance, the findings, conclusions, and recommendations contained in this report are solely our own.

MJH January 1978

ABOUT THIS STUDY

A 1975 survey by the federal Office of Coastal Zone Management (OCZM) revealed that, in the minds of coastal management officials at all levels, some of the most serious land and water use problems facing them were port-related. Thus, OCZM, as a part of its technical assistance program and in conjunction with the National Sea Grant Program, instigated this study to develop information about the impacts of coastal management on port development and to publish that information for the use of both coastal management agencies and port authorities.

The study was carried out by the Coastal Resources Program of the Institute for Marine Studies, University of Washington, between July 1976 and December 1977, under NOAA grant 04-7-158-44021 to the Washington Sea Grant Program.

ABOUT THE AUTHORS

Although each of the authors participated in the entire study, individually they concentrated on specific aspects of this report.

Marc Hershman, associate professor of marine studies and adjunct associate professor of law at the University of Washington, directed the project under which the study was conducted and this report written. In addition to overall editing, he wrote chapters 1, 6, and much of chapter 4.

Robert Goodwin, a coastal management specialist of the Washington Sea Grant marine advisory program affiliated with the Coastal Resources Program and the Institute for Marine Studies, played a key role in developing methods for conducting the study. He also wrote much of chapter 5 and assisted in organizing and editing the final report.

Andrew Ruotsala, graduate student in oceanography, compiled and prepared all illustrations in this report. He also wrote portions of chapter 4.

Maureen McCrea, currently pursuing a Ph.D. in geography at the University, developed information for chapters 3, 4, and 7, and she painstakingly checked bibliographic references.

Yehuda Heyuth, a transportation geographer specializing in maritime transportation, provided information for chapters 2 and 7. He is presently teaching at the University of Rhode Island.

ACKNOWLEDGMENTS

Our thanks go also to the following staff members of the Coastal Resources Program in the Institute for Marine Studies, University of Washington: Doug Ancona, presently attorney with NOAA General Counsel in Seattle, who managed the administrative aspects of the project during its first year; Saskia Schott, research literature analyst and librarian, who provided substantial bibliographic support; and Doris Olsen, secretary, who weathered the paper storm and typed numerous drafts.

The authors wish especially to thank the entire staff of the Washington Sea Grant Communications Program for their skill and patience in editing and for providing assistance in graphics, layout, and manuscript preparation.

Finally, many officials of case study port authorities and coastal management agencies extended their hospitality and precious time to the authors during their visits. Their assistance was invaluable and is greatly appreciated.

Chapter I

I N T R O D U C T I O N

The controversy between port development activities and environmental protection interests takes many forms. New port wharves may conflict with traditional recreational boating areas. Dredged material that once would have been used for landfill must often be disposed upland to meet environmental protection standards. New port facilities may block waterfront views. In each case, because port developers and environmental and recreation advocates have different perceptions of the overall public interest, they compete over access to and use of the limited coastal resources.

The objective of this study is to describe aspects of the conflicts over use of coastal resources and to discuss policies and procedures to resolve or minimize them. First, it examines the construction and use of port facilities--harbors, piers, quays, channels, and storage facilities--that serve a growing and changing port and maritime trade industry (Fig. I.1). Second, it identifies environmental protection activities--private and governmental actions to protect and enhance environmental and recreational interests in coastal regions.

Many governmental agencies and programs are concerned with the conflicts between port development and environmental protection--most notably public port authorities and coastal management programs. Public port authorities manage much of the marine commerce and trade along the nation's coasts and waterways, they promote trade and commercial and industrial development, and they support new port facility development. Coastal management programs develop and implement comprehensive coastal land and water use programs designed to balance environmental values and economic development values. They are developed by state and local governments under federal laws and guidelines. Some are already being implemented and are controlling coastal land and

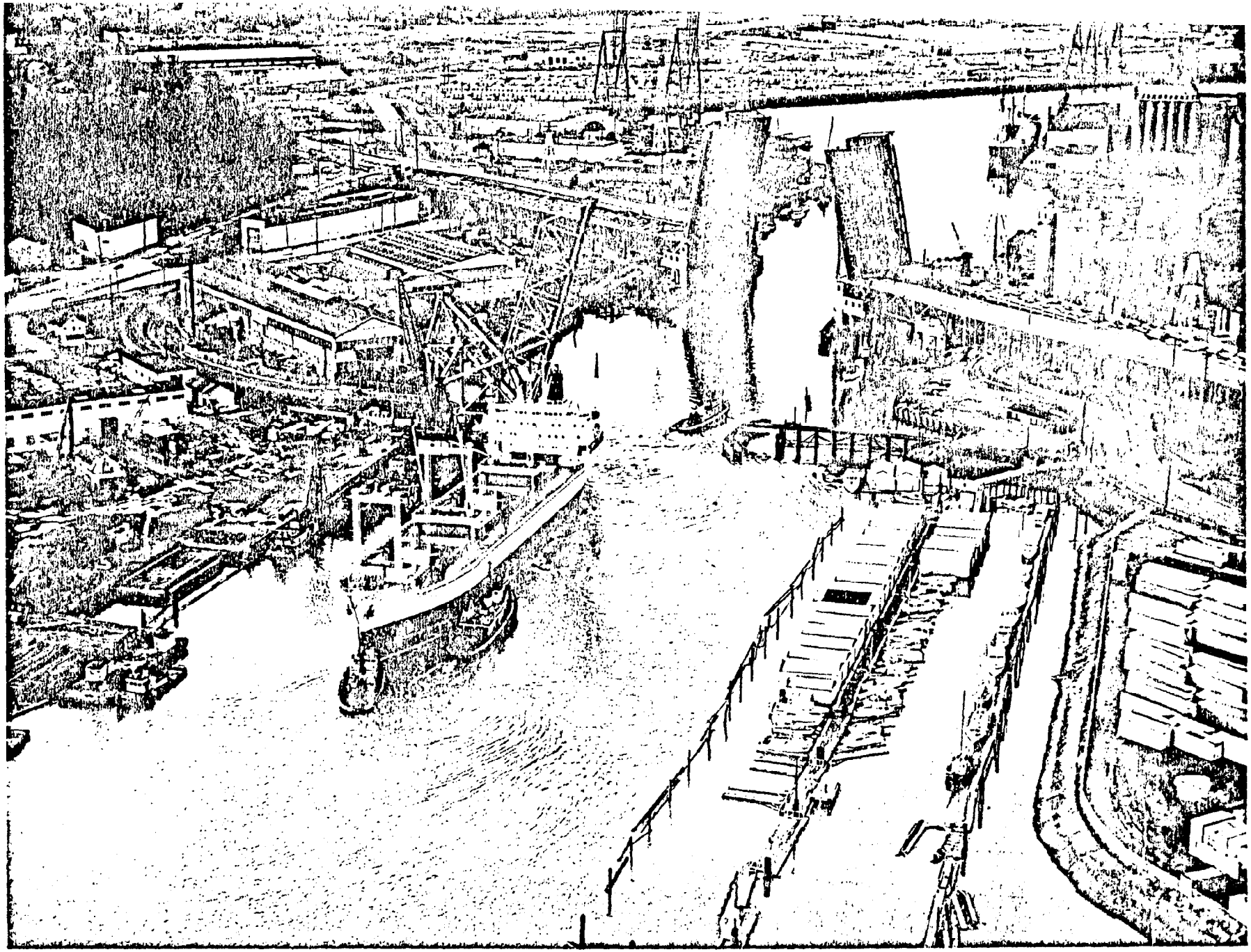

Fig. I.1. Freighter with tug assist entering the Duwamish River waterway, Port of Seattle. (Photo courtesy of Port of Seattle)

water uses, including port development activities. Others are just now emerging, and while they have not been finally approved by the federal government, some state and local controls are in force and are influencing port development activities.

It is inevitable that conflicts between port development and environmental interests will involve public port authorities and coastal management programs. Because of this mutual involvement in public policy issues, an understanding of the objectives, organization, and practices of each is essential; this study describes them in some detail. Chapter II discusses reasons why port authorities decide to invest in new facilities and how they plan and seek approval from government agencies. Chapter III describes the goals and elements of coastal management programs and how proposed programs are developed and approved.

Port development and environmental protection conflicts are sometimes so general and philosophical that solutions to particular problems are impossible. Fortunately, this absolutism is not common. More often, conflicts center around specific land and water use issues--such as pollution, aesthetics, and permit delay--for which solutions can be found. This study found ten land and water use issues to be highest on the minds of port authority and coastal management program officials. Chapter IV discusses each of these ten issues in separate subsections--factors that contribute to those issues and selected examples of policies in coastal management programs that address them.

Conflicts sometimes arise because people's values about preferred coastal uses differ, or because they have inadequate information about other users. Thus, face-to-face interaction is essential to resolving present and potential conflicts; differences in values can be debated and important information verified and exchanged. For this reason, effective interaction between officials of public port authorities and coastal management programs can be a key to minimizing conflicts over coastal zone

use. Chapter V discusses how port authorities and coastal management program officials interact to consider port needs in the development of coastal management programs, and ways in which port authorities can directly participate in implementing coastal management programs to assure regular and ongoing interaction.

Certain emerging policies and practices appear to provide excellent opportunities for enhancing port authority and coastal management program relations. In Chapter VI, recommendations and conclusions are presented which discuss national and regional approaches to minimizing conflict. They also discuss ways of refining coastal management programs so that they address port-related issues. Special new programs to deal with the critical problems of dredged material disposal and the redevelopment of obsolete waterfront facilities are proposed as well.

This study was based primarily on seven case study port authorities and coastal management programs. (The selection of these case studies is described later in this Introduction.) Case study methodology, a short synopsis of the port authority development activities, and the status of the coastal management program (organized by case study), are in Chapter VII.

Before launching into the details of the study, this Introduction provides additional background information. First, a discussion of the trends in port development and coastal management program development explains in more detail why these two activities are especially important for study. Second, the methods and definitions used in the study are outlined showing how case studies were selected. Finally, related studies are discussed briefly for the benefit of those readers desiring further information.

Trends in port development and coastal management program development

The coastal zone of the United States is the region in which most of the nation's growth and development has taken place in the 20th century. It is here that more than 50 percent of the population now lives and where the country's largest urban centers are found. Concentrated in the coastal zone are the great industrial, commercial, and transportation networks, as well as increasing numbers of second home developments, public shorefront parks, and marinas for recreational boaters and commercial and sports fishermen. Further, the natural environment of the coastal zone is rich in scenic beauty, and coastal estuaries and wetlands support an ecosystem abundant in wildlife.

Ports have been traditional users of the coastal zone. This country's birth and growth can be traced to the major coast and inland ports which brought settlers and goods, and exported raw materials and manufactured items. Until recent years ports have operated virtually free of government regulations. Even today, competition between ports is vigorous, each trying to gain additional trade and commerce for the region being served.

But now, when port authorities propose major developments--such as new channels, expanded terminals, landfills, and turning basins--they frequently encounter opposition from recreational and environmental interests, from fish and wildlife interests, and sometimes even from other commercial and industrial developers. As a result, port development in recent years has been slowed in some areas, and in other areas new public interest features (public access and mitigation) have significantly increased development costs. Furthermore, some cities and communities have encouraged recreational and commercial developments, rather than expanded port facilities, and some federal and state agencies have found that the value of fish and wildlife resources and their public use outweighs potential benefits of new port facilities.

In addition to the problem of changing values, ports are going through a period of rapid technological change. Traditional break-bulk general cargoes are being replaced by containerized shipments of general cargo and specialized bulk commodity handling and shipping techniques. These changes result in the need for altered shorefront facilities: deeper channels, greater backup and storage space, and marginal wharves rather than traditional small finger piers. (Figures 1.2 and 1.3 illustrate the striking contrast between turn-of-the century shipping techniques and a modern harbor and terminal complex.) But to modernize a port, a port authority must abandon or sell obsolete facilities, remodel existing facilities, develop wholly-new facilities (sometimes in new locations), and promote federal navigation improvement projects. Development activities like landfill and dredging often compete directly with other waterfront uses, particularly recreational development and environmental enhancement.

In 1972, Congress passed the Coastal Zone Management Act to enhance state and local capabilities for managing land and water uses in the coastal zone. The act calls for the development of state coastal management programs which give full consideration to aesthetic, ecological, historical, and cultural values, as well as to economic values. As an initial step, state programs are expected to analyze competing coastal land and water uses and to develop procedures for deciding permissible and priority uses in particular areas, in accordance with environmental impact or resource capacity assessments. State coastal managers are also expected to consult and coordinate with the management activities of existing governmental units at all levels and to involve these agencies in the coastal management program whenever feasibl

Since passage of the act, most coastal and Great Lakes states have begun developing coastal management programs. Washington, Oregon, California, The San Francisco Bay region of California and the island of Culebra, Puerto Rico, are

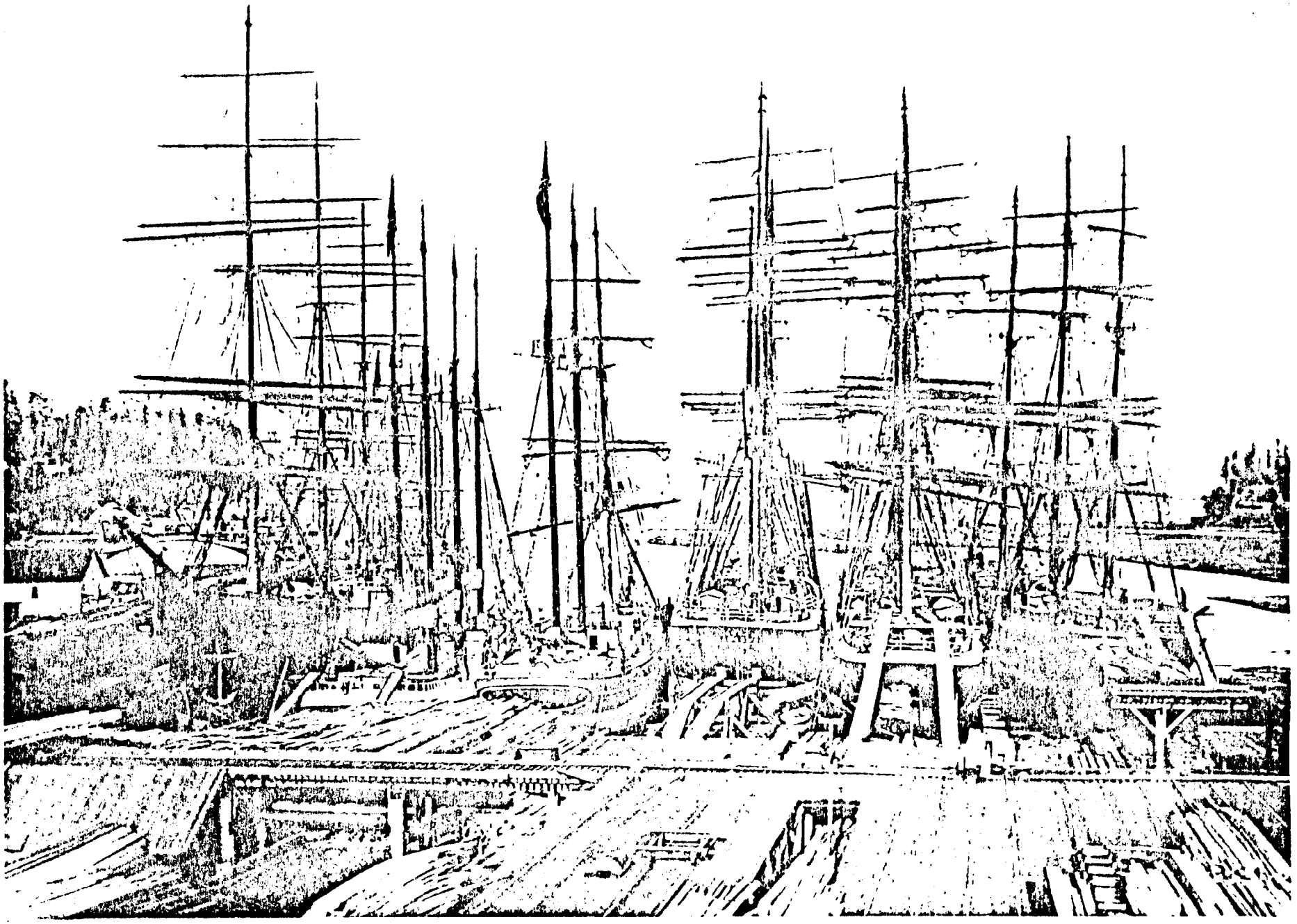

Fig. 1.2. Smaller ships relied on steam-power and muscle to handle cargo around the turn of the century. Photo shows lumber loading operations around the turn of the century at Port Blakeley, Bainbridge Island, Washington (Photo by Arney A. Rodal, courtesy of Bainbridge Photography)

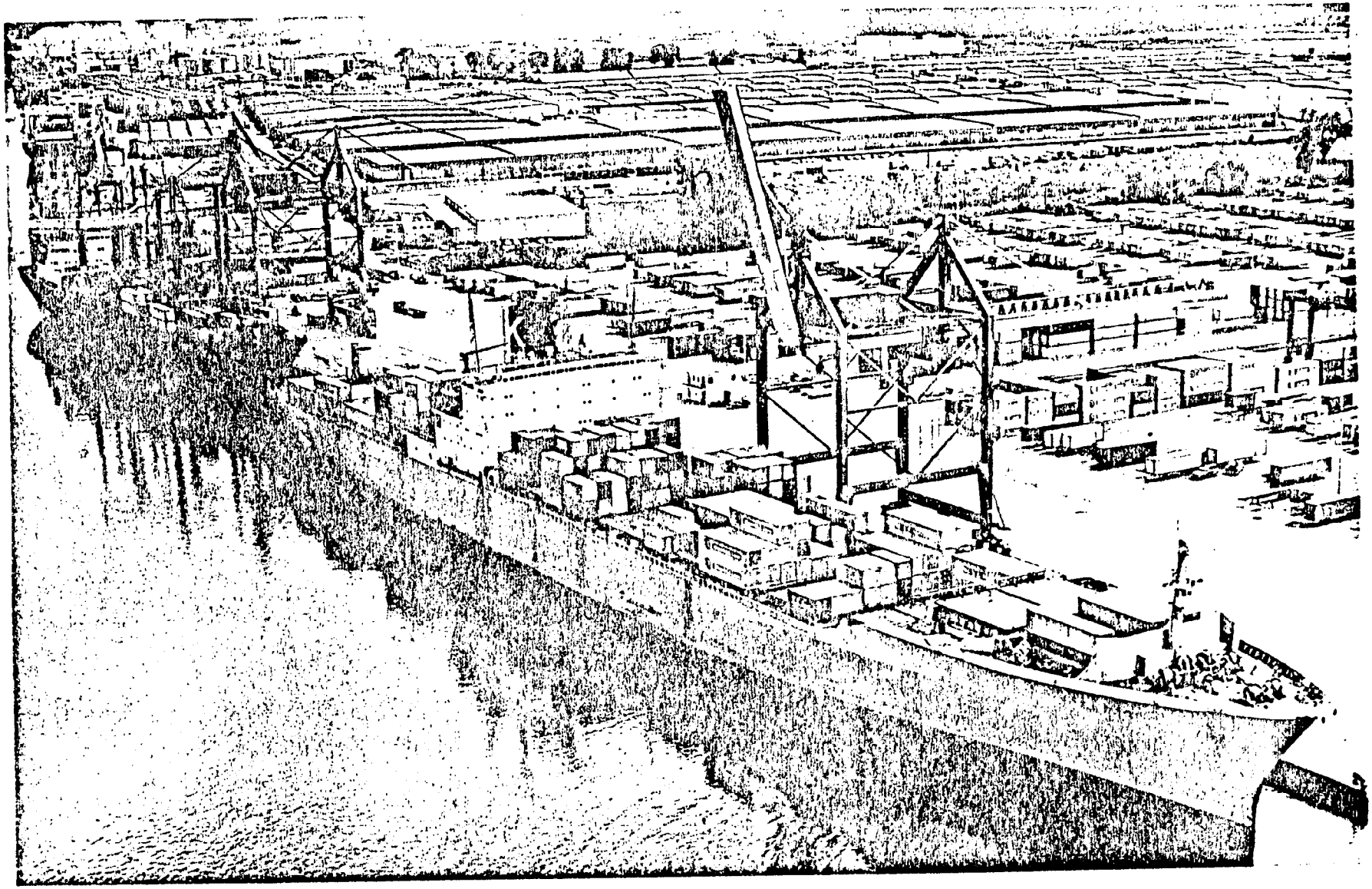

Fig. 1.3. In contrast to by-gone days, modern ports must provide facilities to service the larger ships today. Requirements for deeper water, longer berths, larger warehouses and more land area for container storage have made many former port locations obsolete. This recent state shows a portion of the Garden City Terminals, Georgia Ports Authority, Savannah, Georgia. (Photo courtesy of the Georgia Ports Authority)

implementing approved programs: eight more state programs are in final review stages and should be approved in 1978 (Massachusetts, Michigan, Rhode Island, Virgin Islands, Wisconsin, Maine, Maryland, and North Carolina). Other states and territories are at varying stages of program development. Specific policies about coastal development are being debated, and in many cases existing state and local laws and agencies will augment their land use, resource management, and environmental activities to form the basis for coastal management programs.

Port authorities and coastal management programs are extremely important to one another. Ports that must develop new facilities because of changing technology are vitally concerned that emerging coastal program policies recognize their needs and provide for them. Further, the port industry is highly competitive, and port authority officials fear that coastal management program policies that favor or hinder port development would upset current competitive balances. Coastal management programs must plan for transportation and economic development interests in the coastal zone, especially where water-dependent uses are involved. Because port needs must be considered in context with all other uses--economic or environmental--which affect coastal areas, relevant policies must be proposed to deal with them. Coastal managers are searching for ways to balance port development needs with other competing coastal uses, and to formulate means of providing ongoing attention to port-related issues.

To balance ports needs and competing uses in coastal areas, coastal management programs deal with more than the environmental impact of a particular development project. When many uses conflict in a particular environmental setting, allocating land and water uses along the shoreline becomes necessary.

Allocating coastal space for port activities means asking how much space a port authority needs; determining their needs is extremely difficult. It involves predicting future trade and commerce in a region, and adding factors to reflect desired economic growth and competitive posture.

The difficulty of determining future port facility needs is further illustrated by the debate over port facility redundancy. Some studies have shown that ports have overbuilt in the past, resulting in excess U.S. port capacity (Frankel, 1973; U.S. Dept. of Transportation, 1977; Borland and Oliver, 1972). A National Academy Panel (National Research Council, 1976), on the other hand, has concluded that this is not the case; in fact, it suggests that excess capacity is desirable so that ports can remain competitive and can handle normally recurring peak loads. The panel also argues that judgments about efficiency should not be based on apparently under-utilized facilities.

Regardless of the outcome of this debate, where there is much competition between ports and other users, coastal managers need to understand trade forecasting and facility requirements in order to develop an appropriate allocation scheme. This will invariably involve close cooperation between port authorities and coastal management program officials, underscoring their interdependence.

Methods and definitions

An objective of the study was to characterize port authority and coastal management program relationships at a national scale. A method of study that would permit national-level generalizations and provide information useful to port and coastal zone planners and managers was needed. Six case studies illustrating problems and situations likely to face port authorities and coastal management programs dealing with one another were chosen.

To determine which ports and coastal states might best represent the country as a whole, certain criteria were developed that reflect the primary concerns of port authorities and coastal management programs. They also reflect geographic, distributional, and program development factors to maintain the interest of a nationwide audience. Table I.1 describes eight criteria categories and the range of factors considered within each category. The ports and states selected reflect the range of factors within each one.

Next, ports from which the case studies would be selected were identified, starting with the 35 coastal and Great Lakes port cities which had recent highest gross tonnage (see Table I.2). This created a bias toward larger ports, eliminating hundreds of smaller ports, most of whom have port facilities and will have contact with coastal management programs. However, the larger port authorities were likely to be more actively engaged in policy debates with coastal management programs, and port development issues can be better researched using larger port authorities. This information, however, will also be useful to smaller port authorities.

After applying the criteria to 35 ports, six case study port areas were chosen (see Figure I.4):

1. Port of Milwaukee--Wisconsin Coastal Management program
2. Port of Philadelphia
South Jersey Port (Camden) --- Pennsylvania/New Jersey
Coastal Management programs
3. Georgia Port Authority at Savannah--Georgia Coastal Management program
4. Brownsville Navigation District--Texas Coastal Management program
5. Port of Los Angeles--California Coastal Management program
6. Port of Grays Harbor--Washington State Coastal Management program

These ports represent variety in size, type of cargo handled, organizational level in state government, and recent growth trends and problems. They also represent the coastal and Great Lakes regions of the country. Further, each state's approach to

Table I.1 Criteria for case study ports

1. Locational factor: (Mandatory: one port/area)

   A. North Atlantic
   B. South Atlantic
   C. Gulf coast
   D. Lakes
   E. North Pacific
   F. South Pacific

2. Port size:

   A. Large
   B. Medium
   C. Small

3. Port expansion factor

   A. Extensive development plans
   B. Moderate development plans

4. The role of the port

   A. Intermodal exchange
   B. Industrial development/promotions
   C. Landlord

5. Port administrative factor

   A. State
   B. Municipal
   C. Multiple-port organization

6. Human environment factor

   A. High density urban area
   B. Medium density area
   C. Low density area

7. State of coastal management factor

   A. Approved coastal management program
   B. Advanced state program
   C. Beginning state program

8. Priority of port problem determined through responses to Office of Coastal Zone Management questionnaire

   A. Primary concern
   B. Secondary concern

Table I.2. Tonnage handled and city populations of selected U.S. ports

Port	1974 tonnage (millions of short tons)	City population
Great Lakes		
1. Duluth	40.3	100,578
2.* Milwaukee	4.2	717,099
3. Chicago	45.9	3,366,957
4. Detroit	27.5	1,511,482
5. Cleveland	21.9	750,903
Atlantic Coast		
6. Portland	27.6	65,116
7. Portsmouth	2.3	25,717
8. Boston	25.7	641,071
9. Newport	8.8	34,567
10. New Haven	12.0	137,707
11. New York, Elizabeth and Newark	195.6	7,894,862
12.* Philadelphia	59.9	1,948,609
13. Wilmington, DE	3.9	80,386
14. Baltimore	59.6	905,759
15. Hampton Roads	72.9	678,047
16. Wilmington, NC	8.7	46,169
17. Charleston	9.0	66,945
18.* Savannah	9.9	118,349
19. Jacksonville	14.8	518,131
Gulf of Mexico		
20. Tampa	40.9	277,767
21. Mobile	33.1	190,026
22. Pascagoula	13.1	27,264
23. New Orleans	144.2	591,502
24. Galveston	7.2	61,809
25. Houston	89.1	1,231,394
26.* Brownsville	2.8	52,522
Pacific Coast		
27. San Diego	2.1	693,931
28. Long Beach	26.9	358,633
29.* Los Angeles	25.9	2,816,061
30. Richmond	14.7	79,043
31. San Francisco	3.9	715,674
32. Oakland	6.8	361,561
33. Portland	20.7	382,619
34.* Grays Harbor	3.2	30,554
35. Seattle	14.3	530,831

*Case study port

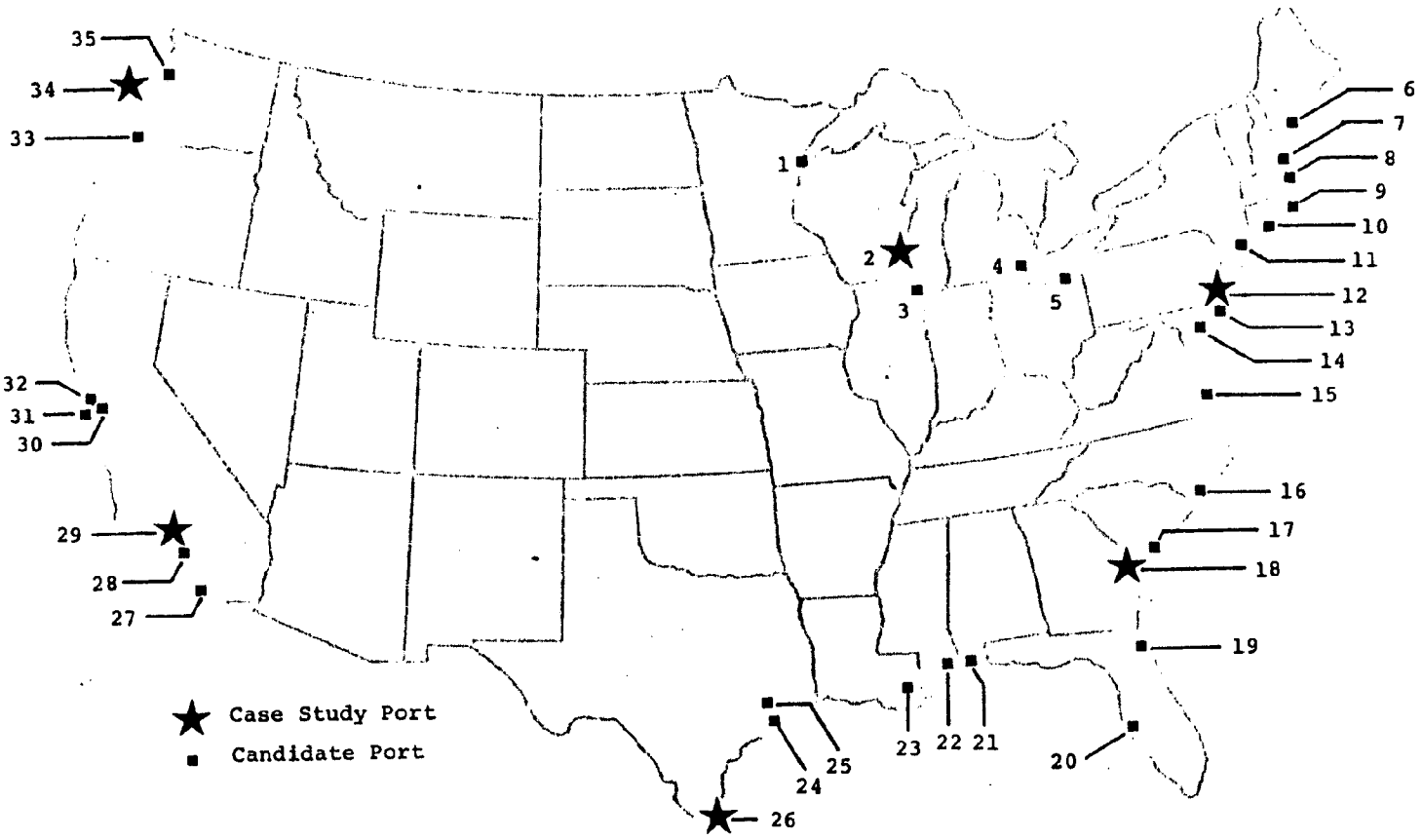

Fig. I.4. Thirty-five candidate ports including six case study ports. The numbers correspond to the port cities in Table I.2 (p. I.8b).

coastal management was considerably different. Coastal management efforts ranged from early stages of program development (Pennsylvania) to a fully implemented program (Washington). (Chapter VII discusses the case studies.)

Three key definitions were decided upon early in the study:

Public port authorities, were chosen because they often represent a broad range of users concerned with trade and economic development in the coastal zone. (Limiting the study to public port authorities, however, excludes the many private ports, lessees of port facilities, and shipping firms that are all involved in aspects of port development.) Further, public port authorities would be the agency most often dealing with coastal management program officials.

Port development was limited to land and water use issues that arise out of proposals for new or expanded port and port-related facilities, such as landfills for new terminals, channel dredging, and land acquisition for major expansions. Since physical facility development problems are the issues of primary concern to coastal management programs, problems of internal port management--financing, labor relations, trade promotion--were not addressed except when they bore directly on a physical facility project.

Coastal management programs were defined as those governmental programs being developed and implemented pursuant to the federal Coastal Zone Management Act of 1972. This definition excludes many public and private activities--such as management practices of private owners, regulation by federal agencies, traditional city zoning along shorelines, or management by state land agencies--unless these activities are a formal part of a program developed under the Coastal Zone Management Act.

Related studies

In the past decade a number of studies (some are discussed below) examining port development problems and issues have provided useful information on the factors that influence or constrain port growth, and have suggested various public policy approaches to that growth. In some cases, public programs affecting ports have been initiated as a result of these studies.

In 1969, the Stratton Commission--a major federal study concerned with the nation's ocean-related efforts--recommended establishment of a national coastal and

marine resources program (Commission on Marine Science, 1969). Its recommendations included a proposal for state-developed coastal management programs and cal ed for a nationwide study to determine how and where ports should develop in light of rapid technological changes and increasing environmental constraints. Similar studies had been recommended earlier by the U.S. Marine Council, a federal interagency body coordinating marine affairs at the national level, and by the U.S. Corps of Engineers. The recommended national port facility needs study was not undertaken, however.

The public port industry was initially opposed to direct federal involvement in port development (other than traditional Corps of Engineers functions to maintain and improve navigable waterways). However, starting in the early 1970's port authorities began to recognize that limited federal technical and financial assistance could assist the industry. Subsequently, some larger public port authorities used federal funds to do regional trade forecasts to determine future facility needs and to counteract claims of over-development. (Washington Public Ports Assoc., 1975 and NORCAL, 1976) Currently, the port industry is lobbying for a federal law that would provide ports with funds to offset federally mandated costs for environmental protection, cargo security, and worker safety programs.

One project of the American Association of Port Authorities (AAPA) is worth special mention. In 1976, AAPA conducted a short study of port development and coastal management program development (AAPA, 1976) that described the port industry for the benefit of coastal management planners. It concluded that coastal management programs could be beneficial to port authorities if they provided adequate space for future port expansion.

University studies funded by Sea Grant and other agencies have also addressed port development (Schenker, Mayer, and Brockel, 1976; Frankel, 1973; Mayer, 1975; Borland and Oliver, 1972). In 1973, a national conference was held to discuss port planning and coastal environmental interests (Schenker and Brockel, 1975).

Subsequently, a National Academy of Science (NAS) study recommended a program of federal aid to ports (National Research Council, 1976). Another NAS study, now underway, is addressing the impact of maritime services on local populations and ways to avoid adverse impacts.

The subject of port development and coastal management programs is receiving increasing attention. The federal Coastal Zone Management Advisory Committee issued a resolution in May 1977, calling on states to give ports priority consideration and to "designate port authorities as having responsibility within their jurisdiction for the development and implementation of aspects of coastal zone programs affecting their operations." The National Sea Grant Association Conference in November 1977, also dealt with the subject of port development: papers were presented by port officials, coastal management program officials, and academic investigators. In January 1978, a workshop held by the New England River Basin Commission addressed the relationship of New England port authorities and the emerging coastal management programs of the region's six states. Finally Secretary of Commerce task force is developing a comprehensive ocean policy study specially addressing ports and coastal management programs, and new policies and programs to enhance coordination between them are being considered.

Because the coastal zone is such an important region of the country, and coastal resources are essential to many diverse groups and individuals, minimizing conflict between different resource users is long overdue. This study attempts to provide useful information to those people who face the conflicts between port development and environmental protection each day.

CHAPTER II

PORT DEVELOPMENT

Improving and expanding port facilities and services to meet the needs of shippers and local industry are major functions of port managers. Some key aspects of port development in the United States are illustrated in this chapter, with the focus on public port authorities and the development of new facilities in the coastal zone. Coastal management programs are concerned with these new facilities, addressing site selection, design and impact, and sometimes port facility needs as well. Thus, it is important to know how ports develop and change so that coastal plans and management programs can deal more efficiently and adequately with the port's users.

The port authority is the central figure in public port development (Figure 2.1). It defines the need to expand a certain facility, which can be a result of pressure to improve the local economy, or can be part of the port's struggle to maintain and improve its competitive situation. Once the port commissioners decide to expand facilities, the director, working through the staff, develops detailed plans. After the development plans are approved by the director and the port commissioners, they are submitted to regulatory agencies. (If the project involves channel deepening or other public water body improvements, a civil works project request may be submitted by the local sponsors to the congressional delegation for study and implementation by the Army Corps of Engineers.) Both state and local review agencies evaluate the proposed project; if it meets

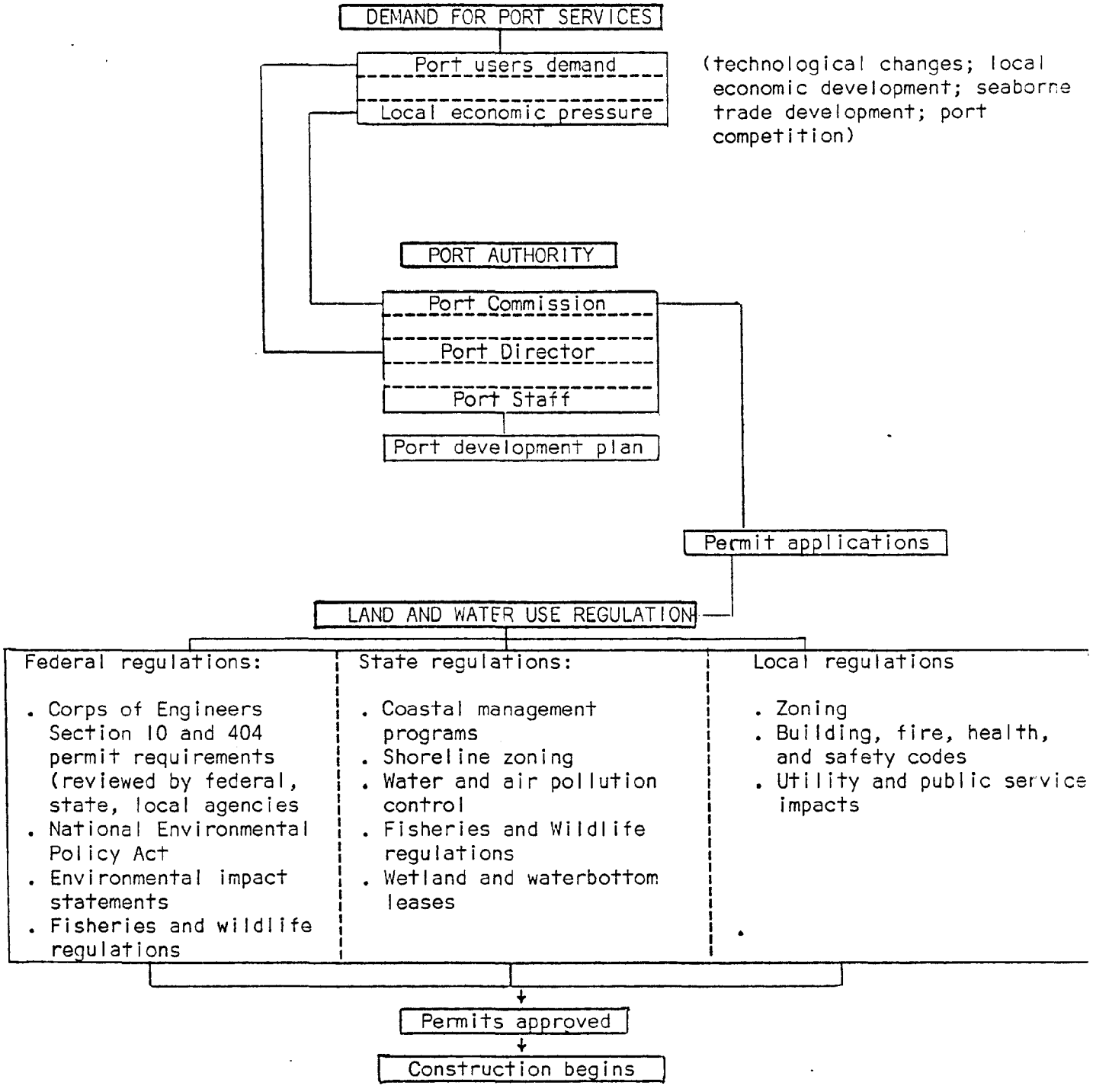

Fig. 2.1. Port development process.

their standards and criteria, it can be implemented by the port. These four key elements of port development--the port authority, demand for port services, federal programs to assist port development, and land and water regulations--are discussed individually.

PORT AUTHORITIES

What are port authorities, and how are they organized?

Since the beginning of the century, the concept of public port authority has become common in the United States. Many port authorities derive their authority and obligations directly from the states as departments or special districts. Others are controlled indirectly by states, with powers passed through municipalities or counties which may, in turn, create port authorities.

The types of port authorities vary among the states. Most ports operate in specified local regions. California ports, with few exceptions, are departments of city government. In Washington and Oregon, and along the gulf coast, the state establishes authorities which operate at the local level. The ports of Texas, for example, derive their authority from the state, but operate as county level navigation districts. Many east coast states have a single state-wide port authority. Great Lakes port authorities represent a variety of all the types that appear elsewhere in the United States.

Despite the differences in organizational structure, several features are common to enabling legislation for port authorities in the various states:

1. The legislation creates a public trust in the interest of commerce.

2. Commissions are established to uphold the trust.

3. Port authorities are authorized to build, finance, promote, and develop whatever is necessary to the public port enterprise and its objectives.

What does a port authority do?

The jurisdictions and operations of ports are varied. Traditionally, they have been regarded as a link between land and sea transportation. Modern ports, however, must be defined not only in terms of their transport function, but also in terms of such functions as cargo storage and industrial development. Each of these functions is found, to some extent, in most modern ports.

Cargo handling

The first function of a port is to handle cargo. Not only is a port the place where land transport ends and sea transport begins, but it is also the place where two types of sea transportation can be linked. Cargo handling methods vary considerably from port to port. Handling general cargo or containers is a completely different operation from handling bulk cargo, such as coal or grains. Each type of cargo requires specialized facilities for loading, unloading, and storage. In the last two decades, significant changes have occurred in equipment and methods of loading and unloading all types of cargoes. Manual labor was replaced by sophisticated automated machines, which increased productivity significantly. Less than 20 years ago it took a week or two to unload a general cargo shipment weighing 10,000 tons. Today, a 10,000-ton container vessel can be unloaded in less than a day.

Cargo storage

In many cases, the chain of transport is interrupted in the port itself, and

cargo must be stored in suitable warehouses, silos, and tanks. As a result of the great diversity of goods, numerous general-purpose or specialized installations are necessary to enable ports to store inbound and outbound cargo. Every port has some storage facilities; however, the size and extent to which waterfront storage areas are necessary varies from one type of cargo to another. A warehouse and transit shed of a few thousand square feet are needed to store general cargo, whereas the average container terminal, including an open storage area and marshaling yard, usually covers about 20 acres. (The number of containers stored in an acre can be doubled or tripled depending on the methods of container stacking.) Another example of variations in storage space requirements is the space need for different wood products: storing 30,000 tons of logs requires about 10 acres, but storing 30,000 tons of wood chips requires less than 6 acres (Washington Port System Study, Volume II).

Industrial development and promotion

The land areas around ports are suitable or convenient locations for many industries Traditionally, ship-building and ship-repairing firms have located near ports, for example. Many other industries also choose port areas as convenient sites for plants, particularly water-oriented industries and industries that depend heavily on large volumes of imported raw materials, such as seafood processors, petro-chemical firms, and oil refineries. An example of an unusually active promoter of industrial development is the Port of Brownsville, which owns 42,000 acres of industrial land adjacent to its waterway. It not only acquires and prepares land for its industrial lessees, it also provides utility and infrastructure investments and acts as agent in securing the permits necessary for its lessees.

How does private enterprise relate to public port authorities?

Private enterprise is involved in the port industry in two ways: as owner/operators of private port facilities or as lessees of public port facilities. Port facilities that are owned and operated by private companies in most cases consist of a single specialized pier and a back-up area. They are common for handling liquid and dry bulk commodities. Generally, oil refineries or oil tank farms have their own facilities for loading and unloading tankers, as do private grain elevators and coal shippers.

Private operators or industrial enterprises can also lease facilities from public ports. In many ports, much of the cargo is handled by private shipping companies which concentrate their loading, unloading, and storage activities in areas leased from public ports. These companies also can lease cranes and other equipment from ports or they can operate their own. The terms and lengths of these leases vary from port to port, but the lessee usually is responsible to the port to fulfill terms of the lease agreement and to government agencies to meet permit requirements.

How do ports finance operations and developments?

Because modern cargo-handling facilities require heavy capital investments, financing has become a major issue for ports. (Development expenditures for U.S. ports are shown in Figure 2.2.) There are few primary sources for port funds. Each port generates income from charges levied on shippers that use its facilities or services, but income from this source is modest, and rarely exceeds the cost of normal port operation.

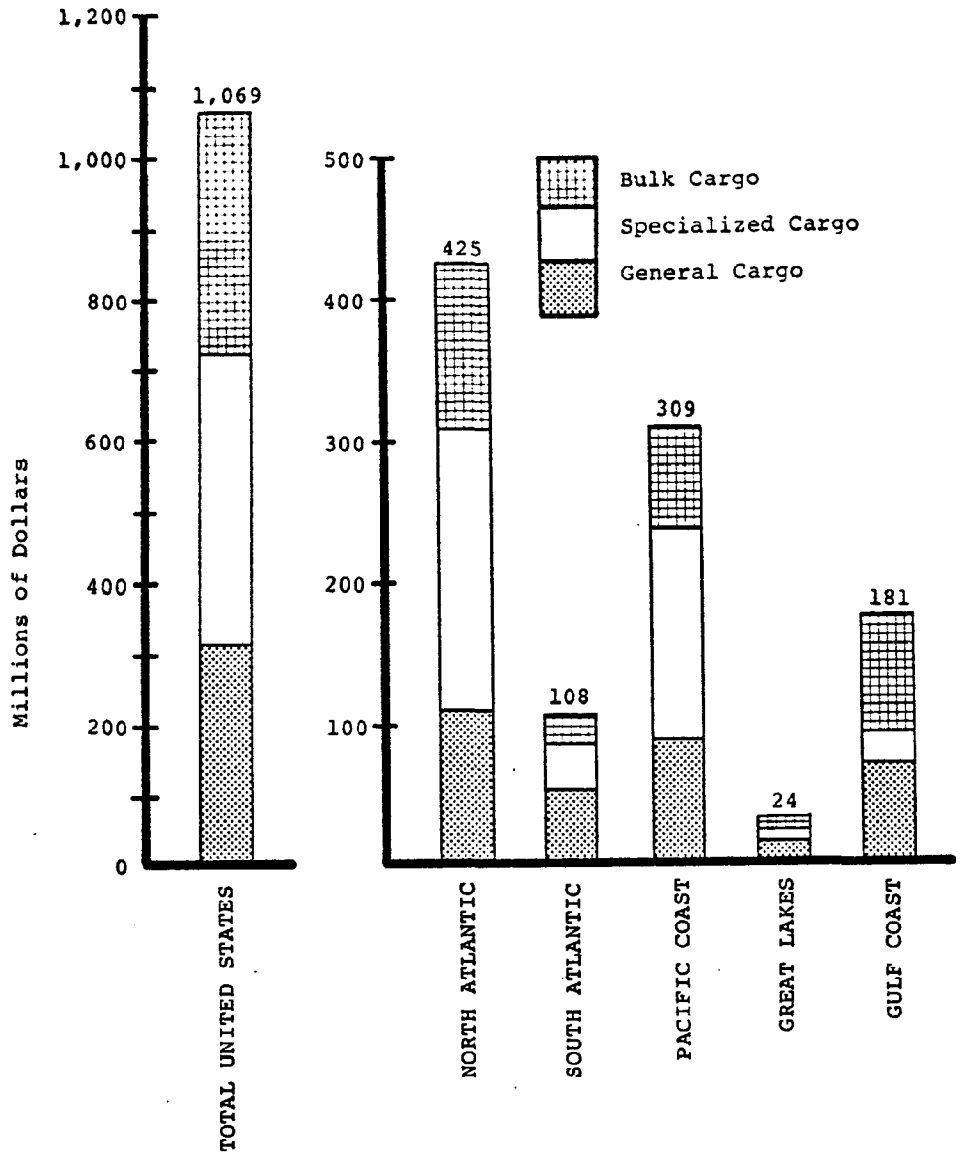

Fig. 2.2 Port development expenditures, 1966 - 1972, for the United States and selected regions. Amounts are in millions of dollars.

Source: U.S. Department of Commerce, Maritime Administration, *Public Port Financing in the United States,* June 1974, p. 10.

Many port authorities retain earnings for financing their operations and some capital improvements. Other ports, however, return earnings to their governing body and operate on an annual budget provided by this body.

Capital for port development generally comes from sources other then earnings (Figure 2.3). Direct federal funding for development is not very common, partly because of fear that federal aid could lead to federal control, but public subsidy at the federal, state, or local level is very common. The Corps of Engineers subsidizes development, by providing dredging and channel maintenance services, and public works assistance funds are often provided to ports by the Economic Development Administration. A port's major source of capital improvement funds, however, is public financing. Some ports have tax-levying authority, while others are authorized to issue general obligation bonds or revenue bonds. In the last two to three decades, there has been a general decrease in investment by private enterprise and a growing predominance of public agency investment in port facilities (AAPA, 1976).

How do ports plan for future needs?

Every port performs some planning function, although very few U.S. ports have planning departments. Those that don't have permanent departments, hire planning consultants from time to time. However, the larger ports, like the New York/ New Jersey Port Authority and the Port of Seattle, maintain complete departments that are responsible for planning for port needs and evaluating trends in the industry. Even some smaller ports, like Grays Harbor, have a planning section within the port management office.

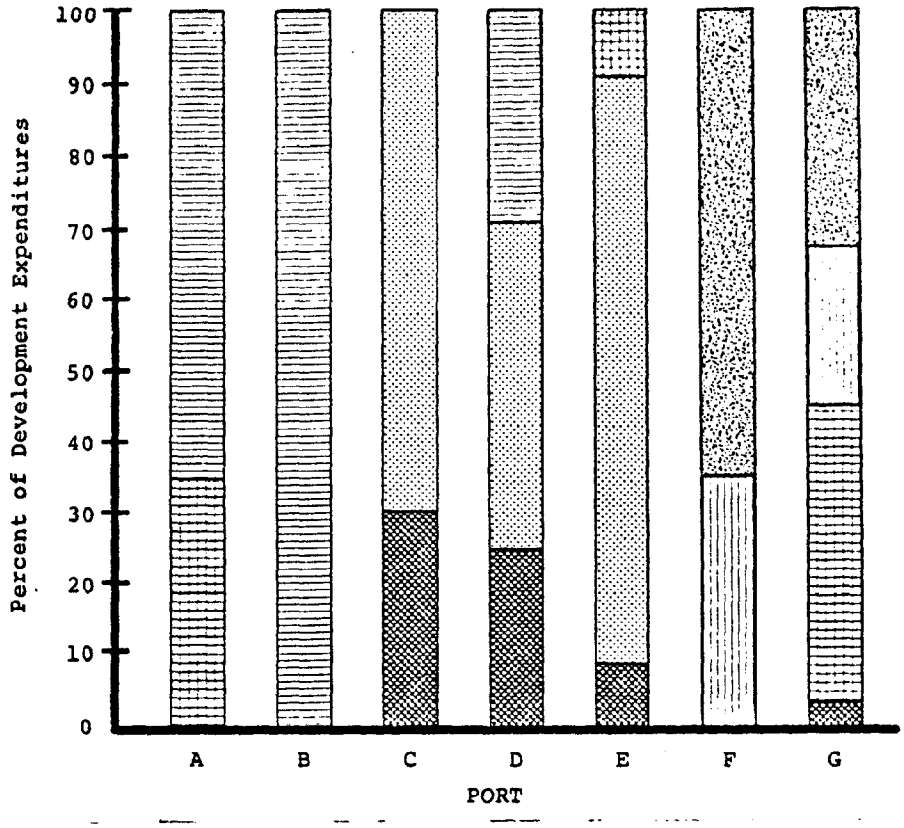

Fig. 2.3 Representative financing methods for selected U.S. ports, development expenditures for 1966 - 1972. Ports: (A) Newport News, Virginia; (B) Portsmouth, Virginia; (C) Charleston, South Carolina; (D) New Orleans, Louisiana; (E) Houston, Texas; (F) San Diego, California; (G) Oakland, California.

Reinvestment of Port Earnings; General Obligation Bonds; Revenue Bonds; State Subsidy; Federal Subsidy; Other

Source: U.S. Department of Commerce, Maritime Administration, *Public Port Financing in the United States*, June 1974. p. 39.

There is a high degree of uncertainty involved in port planning, particularly long-term planning. Planners must consider rapid changes in shipping technology, trying to develop plans based on the future needs and requirements of ships the port will serve without knowing for certain the size and draft of the next generation of ships and future methods of cargo handling. The sophisticated cranes that handle containers today might not meet future requirements. New methods of loading and unloading, such as vertical stacking of containers, might be needed.

Port planners are also uncertain about the port's future customers. A shipping company which operates very costly vessels has to be flexible in its operation; it can change routes and ports of call fairly quickly. It is difficult to plan new facilities, and even more difficult to obtain financing if a port cannot prove well in advance that they will be used. The highly competitive environment in which ports operate imposes significant constraints on port planning.

Time scales of port plans are geared to immediate response planning, mid-range (up to five years) planning, and long-range (10-15 years) planning. Immediate response planning deals with day-by-day problems, such as pier maintenance and improvement. Mid-range planning, up to five years, is often concerned with major port projects, such as the addition of a new container terminal. Long-range planning appears in the form of a general master plan. Master plans are concerned with major expansion, new cargo types, property acquisition, and other long-term considerations.

On a spatial scale, port plans may involve only installation of a single pier or minor infrastructure changes, or they may require expansion of an existing terminal or the addition of entire new sections. (Figure 2.4 gives an example of port expansion.) In the last few years, port planners have been involved in planning on

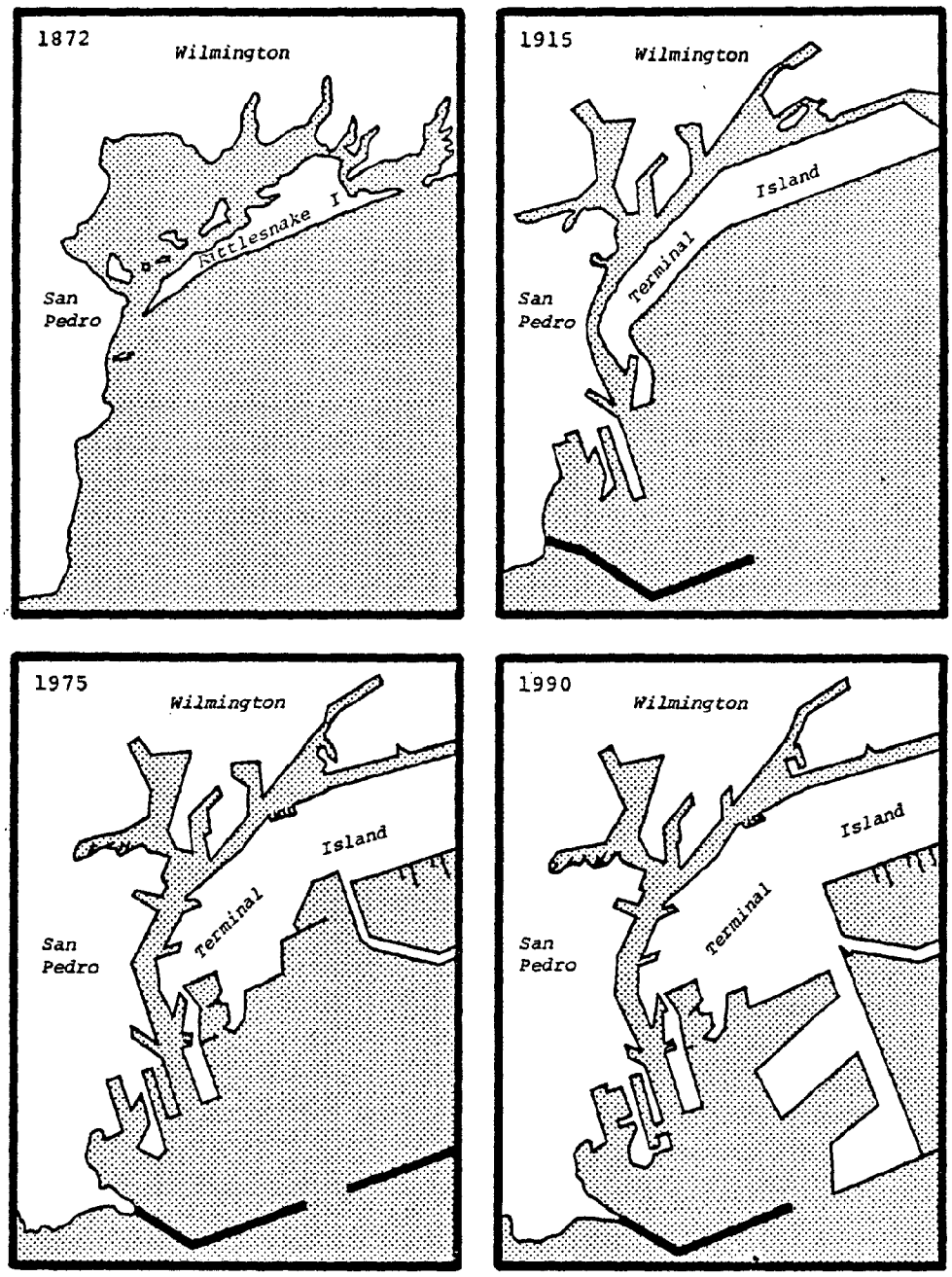

Fig. 2.4 Historical and proposed expansion of the Port of Los Angeles by landfill, 1872-1990. Source: Port of Los Angeles, Comprehensive Master Plan 1990.

regional scales. Some recent regional port studies were conducted as a result of state legislative pressures, and growing claims of over-built port facilities. The Washington State Regional Port Study, which includes the Port of Portland, is composed of a series of technical reports describing the current system, giving commodity forecasts, and developing a model to determine the use efficiency of port facilities. The members of Washington Public Port Association (WPPA) formed a voluntary cooperative development committee to issue "certificates of need" to member ports on any new facility. Another regional study, NORCAL (sponsored by Northern California Ports and Terminals Bureau), concerns ports in the San Francisco Bay area. Its principal purpose is to develop a method for determining port capacity and the need for future expansion. Similar studies are also being conducted in Florida, Texas, and St. Louis.

DEMAND FOR PORT SERVICES

Seaborne trade development and technological changes

One reason port development will continue in future years is because international seaborne trade has risen steadily since World War II. The industrial countries exert a dominant influence on world trade and consequently on seaborne trade. Over the years, growth in trade has continued, even though there have been yearly fluctuations in the rate of growth (Table 2.1). For example, in the early 60's, the average annual rate of growth of seaborne trade was 9.7%. It rose to 11% in the late 60's and declined to 7.0% by the early 70's. During the early 70's the rate of growth varied from 4% in 1971, to 6% in 1972, and to 11% in 1973, a year of strong economic activities and trade prosperity despite

Table 2.1 Total World Seaborne Commerce, 1965-73

Year	Crude oil	Oil products	Iron ore	Coal	Grain	Other cargo	Total trade
			in 1,000 million ton-miles				
1965	2,480	640	527	216	386	1,600	5,849
1966	2,629	700	575	226	408	1,700	6,238
1967	3,400	730	651	269	380	1,800	7,230
1968	4,197	750	775	310	340	2,000	8,372
1969	4,853	760	919	385	307	2,150	9,374
1970	5,597	890	1,093	481	393	2,200	10,654
1971	6,554	900	1,185	434	406	2,250	11,729
1972	7,719	930	1,156	442	454	2,400	13,101
1973	9.171	1,010	1,398	467	622	2,700	15,368

Source: United Nations Conference of Trade and Development: Review of Marine Transport, 1974, p. 7.

the continuing monetary instability. (Figure 2.5 shows tonnages for six case study ports for these years.) Thus, even with annual fluctuations port development pressures will continue because of steady growth in trade.

The United States is a major focal point of world trade. It is a major consumer of oil and raw materials and the largest distributor of manufactured goods and agricultural products. Total waterborne commerce of the United States in recent years is shown in Figure 2.6. Projections of U.S. waterborne commerce are illustrated in Figure 2.7. In response to the growing volume of cargo, the merchant fleet increased correspondingly. The increase was characterized by substantial increases of vessel size and technological changes in ship operation and methods of cargo handling.

Until 1950, ports saw only minor changes in methods of cargo handling. However, since then, ports have had to adapt to profound technological change at an accelerated pace. Those that had conventional facilities could not provide adequate service to the large and fast vessels requiring sophisticated methods for loading and unloading cargo. Container ships, "roll on, roll off" (cargo rolled on through hatches rather than lifted by crane), and LASH vessels (where small barges are stored on a large mother ship), have replaced the conventional general cargo ships. Very large dry bulk carriers and oil tankers of up to one-half-million tons are predominant on the oceans. These new ships are very expensive. Economics demands that the turn-around time of ships in port be kept to a minimum so that cargo keeps moving and the shipowners earn money. It is estimated that 60% of a cargo liner's year is spent in ports. Today, the average container ship spends less than a day in port, a visit that is as long as a week for conventional general cargo ships. Thus, shippers choose those ports which provide fast, efficient loading and unloading service. Ports that aggressively modernize to meet these needs are faced with very expensive expansion projects.

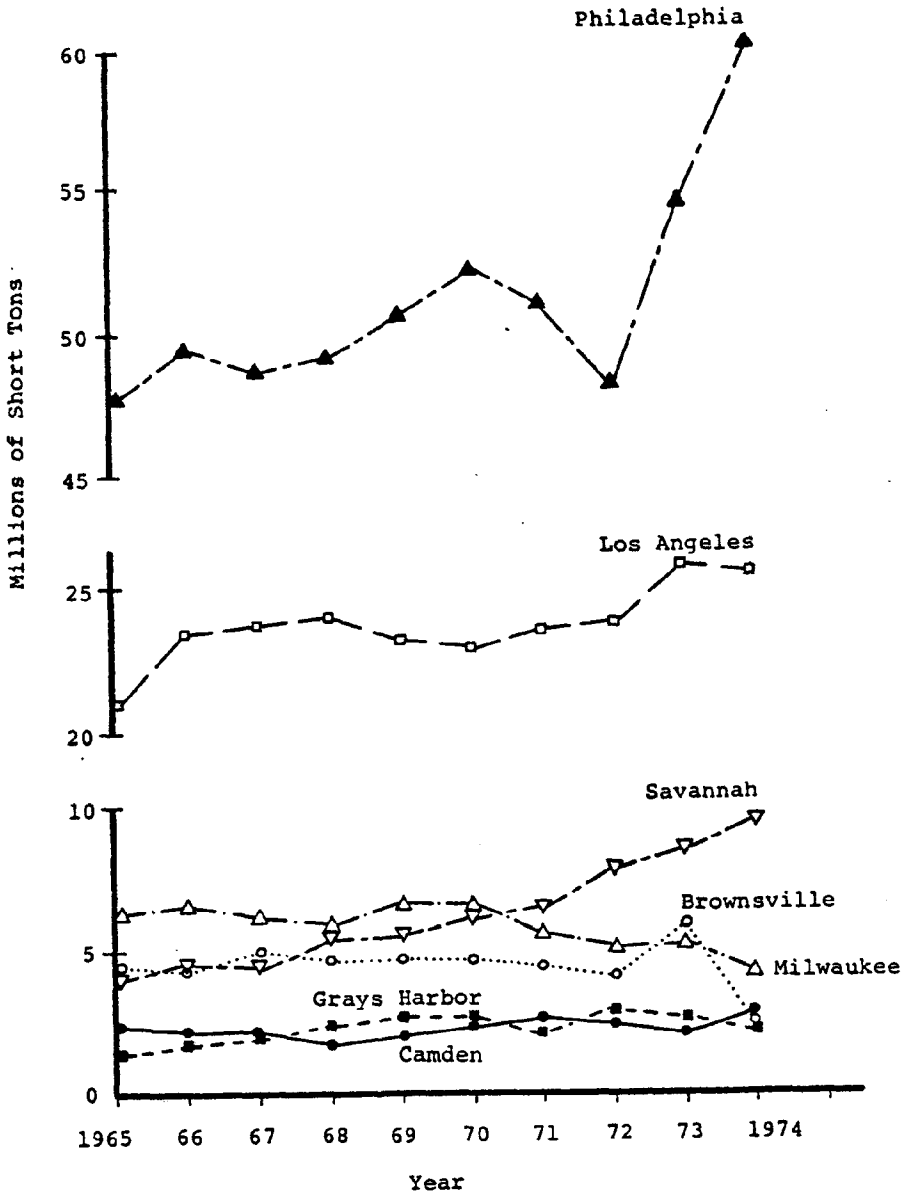

Fig. 2.5 Net total cargo tonnages handled for six case study ports, 1965-1974. Tonnages shown are net tonnages for all cargoes moved through all terminals, public and private. Grays Harbor tonnages include vessel traffic, but exclude rafted logs. Source: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States*, 1974.

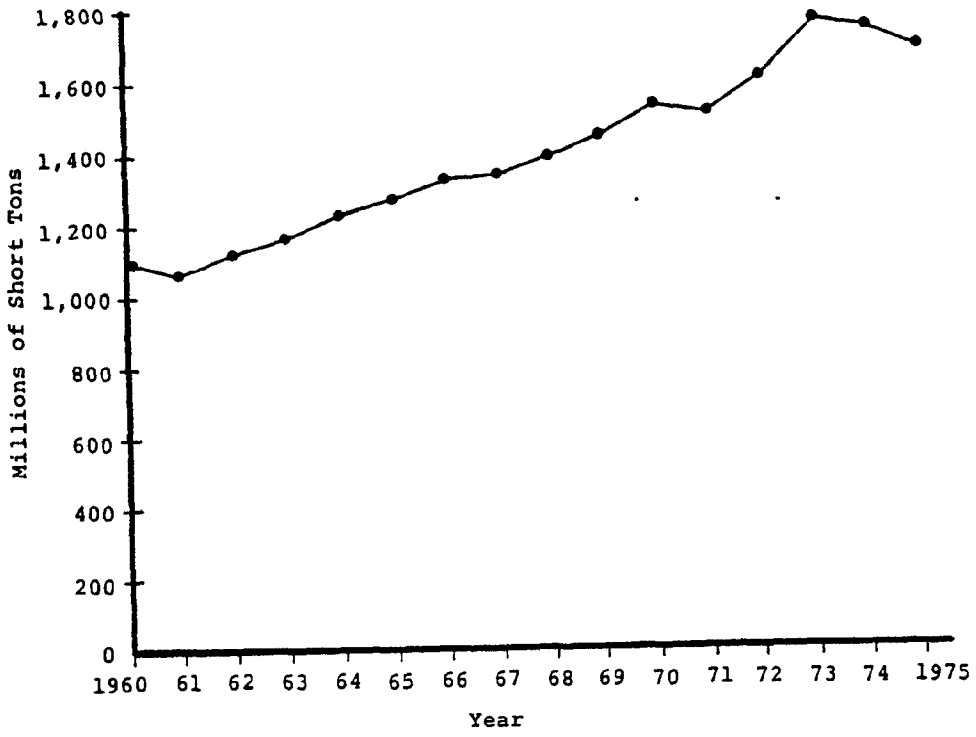

Fig. 2.6 Total waterborne commerce of the United States, 1960-1975. Source: U.S. Army Corps of Engineers, *Waterborne Commerce of the United States*, 1975.

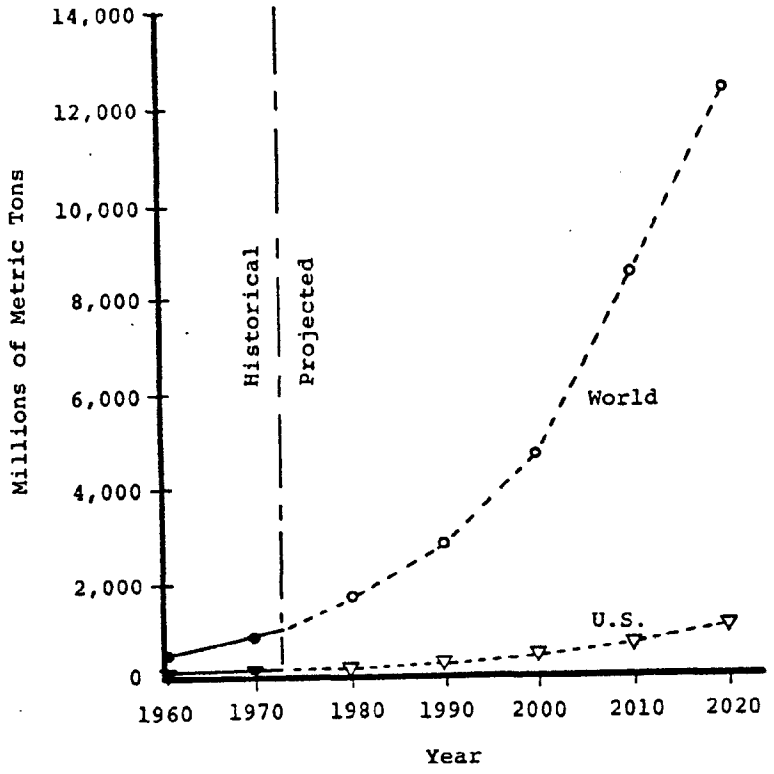

Fig. 2.7 Historical and projected world and U.S. dry cargo trade. Source: Northern California Ports and Terminals Bureau, *Trade Outlook of the Northern California Ports: Year 2000 and Beyond*, November 1975, p. 57

Local economic impact

Coastal communities have a vested interest in developing their ports in order to benefit from the significant economic impacts that they have on the cities and the regions in which they are located. Economic impacts are of two types--direct and indirect. Payrolls, sales, and revenues generated by ports and waterborne commerce have a direct impact on local economies. Indirect economic impact results from the additional goods and services purchased from regional firms in order to support direct sales to ports. The difference between direct and indirect economic impacts is known as the multiplier effect.

Various port authorities have published studies about the impact of their respective ports on local economies. One of these studies (Hillie Suelflow) indicates that a ton of general cargo passing through the Port of Baltimore leaves more than $132.00 in the local economy, and that a ton of bulk cargo moving through that port leaves $7.69 in the economy of the port area. The ports of Seattle, Los Angeles, and Savannah, as well as many other ports, have published similar reports. However these latter reports are based on the numbers of employees directly and indirectly connected to these ports. This method is a controversial one, because some jobs counted may not be clearly port-related. (A typical problem, for example, is whether to count a truck driver who spends part of his time working for the port as holding a port-related job. Some will claim that he would have the job even without the port). E. Schenker (1967), in a study on the Port of Milwaukee, lists fifty items of community income directly generated by port operations. Among items that Schenker lists, are marine services, such as the use of tugboats, wages earned on the waterfront, and profits on ship supplies and other port services.

Port competition

Ports operate in very competitive environments. Traditionally, neighboring ports have vied with each other for cargo, but for many years it was recognized that each one had a dominant hinterland--a region from which it received and dispatched cargo. In this specific area, every port had an advantage over its neighbors. But technological changes in ocean transportation have altered this aspect of local dominance. Containerized cargoes, which require high capital investments in specialized vessels and cargo-handling equipment on shore, have concentrated container traffic in fewer, but larger ports. Moreover, the container system coupled with "mini-bridge" service (moving containers from one U.S. coast to another overland by rail) has forced ports to compete in a widely overlapped hinterland. Cargo from the Far East that was formerly unloaded at gulf ports is now being diverted to the west coast ports where rail service is readily available to complete transport. Great Lakes ports are faced with similar competition from both west coast and east coast ports.

FEDERAL PORT PROGRAMS

Traditionally, federal policy has been that ports should remain competitive and free to develop without federal control or comprehensive plans (Marcus et al., 1976). Despite this policy, the U.S. government provides considerable assistance for port developments and operations. Moreover, various federal agencies maintain safe and navigable waterways as a free service to ports. The cost of dredging in berthing areas is usually paid for by the ports. In addition, many ports are now paying for disposal of polluted dredge spoils. In many other countries such service is the responsibility of ports themselves. Recently, growing public interest in land use, concern for environmental and safety issues, and extensive capital investment in ports have led to an expansion of the government's role in the

port industry.

Activities of the Corps of Engineers have been a major factor in the development of the U.S. port industry. Under authorization of Congress, the Corps provides and maintains channels and harbors and, as a part of these dredging operations, controls disposal of all dredge spoils. It also constructs and maintains marine installations for ports.

The Coast Guard enforces regulations and standards pertaining to the safety of port and vessel operations. In its regulatory capacity, it inspects vessels and waterfront facilities for compliance with applicable safety regulations. It also operates vessel traffic systems that monitor traffic in areas such as Puget Sound and San Francisco Bay. This vessel-monitoring role was expanded significantly in 1972 when Congress passed the Port and Waterway Safety Act.

The Maritime Administration (MARAD) is charged with the promotion and development of federal policies and goals for U.S. ocean ports. Under Section 8 of the Merchant Marine Act of 1920, MARAD was authorized to conduct developmental activities with respect to ports and port facilities, to maintain domestic and foreign port data, and to provide technical advice on port matters. Since 1965, MARAD has placed increased emphasis on its port development responsibilities, which include researching integrated transportation systems, deepwater ports, and regional port planning.

The two principal regulatory commissions involved in ports affairs are the Interstate Commerce Commission (ICC) and the Federal Maritime Commission (FMC).

The ICC was created by the Interstate Commerce Act of February 4, 1887, to regulate transport in the United States and carriers engaged in interstate commerce and foreign commerce. The Deepwater Port Act of 1974 authorized the ICC as the common carrier regulator of offshore ports and requisite storage facilities.

The FMC was established in 1961 as an independent agency with jurisdiction over waterborne movements between the United States and foreign countries, and to noncontinguous ports of the United States. It also administers certain provisions of the Water Quality Improvement Act of 1970. The FMC approves or denies proposed agreements between carriers, regulates common carrier practices, accepts or rejects rates and tariffs, and licenses ocean carriers. Recent developments of intermodal transportation have prompted a complex overlay between the jurisdictional authority of the FMC and ICC.

LAND AND WATER REGULATION

Several regulatory agencies at federal, state and local levels are directly concerned with the land and water use aspects of new port facilities. (Figure 2.1 shows these regulations as they relate to port development. The scope of regulation in cross-section of a state (Washington) coastal management program is shown in Figure 2.8.) These agencies have established criteria to deal with site selection, environmental impacts, and other aspects of the uses of coastal lands and waters. Although port developments occur in all states and locales, there are considerable variations among local selective criteria. Coastal Zone Management Act activities (described in Chapter III) are designed to enhance the coastal resources management functions now performed in most states by closely coordinating their efforts with those of the many federal agencies responsible for various coastal management functions.

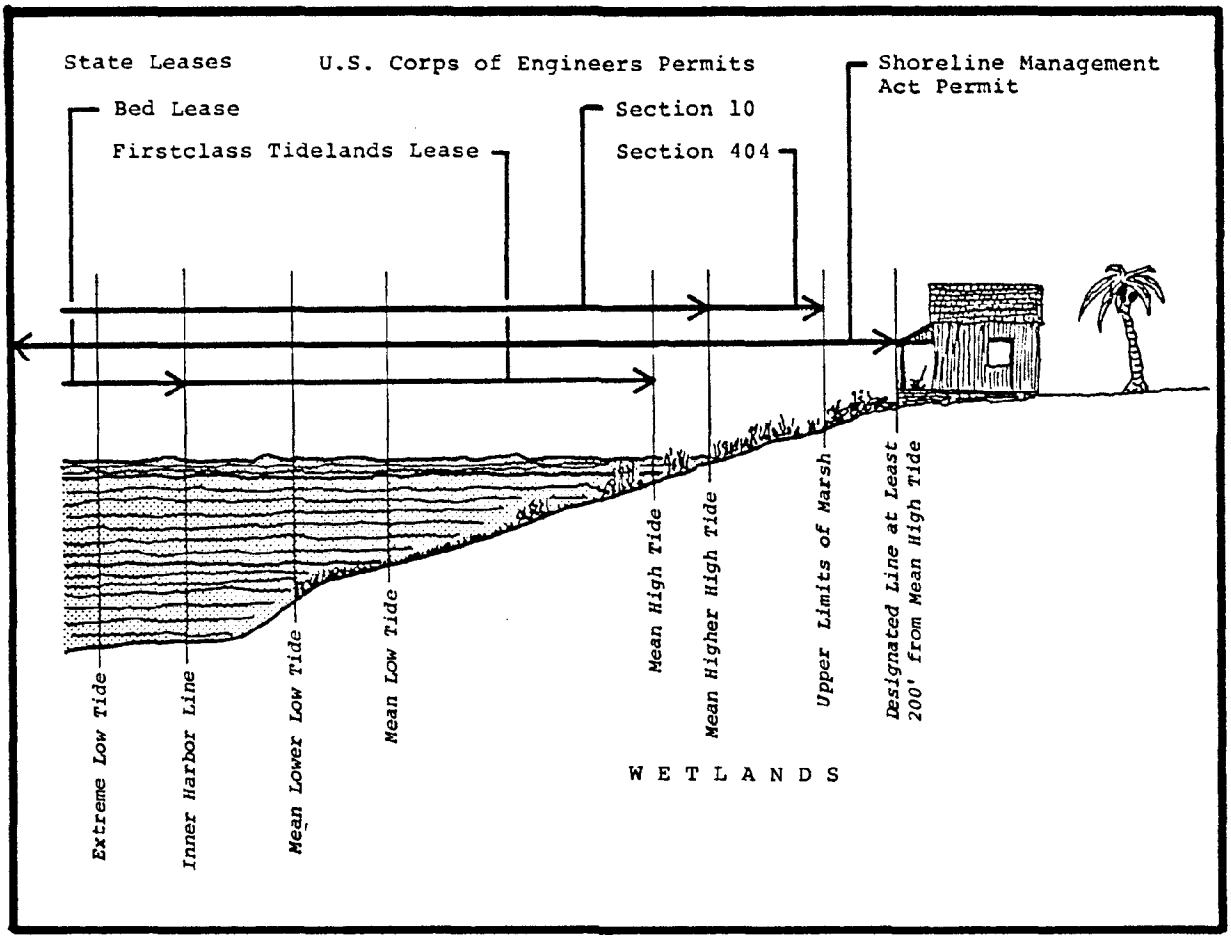

Fig. 2.8 Shoreline alteration controls applicable within city limits in the State of Washington. Source: Grays Harbor Estuary Management Program, Governmental Jurisdictions Technical Memoranda, p. 128.

Federal Regulations

The constitution authorizes Congress to regulate commerce among the states, and over the past century the courts have interpreted this power expansively. Today, the uses of virtually all U.S. waters are subject to regulation by Congress, which has enacted legislation on matters ranging from navigational improvements to the protection of water quality.

There are a number of federal programs and agencies that directly affect port facility development:

1. Review of activities affecting navigable waters, including dredge and fill activities, Corps of Engineers;
2. Assessment of environmental impact, National Environmental Policy Act;
3. Protection of water quality, Environmental Protection Agency;
4. Maintenance and enhancement of fish and wildlife resources, U.S. Fish and Wildlife Service and National Marine Fisheries Service.

These federal programs relate closely to one another and often have counterpart activities at the state and local level. Usually, each one of these agencies is involved when a new port facility is developed in the coastal zone. Other agencies--U.S. Coast Guard, Maritime Administration, ICC-FMC--affect port development but are not directly concerned with the land and water use issues relating to the development of a new facility.

Corps of Engineers. Many agencies are involved in coastal management, and the Corps of Engineers is one of the most important. The Corps' civil works function to build and maintain jetties, channels, and other public works was described

earlier. In addition to civil works, the Corps of Engineers exercises two regulatory permit programs, one to review all activities affecting navigable waters (authorized under Section 10 of the Rivers and Harbors Act of 1899) and another to regulate dredge and fill activities in navigable waters (authorized under Section 404 of the Federal Water Pollution Control Act Amendments of 1972). Since most activities in navigable waters involve some type of dredging and filling, there is considerable overlap between the two permit programs. Constructing moorings for barges along a shoreline or emplacing pilings in navigable waters are examples that do not involve dredge and fill activities, but would still require a Section 10 activity permit. Most port development activities, however, will involve both permit programs.

The regulatory programs of the Corps are complex and cannot be dealt with in detail here; however, some important aspects of the programs should be mentioned. "Navigable waters" have been defined very broadly for dredge and fill purposes to include all tidal waters to the mean high tide line and wetlands that are wholly or partially covered at high tide, whether publicly or privately owned, and contiguous wetlands that are periodically inundated during storms or floods. A Corps decision to issue a permit is based on whether the overall public interest would be served, considering benefits and costs of the project, environmental and fish and wildlife concerns, flood protection, recreational needs, and other matters. These decisions are made only after consultation and review by other agencies of the federal government (Environmental Protection Agency and fish and wildlife agencies specifically, as discussed below), state and local agency review, and input from private parties. As a matter of policy, the Corps does not issue a permit for a development activity if it is opposed by a state or local agency authorized by state law to review the project. Thus, the Corps acts as a

clearinghouse for comment and review and normally will not act until issues raised by other agencies and parties are resolved with the applicant or with another agency. A very recent amendment to the Section 404 program will allow a state to exercise 404 authority, rather than the Corps and EPA, if the state regulatory program has sufficiently rigorous standards.

U.S. Fish and Wildlife Service/National Marine Fisheries Service. The Fish and Wildlife Coordination Act requires that the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, plus the state fisheries and wildlife agencies, comment to the Corps of Engineers regarding the effect of any proposed development project on fish and wildlife resources. These agencies have, over the past ten years, been the most vocal opponents of large developments in coastal areas, especially in regions where wetlands, marshes, mangroves, and other biologically productive environments are abundant. The Corps must consider their views in its decision making. An objection by a fisheries or wildlife agency that is not resolved at the local level must be resolved at the national level. In practice, very few appeals are heard; thus, the consent of the state fisheries agency is virtually mandatory before a development project can begin.

Fish and wildlife agencies are concerned with the protection of fish and wildlife resources, their habitats, and the rights of the public to use the navigable waters of the United States. General project review policies have been published (see Chapter IV).

Because of the difficulties inherent in preventing losses to the environment and the pressures (often political) to approve project proposals, the fisheries agencies have required that developers provide mitigating features in their proposals to reduce overall damage to biological resources. For example, fish and wildlife agencies might require that a three-acre wildlife

preserve be purchased if a three-acre area of productive wetlands is destroyed. This is a major point of controversy in coastal development permit applications.

Environmental Protection Agency. Although the Environmental Protection Agency's (EPA) primary responsibility is the control of air and water pollution, it also has authority to review the deposit of dredged material into the navigable waters of the United States. Dredged material can be polluted and depositing it in certain areas can degrade water quality and harm fish, wildlife, water supply, and recreational uses. Therefore, EPA reviews the quality of dredge spoils and the site into which they are to be placed. The legislation under which the EPA operates allows the agency to overrule a Corps dredge and fill permit on environmental grounds.

National Environmental Policy Act (NEPA). NEPA requires all federal agencies to pay careful attention to environmental objectives and to conform to strict procedural requirements when making decisions that significantly affect the quality of the environment. To ensure that the agencies implement this policy, NEPA requires each federal agency to prepare a detailed statement of environmental impact on every major federal action that might significantly affect the quality of the human environment.

Environmental impact statements have been prepared for most Corps of Engineers civil works projects designed to enhance port facilities and operations. The Corps often prepares an environmental impact statement before issuing a Section 10 permit authorizing new port facilities requiring bulkheading and landfill. The

statement must discuss any adverse environmental effects that cannot be avoided should the proposal be implemented, alternatives to the proposed action, the relationship between local short-term uses and the enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources which would be involved in the proposed action. It is circulated for comment to other federal agencies, state and local governments, and the public.

State Regulations

Since their establishment, state governments have been concerned with the management and productive use of the resources owned by the state and held by the state in trust for its citizens (waterbottoms, water, fish, etc.). States have also been concerned with the enactment of laws and regulations, under the police power to protect the health, safety and welfare of citizens. In earlier years these powers were often delegated to local governments since government did not have the appropriate management apparatus and was removed from the problem. Today, state-level agencies are directly involved in managing resources. Also, many new programs in the areas of environmental protection and control of critical land areas are implemented, administered, or guided at the state level, with varying degrees of local government involvement and assistance. Thus, port facility development requires many state agency approvals, the more important of which are discussed below.

States own and manage the waterbottoms within their jurisdiction, covering three primary functions:

1. Minerals management--sand, gravel, oil, etc.
2. Living resources management--shellfish, finfish
3. Leasing for fill and other purposes

A state assumes a proprietary role in waterbottom management, generally allowing waterbottom use or resource production so long as it receives a royalty or rental. In some states, submerged lands were sold to private interests in past years, but generally this practice is no longer allowed, although submerged lands and tidelands are leased by the states for resource utilization purposes. Most port facility development projects require a long-term waterbottom lease or outright ownership. All states accommodate port waterbottom needs by allocating priority use to ports in harbor areas (as in Washington), or outright conveyance (as in Texas, until 1973). Usually, leases and conveyances limit the use of waterbottom to navigation and commercial use. Most are for at least 30 years, and sometimes for 99 years.

State fisheries. Almost all states have declared ownership of all animals free in nature; thus, all fish existing in the waters of the state can be regulated by the state. Because of the common property aspect of fisheries, states have developed management programs in order to protect overuse of a finite supply of living resources and to reduce conflicts among those who want to exploit these resources. State management programs are usually organized around a particular species and there are numerous protection laws in all states, such as those protecting shrimp, oysters, salmon, menhaden, and other species.

An additional responsibility of the state fisheries agencies is to provide input to the Corps of Engineers about the effect of dredge and fill on fish, wildlife, and the aquatic environment. Federal law requires the Corps to consider the views of state fish and wildlife agencies in their decision making, so Corps projects in the coastal zone are reviewed by state fisheries agencies to determine measures that should be taken to prevent loss of fish and wildlife resources and recreational opportunities. For example, if a Corps permit is required for dredging waterbottoms for a port project, state recommendations from the fisheries agency will be important in the Corps' decision.

State environmental laws. Almost all states have passed comprehensive laws addressing pollution control. These laws deal at a minimum with water pollution, air pollution, and solid waste control, but often they address other problems such as oil spills, noise, radiation, and pesticides. Most of these programs are administered at the state level and may affect aspects of port development.

A more pervasive environmental law, which addresses many forms of development within a state, has come to be known as state environmental policy acts, or SEPAs. Following the National Environmental Policy Act of 1969, discussed above, a number of states have passed laws requiring environmental impact statements for nonfederal projects. The adoption by states of "little NEPAS" results in the application of the environmental impact statement procedure to a wide range of state and local actions. Three of the case study states (California, Washington, and Wisconsin) have passed such laws.

State coastal resource protection laws. Environmental laws which can directly affect port development have been adopted by many states over the past decade. These laws deal with wetland protection, beach and dune protection, dredge and fill controls, oil spill prevention and clean-up, energy facility siting, erosion prevention, beach access, and shoreland zoning. No state has adopted all these measures; however, quite a few have adopted three or four of them and almost all have at least one such law. These programs usually require permit review before a development project can begin. Each one deals with some aspect of coastal development and meets special critical problems in the coastal zone. The federal coastal management program is designed to build upon these coastal resource programs by providing coordination among state agencies, building in the interests of local government and federal agencies, and providing better technical information and analytical tools as a basis for coastal decisions. For those states having little or no coastal resource management capability, the federal coastal management program provides incentives for developing a program. (Bradley and Armstrong, 1972)

Local Regulations

Four sets of controls that affect port development are usually found at the city or county level of government:

1. Land use controls, such as zoning and subdivision controls;
2. Police power ordinances concerned with health, safety and fire protection;

3. Provision of public services, such as roads, water, sewers, utilities, and others;

4. Local components of state coastal resource programs (discussed in the previous section).

Land use controls. Zoning is a means of controlling land use where an area is divided into districts, in each of which preferred or allowed uses and density restrictions are listed. Land uses are segregated into general categories such as residential, commercial, and industrial, and are further divided into numerous subcategories. In most cases, ports and port-related land uses are in the industrial use classification. Subdivision control is a major land use control device of local government that normally affects only residential users, not industrial users such as a port authority.

Policy power ordinances. A traditional local government function involves programs for fire, police, health, and safety protection. Port development activities can be affected by these because building and construction codes must be satisfied before structures can be used or occupied. These considerations have been fully integrated, for the most part, into the design and engineering of facilities and no longer are considered important policy problems or constraints to development.

Public services. Public services provided by local government can directly affect port development. Services include water supply, sewerage and waste disposal, streets and right-of-way,and others such as those mentioned in the above paragraph.

The control of public services by cities can determine the location and timing of all development activities in a city or county. Before new facilities can be operational, port authorities must have the public services, such as access to streets and highways, and water and sewer services. Ports and local governments have a long tradition of interaction regarding provision of public services, and the issue has not raised major policy concerns in recent years.

Local implementation of Coastal Zone Management Act. A recent local level control that does affect port development is the local implementation of coastal resource programs, such as local shoreland management, local wetlands control, local administration of set-back lines to protect beach resources, and others. These are often implemented by local ordinance, or incorporated into local comprehensive plans and zoning controls. In the case of some rural counties, these local shoreline or wetland programs have been the first experience of counties in planning and land use control. Usually, these programs are developed pursuant to a state law authorizing or encouraging their development. Coastal management programs that develop under the federal Coastal Zone Management Act must be coordinated with these local activities.

CHAPTER III

COASTAL ZONE MANAGEMENT PROGRAMS

The development of coastal management programs is guided by requirements of the federal Coastal Zone Management Act of 1972 and subsequent regulations of the federal Office of Coastal Zone Management. In order to place these federal requirements and the funding provisions in perspective, a brief overview of the legislative history and coastal zone statute follows.

During the past decade, both state and federal governments have actively responded to coastal resource problems. Generally, these problems fell into two categories: (1) resource problems, arising from use conflicts, public access, and environmental degradation; and (2) organizational problems, such as multiple and overlapping governmental and agency jurisdictions, lack of coordination among decision makers, and insufficient use of information in decision making. (Englander et al., 1977). Ports were both a part of and affected by these problems.

States responded to these issues with a variety of solutions - solutions often focused on a particular natural resource. For instance, wetlands protection was a common concern on the East Coast. However, only a few states--California and Washington among them--attempted comprehensive solutions. Even in these initial attempts at coastal management, port development was affected.

Concurrent with state efforts, the federal government was noting and studying various aspects of coastal zone problems (annual reports of Marine Council,

Stratton Commission Report, National Estuary Study, and National Estuarine Pollution Study). Based on the findings and recommendations of these federal studies, Congress enacted comprehensive coastal management legislation with primary management responsibility placed at the state level.
By encouraging states to assume greater responsibility in coastal planning and decision making, the federal coastal program supplements state efforts already underway.

Federal guidelines direct the states to assure comprehensive and effective management programs, and to date, all coastal and Great Lakes states and U.S. territories are participating in the federal coastal management program.
Some state coastal programs have satisfied the federal requirements for coastal management programs: Washington, Oregon, California, the San Francisco Bay area, and the island of Culebra, Puerto Rico, have approved coastal management programs.

THE COASTAL ZONE MANAGEMENT ACT OF 1972

Congressional study findings reflected the major resource and organization problems mentioned above. Specifically, they drew attention to the value of coastal resources to the nation's well-being and the effects of destruction and degradation of these resources by man. Conflicts among coastal uses were also highlighted. After concluding that organizational arrangements at the local and state level were inadequate to handle national resource problems, study findings recommended that management capabilities be enhanced and states encouraged to manage coastal resources in cooperation with local and federal governments.

Congressional mandates responded to the findings, and now states are directed to develop management programs which "preserve, protect, develop and where possible, restore or enchance" coastal resources. States are directed to achieve wise use of the resources by "giving full consideration to ecological, cultural, historic, and aesthetic values as well as to needs for economic development." Moreover, federal agencies are admonished to cooperate with states in this task and all levels of government and the public are actively encouraged to participate.

Incentives were included to encourage states to assume this responsibility. Funding was provided for states to develop coastal management programs and then to administer them. Originally two-thirds of the cost of program development and administration was provided; however, the 1976 amendments increased the federal share to 80 percent. Another major incentive for states to participate is a requirement that federal agencies be consistent with state programs to the maximum extent practicable. Funding is also provided to assist states in carrying out particular aspects of coastal management such as beach and estuarine acquisitions, educational and training programs, and energy impact programs.

Pressures for coastal resource protection and better government decision making, along with an opportunity for federal financial assistance, result in a state's decision to participate in this federal program. Once the decision is made (all states are involved at this time), states must, at a minimum, conform to criteria established in the federal statute and implementing regulations. Federal criteria enable states to develop programs with considerable flexibility; broad

management categories are identified, but the specific content of each is left to the states. In this way, states have the necessary flexibility to develop unique and innovative approaches which are applicable to their political and environmental situations.

Federal requirements have been summarized by the federal Office of Coastal Zone Management (OCZM) in a series of threshold papers, each covering a task which must be completed before a coastal program can be approved. These tasks are shown in Figure 3.1. First, states developing a Coastal Management Program must identify the permissible land and water uses and establish priorities among them. Second, the boundaries of the coastal zone must be established. Identifying uses and determining the boundaries of the coastal zone are interrelated tasks, since the boundary must extend inland to include all uses which have a direct and significant impact on coastal waters. Third, areas of particular concern within the coastal zone must be identified. These are areas that have critical management problems or contain unique environmental resources. Fourth, organizational arrangements must be established to ensure cooperation among agencies with responsibilities in the coastal zone. Fifth, the authority for implementing the coastal management program must be determined either by coordinating existing legislation or enacting new comprehensive legislation.

Once a state feels confident that it meets, at a minimum, the federal standards, the program is submitted to the Secretary of Commerce for approval. There, the Office of Coastal Zone Management evaluates the proposal with respect to minimum federal standards. Other federal agencies and interested parties also have an opportunity to review and comment on the state program and the environmental

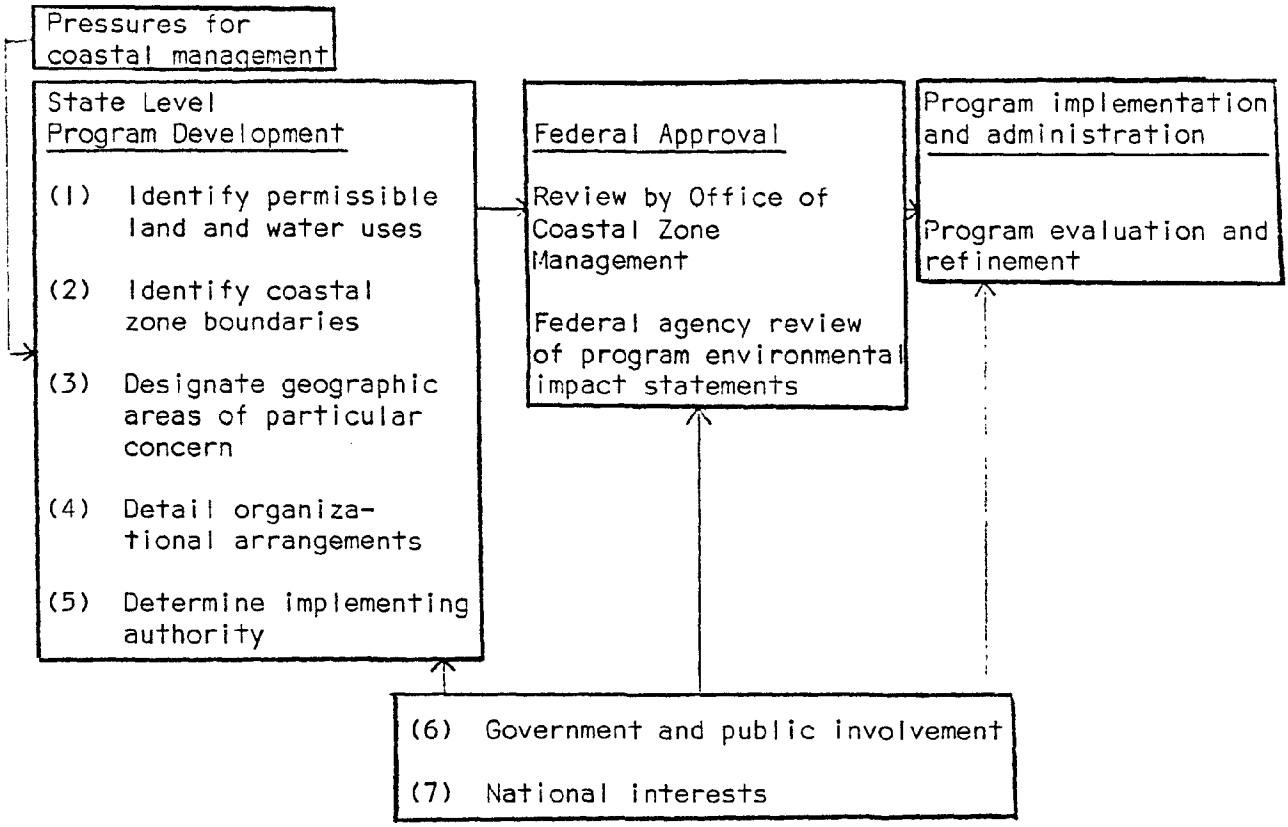

Fig. 3.1 State level coastal zone management program development under federal Coastal Zone Management Act of 1972.

impact statement which must accompany it (sixth task). Questions of national interest (seventh task) are handled during this period.

If the program satisfies the requirements of the federal legislation and meets no substantial resistance from agencies, the Secretary of Commerce approves the state's program. Approval allows a state to apply for grants to implement the program.

In addition to direct funding for program development and implementation, the federal statute authorizes supplementary funds to achieve specific program objectives. Funds have been authorized for interstate coordination, research and technical assistance, coastal energy impacts, and acquisition of estuarine sanctuaries and beach access.

The following sections examine more closely the seven elements of program development, federal program review, program implementation and administration, and additional funding sections in the legislation. Examples of the approaches states may use in program development to meet federal requirements are selected from case study states. The relationship of each element to port authorities and port development issues is emphasized. (Program development in the case study states is described in Chapter VII.)

COASTAL PROGRAM DEVELOPMENT

Land and water uses

Defining land and water issues within the coastal management context involves several prescribed steps. First, states must inventory their coastal areas to

identify the kind and distribution of resources--both natural and manmade--and the range of existing land and water uses. Second, coastal uses must be distinguished from inland uses. Only those uses which have both a "direct" and "significant" impact on coastal waters need to be considered in a coastal program. The third step is to develop a method for determining the capability and suitability of each segment of shore for supporting different uses. These determinations then must be combined with an analysis of local, regional, state, and national needs in order to identify permissible coastal uses (fourth step). When this is done, states must establish priorities among permitted uses.

Priorities must be established at three geographic scales:

1. Broadly defined and generally applicable to all coastal development.
2. More specific and referring to certain coastal environments, such as wetlands or natural estuarine areas.
3. Site specific, referring only to a particular location.

Last, states must create processes to plan for impacts of coastal energy facilities, including those involved in transportation of energy resources such as coal, oil and liquified natural gas. They must also address the questions of beach access and beach erosion (OCZM 1976, paper no. 2, pp. 4, 5).

States may use several approaches, singly or in combination to implement their land and water use policies. One method relies on formulating specific policies to relate particular uses to specified coastal environments. Less site-specific regulation is possible when policies are developed only with respect to major categories of coastal uses, such as transportation and recreation, and activities such as dredging and filling of coastal waters. A third method applies performance standards to control environmental impacts rather than to regulate particular uses.

Some standards, such as air and water quality standards, must be included in all management programs regardless of the management approach selected (OCZM, 1976, paper no. 2, p. 4).

Examples. Washington state relies primarily on the first method of managing coastal uses. Local governments in Washington classify all shores according to the intensity of development. Generally four environments are used to depict the level of development; urban, rural, natural and conservancy (Wash. CZMP 1976, p. 123). Specific policies have been developed to identify permissible uses in each environment. Ports are a preferred use in urban environments but are excluded in natural or conservancy environments.

Texas, a strong home rule state, proposes an approach which relies primarily on performance standards. Each project application is assessed for its environmental impact in accordance with a systematic activity analysis which involves three steps:

1. The activity and its location are identified.
2. The effects of environmental alterations on the pertinent ecological system are analyzed.
3. The likely economic and social consequences and environmental alterations and possible mitigating or enhancing features for each are considered.

Relationship to ports. Port developments related to cargo movement are typically water-dependent. As a result, they have been given priority status in the management programs in all case study states. For example, the Washington statute explicitly recognizes the water-dependency of port activities and lists port development among the uses granted priority for altering the natural shoreline of the state. Ports, however, are not the only use given a priority status; they are still in competition with other uses which are water-dependent or increase the public's ability to enjoy the shoreline (RCW 90.58.020).

Coastal zone boundary identification

One of the primary requirements of a coastal zone management program is a determination of management boundaries. Seaward boundaries are legislatively defined as the outer limits of the territorial sea (usually three miles). Great Lakes boundaries are the state or the international boundary. Inland boundaries are flexible but must extend inland "to the extent necessary to control ...uses...which have a direct and significant impact on coastal waters" (Sec. 304[a]). Since both land and water uses (element one of program development) and boundary determinations are defined with respect to direct and significant impact, the two elements must be considered simultaneously and interpreted closely.

There are many methods for determining the coastal boundaries of a state (Table 3.1). Biophysical characteristics, such as topographic features or vegetative cover; uniform distance from a tidal mark; political jurisdiction boundaries, such as county lines; manmade features, such as highways; or planning units, such as census tracts or regional agency jurisdictions, may be used singly or in combination to define control areas (OCZM 1976, paper no. 1, p. 7). Minimum inland boundaries in estuarine areas must include all waters with a measurable quantity of seawater, but may be extended to include all areas of tidal influence.

Some states employ a "two-tiered" approach to determine coastal boundaries, in which a distinction is drawn between a planning area and a coastal management area (OCZM 1976, paper no. 1, p. 7-8). The management area--the first tier--is not as extensive as the second, and all uses in this area usually are closely regulated. The planning area--the second tier--is more broadly defined and often encompasses the entire coastal county. Planning and development in this area are monitored for consistency with the management program in the first tier.

Table 3.1 Approaches to defining inland coastal boundaries

Type of boundary	Case study examples
Fixed set-back line	Washington Shoreline Management Act (200 feet) California Coastal Act (1,000 yards) Wisconsin Shorelands Act 300 feet inland from rivers and streams 1,000 feet inland from lakes
City and county line	Georgia Coastal Area Planning and Development Commission (CAPDC) planning boundary
Census tract boundary	Pennsylvania coastal planning boundary
Rights-of-way of coastal highways, railroads, pipelines, etc.	New Jersey boundary of Coastal Area Facilities Review Act (CAFRA)
Elevation contour line	Louisiana (proposed
Mountain ridge crest	California
Special resource areas (dunes, flood plains, estuaries, marshes)	California
Special adjustments to exclude areas in which development would have little or no effect on resources or public access	California (certain urbanized areas)
to avoid bisecting a parcel of land or to conform to an identifiable natural or man-made feature	California (up to 100 yards)

The statute excludes federally owned lands (e.g., military installations and national parks and forests) from the coastal zone. (Brewer, 1976)

Examples. Washington's two-tiered program illustrates a variety of the possible management approaches. The first tier, the management area, is based on the boundaries defined in the state's Shoreline Management Act of 1971. A uniform distance of 200 feet inland from the ordinary high tide forms the standard boundary. Natural features such as bogs, swamps, and floodplains are also included and may extend the 200-foot boundary further inland (RCW 90.58.030 [2] [b] and WAC Chapter 173-22, Wash. CZMP 1976, p. 121). The second tier, the planning area, follows county lines, which in turn generally coincide with a natural boundary--the crest of the Cascade mountain range.

Many of the case study states have not yet adopted a coastal boundary. However, studies of coastal ecosystems which have been undertaken in Georgia and Texas are intended to provide the resource information for boundary determinations.

New Jersey probably will rely on its Coastal Area Facility Review Act (CAFRA) to define the boundary for that segment of the coast under CAFRA jurisdiction. CAFRA boundaries are defined on the basis of manmade features such as highways. Since the CAFRA segment does not include the major urban area, the New Jersey coastal boundary applicable to ports is still undetermined.

Relationship to ports. Ports located along the Atlantic, gulf, and Pacific coasts have traditionally been considered seaports. Direct linkages with ocean-going

vessels place Great Lakes ports in a similar position. Seaport designations, desirable in terms of international trade, reflect the close land-sea relationships of a port. Now, however, some ports are arguing that they lie outside the coastal zone. Usually this argument is advanced when ports are located inland on estuaries or navigation channels. For example, neither the Port of Philadelphia, nor the Port of Brownsville consider the seawater intrusion in their vicinity sufficient to include their holdings in the coastal zone.

Another argument being advanced which would exclude many onshore port developments from management programs is the limitation of urban boundaries in the coastal zone to the high-watermarks on bulkheads. With this limitation, only fill operations or other changes in bulkhead lines would be subject to the management programs. (See Chapter VI, section 3, recommending a boundary definition that would include major seaports in the coastal zone.)

Since the real estate and economic development functions of ports frequently extend far inland, an individual port may be in both tiers of the coastal zone or may straddle the boundary of the coastal management program. Where a portion of a port project lies within the management areas, courts in both California and Washington have ruled that the whole project is subject to the regulations governing coastal development.

Geographic areas of particular concern (GAPC)

The federal coastal act requires states to designate areas of particular concern in their coastal zone and develop procedures for preserving or restoring areas of significant natural value. Federal regulations expanded the scope to include "transitional or intensely developed areas where reclamation, restoration,

public access, and other actions are especially needed; and those areas suited for intensive use or development. In addition, immediacy of need should be a major consideration..." (15 Code of Federal Regulations,920.13). As a result, GAPCs are useful for achieving both economic and environmental goals.

States must consider the variety of purposes and environments which could be applicable for designating geographic areas of particular concern (Table 3.2). These areas could represent a type of shore (such as wetlands) or specific sites. In either case, the rationale for selection, the exact location of boundaries, and the methods for control must be stated explicitly in state proposals.

Examples. Several methods for designating geographic areas of particular concern were used in case study states.

In the Shoreline Management Act of 1971, the Washington legislature specified certain shores as "shorelines of statewide significance" (RCW 90.58). These areas exhibit unique environmental characteristics and are regulated by more restrictive standards and greater state authority than other state shorelines. In these areas, alterations to the natural shoreline are permitted only when specific criteria are met. In addition to these permanently established areas, the state coastal agency also identified administrative GAPCs which may be temporary. These areas were selected for intensified coastal management on the basis of three criteria: (1) potential conflicts among user groups and regulatory agencies; (2) environmental features of greater than local concern; and (3) recognition by other agencies, programs, and ownership characteristics as an area of particular concern (Wash. CZMP, 1976, P. 12). Grays Harbor is among these geographic areas of particular concern.

Wisconsin proposes to use geographic areas of particular concern as a cornerstone in its coastal program. Those areas, along with a limited number of

Table 3.2 Types and functions of geographic areas of particular concern (GAPC) as defined in California

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This list of geographical areas of particular concern defined in the California Coastal Act (1976) illustrates the many uses possible for GAPCs. Basically, any area of the coast may be designated a GAPC to receive special protection, funding, planning effort, or to preserve specific rights or administrative jurisdiction for the State Coastal Commission. The following seven types of GAPC's are outlined:

Entire coastal zone in general

18 specific estuarine, habitat, or recreational areas designated in the California Coastal Act

More specific areas of concern, a list of which serves as a standard for reviewing local coastal programs for compliance

- Sand transport systems
- Offshore islands
- Degraded wetlands
- Public trust lands
- Prime agricultural land
- Commercial timber lands
- Corridors for boating access
- Highly scenic areas
- Seismically hazardous areas
- Archeological resource areas
- Industrialized port areas
- Public works facilities
- State colleges and universities

Sensitive coastal resource areas that cannot be protected by local zoning ordinances alone

State Coastal Commission's reserved jurisdiction before certification of local coastal programs

State Coastal Commission's appeal jurisdiction after certification of local coastal programs

Areas purchased for public preservation and restoration

coastal uses, are the only ones identified as management areas within their broad planning boundary. Types of areas which may be designated include: areas of significant natural, recreational, scientific, or historic value which require either management or protection; areas especially suited for water-related economic development, such as ports; hazard areas; approved power plant sites; and areas marked for restoration.

In Georgia, the urban centers in Savannah, Brunswick, and St. Simons are singled out in draft policies for special attention. The intervening areas of port authority actively participate on the Estuary Study Task Force, the policy-making body funded by the state coastal program to resolve pressing estuarine conflicts.

Organizational arrangements

A primary goal of the federal coastal legislation is effective coordination among all agencies with responsibilities in the coastal zone. To meet this goal, states are required to establish processes for coordination among applicable federal, state and local agencies. The methods of interagency coordination adopted by each state are often related to the authorities used to implement the state coastal program.

Four methods are normally used to coordinate the various state resource agencies and local governments with a state coastal management program:

1. Coastal statutes may specifically provide the mechanism.
2. Established interagency committees may enable the necessary participation.
3. Ad hoc arrangements specifically related to coastal zone issues may be established.
4. Executive reorganizations may integrate resource protection and resource management functions in the same agency.

Examples. A special section in the California coastal legislation explicitly details the relationship between the Coastal Commission and other state agencies. The commission is authorized to submit recommendations to state agencies which detail how these agencies may implement their programs to conform with and to help implement the Coastal Act. If the agencies do not implement these recommendations, they must justify their decision to the Governor and Legislature. No particular forum is recommended for coordination among all state agencies; however, specific types of coordination are required between the commission and individual departments, commissions, and boards (Cal. Pub. Resource Code Sections 30400-30418).

Washington's program relies on an existing, well-developed network of agency coordination. In addition, ten state agencies have designated "coastal zone management contacts" to coordinate coastal related affairs, such as review of local master programs, permit applications, environmental impact statements and other functions. Coordination with local governments is achieved through implementation arrangements of the state program.

In New Jersey, the responsibility for environmental protection and resource management rests within the Department of Environmental Protection, thereby combining management of waterbottoms or fill activities and the environmental protection of coastal resources in the same agency. This arrangement provides a unique opportunity for close coordination of these activities. Funds for coastal management planning have been used to integrate four management activities: administration of the wetlands program, review of coastal facilities, issuing of riparian leases and licenses, and issuing of waterfront development permits.

The New Jersey coastal program also depends upon ad hoc coordination with

the State Department of Labor and Industry. Coastal management contracts have been made with the department to provide input on the economic effects of coastal regulations and the economic needs in particular coastal regions of the state. The department's economic researchers have prepared numerous issue papers and frequently participate in coastal planning meetings.

Relationship to ports. Coastal management calls for close coordination among state agencies with traditional natural resource management functions, land and water space allocation programs, and environmental protection activities. Because port development issues usually involve state waterbottoms, the coordination element of coastal management programs is especially important for ports. Port expansion plans that involve critical estuarine areas may conflict with conservation statutes, such as the Georgia Coastal Marshlands Protection Act, Washington's Shoreline Management Act, and the Federal Fish and Wildlife Coordination Act. Coastal management programs will neither modify nor nullify these pre-existing statutes, but the cooperation of affected users and applicable agencies, and the requirement for consistent federal activities should eliminate much of the uncertainty surrounding permitted land and water uses. Permitted uses are expected to proceed without excessive permit delays.

Implementing authority

Under the federal statute (Sec. 306 [d] [1]), state coastal management programs must have the authority to:

1. Administer land and water use regulations.
2. Control development to ensure compliance with the coastal program.
3. Resolve conflicts among competing uses.

Before a mechanism is selected, states are required to inventory existing laws, regulations, judicial opinions, etc., to establish what authority exists.

Three techniques for program implementation are listed in the federal act. The methods, outlined in Section 306 (e) (1), may be used singly or in combination:

> State establishment of criteria and standards for local implementation, subject to administrative review and enforcement of compliance;
>
> Direct state, land and water use planning and regulations; or
>
> State administrative review for consistency with the management program of all development plans, projects, or land or water use regulations, including exceptions of variances thereto.

More than one agency, at different levels of government, may have authority to implement the coastal management program. However, only one state-level office, identified by the govenor is responsible for receiving and administering the coastal grant program.

Examples. Two approaches for implementing coastal programs emerged from the case studies: (1) "networking" existing authorities, and (2) enacting new comprehensive legislation.

Some states, such as Massachusetts and Wisconsin, propose networking the existing powers of local governments together with existing state powers and state-implemented federal programs to guide development. Favored management tools may include zoning, air and water quality standards, resource management agency standards, forest practices and submerged land leases criteria, state health standards affecting sewage and shellfish management, energy facility siting criteria, and fisheries management and wildlife agency regulations.

Texas will rely upon networking existing state authorities to implement its coastal program. This will be accomplished by reorganizing the Interagency Council on Natural Resources and the Environment, an executive branch council. A new Natural Resources Council has specific responsibility for regulating coastal

land and water uses based on a standard analysis procedure. This effort is intended to create a uniform and simplified method for project review. Since the Texas system reacts to proposed projects, rather than allocating areas for specific uses, local government planning authority will not be used to implement the program. In fact, only matters of state and national interest will be regulated; local matters are reserved for local decision makers.

In other states, a new management system with special permit procedures has been enacted to implement the coastal program. In Washington, permits are required for all substantial development in the first tier of the coastal zone. While certain uses--such as single-family residences, docks and bulkheads for single-family residences, and certain agricultural uses--are exempt from permit requirements, all other substantial development including port development, is included (RCW 90.58.030 [3] [e] [i to vii]).

California also has comprehensive coastal legislation. As in Washington, the impetus for comprehensive coastal legislation was a public initiative, Proposition 20; however, it created only an interim coastal management program. In 1976, the California legislature enacted permanent coastal management legislation. Permits are now issued for all major developments within the 1,000-yard coastal zone on the basis of policies contained in the new legislation. Local governments have the primary responsibility for developing detailed programs for implementing state policies. Until these local programs are developed and certified, the State Coastal Commission, assisted by regional commissions, will continue to issue permits.

Both California and Washington have a quasi-judicial appeal board at the state level to hear disputes over the issuance or nonissuance of coastal permits. In Washington, this function is performed by the Shoreline Hearings Board; in California, it is performed by the California Coastal Commission.

A principal distinction between the two state programs is the special treatment accorded by the California legislation to the ports of Hueneme, Long

Beach, Los Angeles, and the San Diego Unified Port District. (San Francisco falls under a different coastal management jurisdiction.) These four ports will develop "port master plans" in their jurisdictions. Once port master plans are certified by the State Coastal Commission, the ports must ensure that all new developments comply with the plan. Some specific developments may still be appealed to the State Coastal Commission if they appear to violate the certified port master plans (Cal. Public Resources Code, Division 20, Chapter 8).

Relationship to ports. Using the network approach entails administrative cooperation and coordination, using familiar formal and informal connections among the ports and government agencies.

Comprehensive legislation often adds new administrative or regulatory mechanisms to existing authorities. Although they may create initial uncertainty for ports and be a source of annoyance, they may also provide more concrete rules for decision making. As a result of comprehensive legislation in California, for example, four ports have the authority to plan and self-regulate all activities within their jurisdiction.

Public and governmental involvement

The coastal zone management statute mandates that programs be developed "with the opportunity of full participation by relevant Federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties, public and private..." (Sec. 306 [c] [1]). To fulfill the requirement of full participation, states must perform three tasks (OCZM 1976, paper no. 4, pp. 1-5).

1. They must distribute information about their programs so that participants can easily understand program elements.
2. They must provide ample opportunity for interested and affected persons and groups to comment and offer suggestions.

3. They must demonstrate that this input is seriously considered.

States have considerable latitude in determining the mechanisms to ensure full participation; public hearings are the only technique specifically required (Sec. 306 [c] [3]).

Examples. Various methods are used in case study states to assure participation. Newsletters are published and widely distributed in Texas, Pennsylvania, Washington, and Wisconsin. Frequently, advisory committees are appointed to provide technical advice and public and governmental viewpoints.

Wisconsin, in particular, has provided multiple opportunities for advisory committee participation. Its Coastal Zone Coordinating and Advisory Council is composed of representatives from state agencies, regional planning commissions, local government, university and public interest groups. The council's efforts are coordinated with the Wisconsin planning office before policy recommendations are made to the Governor. The council, in turn, receives advice from a Citizens' Advisory Committee, composed of citizens and public interest groups. Additionally, each of Wisconsin's three regional planning commissions, with jurisdictions on Lake Michigan and Lake Superior, have citizen and technical advisory committees which review and comment on coastal management policies. Moreover, it has been recommended that a Coastal Council and Citizen's Advisory Committee be used to implement the coastal management program. Film clips, talks with local interest groups, and media coverage supplement these formal mechanisms.

Relationship to ports. Ports are permitted full opportunity to participate in

coastal management program development, and it is through this participation that port needs and interests may be expressed and included in coastal programs.

State-federal interaction and national interest

All coastal states must consider the national interest in "siting of facilities necessary to meet requirements which are other than local in nature" (Sec. 306 [c] [8]). In addition, states that are developing coastal management programs must coordinate program development with federal agencies; prior to approval, the federal Office of Coastal Zone Management must give these agencies an opportunity to comment on the proposed program (Sec. 307 [a] [b]). Although coastal states must consider national interests and federal agency concerns when developing their coastal management programs, after they are approved federal agency actions must then be consistent with these programs to the maximum extent practicable (Sec. 307 [c [1] [2] [3]). Disagreements between federal agencies and state coastal management programs which cannot be resolved informally are settled through a mediation procedure established in the federal statute (Sec. 307 [b]).

National interest. Defining "national interests" has been an extremely difficult job.

States have had to determine independently what should be considered as national interest; federal agencies have not done so. Nevertheless, coastal management guidelines have identified the use activities and associated facilities which may have a clear national interest and are other than local in nature. In these guidelines, ports and harbors are noted as potential national interest activities and facilities.

States can fulfill the national interest requirement if they provide federal agencies with full opportunity to (1) assess energy facility sites; (2) coordinate and exchange viewpoints; and (3) continue to interact with the state through an established process (OCZM, 1976, paper no. 5, p. 13). Thus, although states are responsible for considering national interests, they must look to federal agencies for assistance.

Federal agency coordination. All relevant federal agencies which must be formally contacted for coordination have been identified by the Office of Coastal Zone Management. Mechanisms that can be used to satisfy the state-federal coordination criterion on a continuing basis include technical or advisory assistance (through informal but documented contacts or through advisory committees) bilaterial discussion, invitations to meetings and hearings, federal coordination bodies (regional councils or river basin commissions), and review of draft documents (OCZM, 1976, paper no. 5, p. 7-9). Most states have developed elaborate procedures for soliciting comment and involvement from federal agencies.

Federal consistency. The federal consistency clause requires federal agencies to conduct their activities and development projects in a manner that is consistent with approved state programs "to the maximum extent practicable" (Table 3.3). State coastal programs can veto issuance of permits, leases, licenses, and grants from federal agencies, but these vetoes may be appealed to the Secretary of Commerce.

Table 3.3 Federal consistency matrix diagram.

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	"Directly affecting the coastal zone"	"Affecting land or water uses in the coastal zone"[1]	"Affecting any land use or water use in the coastal zone"[1]	"Affecting the coastal zone"[1]
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 or equivalent procedure set forth in CZM Program	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 state agency	Made by state agency	Made by state agency
Federal agency responsibility following a disagreement	Federal agency not required to disapprove action following state 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 objection
Administrative conflict resolution	Voluntary mediation by the Secretary (Subpart G)	Appeal to the Secretary by applicant or independent Secretarial review[2] (Subpart H)	Appeal to the Secretary by person or independent Secretarial review[2] (Subpart H)	Appeal to the Secretary by applicant agency or independent Secretary review[2] (Subpart H)
Associate Administrator reporting of inconsistent federal actions	(Subpart I)	(Subpart I)	(Subpart I)	(Subpart I)

Source: Federal Register, Volume 42, No. 167, pages 43588-89, August 29, 1977

[1] These terms all have the same meaning.

[2] Voluntary mediation by the Secretary is also available in certain cases.

Examples. The Washington coastal management program provided the first opportunity to assess standards for fulfilling the obligation of federal involvement. The Shoreline Management Act, the core of the Washington program, both predates federal legislation and places primary responsibility at the local level. Federal agencies were invited by the state to attend planning meetings and to participate on master program review committees. The significance of federal participation, however, was not appreciated by either the state or federal agencies until Washington submitted its coastal zone program for approval in 1975. The round of negotiations which followed Washington's application was the first serious, concerted attention federal agencies gave to coastal management program development.

Washington's approved program builds on an existing federal review process, A-95, to identify questions needing federal-state coordination. A-95 review is a coordinating procedure which enables state and local agencies to review federal grants to states to ensure their compatibility with existing state and local planning programs. The state has also created a federal-state coordinator position in the state coastal management office.

Most other states will also incorporate the A-95 review process into their federal coordination process. During early phases of program development when states are identifying national interests and developing policies, this review process may be supplemented by other procedures. For example, Louisiana and Texas conducted a survey of all federal agencies having a coastal management interest to get their view of national interest.

Since Washington was the first approved program, it provided the only examples for federal consistency in operation. The issue arose in connection with the Navy's construction of a large pier for the Trident Nuclear Submarine Base on Hood Canal in Washington and also in connection with a lawsuit challenging Washington's Tanker Safety Act which imposes state standards for moving oil by tanker on Puget Sound. In the first case, the state believed the Navy pier, designed for refit of large submarines, would be inconsistent with the state's coastal management program. Since the Secretary of Commerce could overrule the state's determination based on national security reasons, the state agreed to allow the construction because of the clear national security aspects of the submarine base. In the second case, the state argued that the Tanker Safety Act was part of the state's coastal management program and therefore the Coast Guard's regulation of oil tanker safety and movement should conform to the state's law. This argument was rejected by the lower court which heard the case. The court believed that Congress did not intend that the Coastal Zone Management Act should result in the negation of other federal statutes and programs. The case will be decided by the U.S. Supreme Court, and the Court's decision may have an important effect on future implementation of the federal consistency provision.

In another case, federal approval has not been given to a project which has received state approval. The Port of Tacoma obtained a state permit to develop a marina, but because of federal Fish and Wildlife Service objections, a Corps of Engineers permit has been held up. In this instance, federal consistency requirements do not compel the Corps to issue a federal permit even though the approved Washington coastal management program has approved the project. It is safe to conclude that in passing the federal coastal act Congress intended that the Corps be consistent as often as possible but did not mandate consistency in each and every instance.

Relationship to ports. Federal regulations identify port development as an activity with national interest implications. Because port projects frequently involve a federal navigation project or require federal and state permits for filling or dredging, federal-state coordination is an important issue when port developments are proposed. As the Navy Trident pier and Tacoma marina examples show, transportation-related issues have already raised questions of federal consistency and are likely to continue to do so in the future.

FEDERAL AGENCY REVIEW AND COMMENT

State programs are continually reviewed by the federal Office of Coastal Zone Management. During the development of a program, Section 305 grants may be terminated if a state does not demonstrate good faith in attaining its funding objectives. After a program is approved, the federal office conducts ongoing reviews of state performance to ensure adherence to the approved coastal program.

Federal review of programs submitted for approval involves both the Office of Coastal Zone Management (OCZM) and other federal agencies with an interest in the coastal zone. OCZM reviews state programs for consistency with the federal statute and the regulations governing program approval and for satisfying, at a minimum, criteria published in the "Threshold Papers" (1976). OCZM is also responsible for complying with National Environmental Policy Act requirements. On the basis of an environmental impact assessment submitted with the state program, OCZM prepares a formal environmental impact statement (EIS) for programs submitted for final approval. When an EIS is issued, it is circulated for review along with the state program. Public hearings are then held to review the EIS prepared by the federal office and the program approval application prepared by the state.

Since federal agencies are required to comply with state coastal management programs to the maximum extent practicable, they have a vested interest in carefully reviewing each program submitted for approval. Copies of the proposed program and draft EIS are circulated to national and regional offices of federal agencies. Although federal agencies are not formally involved in preliminary approvals, they are encouraged to review each program proposal carefully before the program is submitted for final approval. Should a state alter its course and apply for preliminary approval while its program is undergoing review for final approval, those issues raised by federal agencies during their review must be considered before the program is reaccepted for final approval.

COASTAL PROGRAM IMPLEMENTATION AND ADMINISTRATION

Federally approved programs are eligible for continuous funding under Section 306 of the Coastal Zone Management Act. Typically, a portion of the funding will

be used for implementing a special permit system or networking existing regulatory programs. Additional uses of administrative funds may include upgrading portions of a coastal program, or completing detailed local plans to implement state policies. Both Washington and the San Francisco Bay Conservation and Development Commission (BCDC) have used considerable portions of Section 306 grants for refining their coastal programs. In both cases, funds are being directed toward more specific allocation of the shoreline. Washington's program has also allocated implementation funds to study natural resource systems in Puget Sound, the Straits of Juan de Fuca, and along the Pacific coast.

Continued development of state programs requires increased attention to program evaluations. Since the tools for evaluating coastal management programs are still in the development stage, implementation funds may be geared to both developing evaluation techniques and conducting evaluations. (Englander et al., 1977).

OCZM has interpreted Section 306 liberally. As is illustrated above, many aspects of program implementation may be funded under this provision, and imaginative use of these funds provides a state with many options for improving management programs. Only capital investments or long-term scientific investigations which would benefit the program are not appropriate.

ADDITIONAL ASPECTS OF COASTAL MANAGEMENT PROGRAMS

Interstate coordination (Section 309)

To facilitate interstate coordination, a special section was added to the Coastal Zone Management Act in 1976. No funds have been appropriated to implement

this section as yet, although proposed regulations are being circulated. Presently, there are numerous interstate activities in existence which would benefit from the assistance. For example, the Great Lakes Basin Commission has appointed a standing committee on coastal zone management. The committee provides a forum for addressing such matters as coastal zone boundaries at state lines and dealing with the national interest in coastal zone management programs.

In other cases, studies that are currently funded by state coastal management funds might be more appropriately funded under Section 309. For example, Washington and Oregon appointed a joint estuary study team for the Columbia River (CREST) to deal with land and water use allocation problems in the estuary. CREST is funded by program development funds in Oregon (Sec. 305) and implementation funds in Washington (Sec. 306). Duluth, Minnesota and Superior, Wisconsin are conducting joint research on their port facilities, which is presently funded by the federal Office of Coastal Zone Management and the Department of Housing and Urban Development.

Research training and technical assistance (Section 310)

A special program to encourage research, studies, and training in support of coastal zone management was established by the 1976 amendments. The purpose is to sponsor research and technical assistance at the national and state levels to aid in the development and implementation of the program. The section has not been funded as yet, but many research and study efforts have been supported under the more general provisions of Sections 305 and 306. Special studies on selected topics such as ports, erosion, outer continental shelf impacts, and coastal ecology have already been produced, and others probably will follow. No funds have yet been spent on training programs for coastal agency managers. Once funds are

available, continuing education programs and internships could be sponsored.

Coastal energy impact program (Section 308)

A major addition to the federal coastal management program in 1976 was the creation of a coastal energy impact program. The purpose of this program is to assist local and state governments, through grants or loans, to meet the immediate costs associated with growth resulting from offshore energy development and to pay for unavoidable environmental damages. The eligibility for assistance, allocation of funds, and determination of amount of assistance are highly technical issues, which are just now being resolved. Under this program, port authorities are eligible to receive loans or grants if they are the governmental unit needing assistance to meet outer continental shelf facility requirements.

Estuarine sanctuary and marine sanctuary grants
(Section 315 and Title III, Marine Protection, Research,
and Sanctuaries Act of 1972)

The 1976 amendments require planning for the protection of and access to public beaches and other public areas along the coast. Grants can be made to states to cover 50 percent of the cost of access rights to beaches or other coastal areas.

Grants can also be made to states to acquire, develop, and operate estuarine sanctuaries, in order to create natural field laboratories where natural and human processes in estuaries can be studied. The federal office has identified a number of types of estuaries existing around the country from which selected sanctuaries will be established. Four sanctuaries have been designated to date.

Marine sanctuaries are authorized under the "Ocean Dumping Act" but are administered by the Office of Coastal Zone Management. Sanctuaries as far seaward as the continental shelf or in the Great Lakes may be nominated by any individual, organization or government body in order to achieve any of five purposes:

1. Preservation, protection, and management of a particular ecosystem (e.g., coral reef).
2. Protection of selected species.
3. Protection of the recreational and aesthetic character of a seascape.
4. Protection of an area in order to conduct long-term research.
5. Protection of special geologic, oceanographic, historic or living resource features.

To date two sites have been designated. (Kifer, 1975).

SUMMARY

The preceding overview of the federal coastal zone management program demonstrates the comprehensive nature of coastal zone management. In addition, the chapter examined the diversity of implementing mechanisms which can be used under the broad federal framework and the implications of each on the nation's public seaports.

CHAPTER IV

LAND AND WATER USE PROBLEMS AND EMERGING POLICIES

When port development plans are proposed which affect coastal resources, and when new coastal management policies are proposed which affect port interests, conflicts must be reconciled in order to achieve the proposed objectives without costly delay litigation and uncertainty. This chapter examines some emerging policies in coastal management programs that deal with the reconciliation of conflicting interests in the coastal zone--policies that deal with ten important issues often debated when port development activities are proposed. The issues are -

Landfill

Dredging and dredged materials management

Mitigation and compensation for environmental damage

Waterfront land allocation

Future use of obsolete waterfront facilities

Public access and esthetics

Air and water quality

Small-craft harbor facilities

Siting hazardous facilities

Streamlining environmental permit procedures

Emerging coastal management policies are found in existing state laws and regulations, or in coastal management documents in both approved and developing coastal management programs. In many cases the policies are very general, but as

coastal management programs mature they will become more specific and will address particular aspects of land and water uses. In California and the San Francisco Bay area and in Washington, more specific policies are now being formulated; in Wisconsin, Pennsylvania, New Jersey, Georgia, and Texas, general policies are being debated which may become part of approved coastal management programs.

Landfill

Waterfront land is needed by ports because new shipping technologies, such as containerized cargo, require large land areas adjacent to lengthy bulkheads and by industrial users because they want to be near transportation facilities. Landfill in port areas is often the primary means for satisfying the demand for port terminal expansion. Ports that do not have large reserves of undeveloped land create land by filling between existing, outmoded finger piers, or by filling nearby wetlands and shallow bottomlands to an elevation above high water.

Some of the engineering and economic factors that influence a decision to create new facilities through landfill follow:

Water depth. Landfill becomes impractical and prohibitively expensive in water depths over 50 feet.

Site availability. Existing finger piers or other structures on the site must be cleared and the cost of acquiring and filling the site must compare favorably with the cost of alternative sites.

Availability of fill material. Landfill projects may require extensive amounts of fill. Often, a major landfill project is planned to coincide with major dredging activity, to make use of available dredged material. Because it is expensive to transport dredged material more than a few miles, the landfill site must be close to the dredging site and be prepared to receive the material when dredging begins.

Suitability of fill material. Sand and gravel generally make excellent fill material because they dewater (drain) quickly and develop soil

bearing capacities needed to support heavy structures. Fine-grain silts are less desirable--they may take months or years to dewater and may be limited in soil bearing capacity. Polluted dredged material in a landfill may require special treatment or isolation to make the landfill safely developable.

Cost of fill material. The cost of dredging, placing, containing, and shaping a landfill may dictate a project's financial feasibility.

Environmental impact. Strict environmental controls which are designed to maintain water quality or protect fisheries resources during the project, may significantly raise the cost. In many cases, these costs do not include final site preparation needed to make the land useable.

Landfill issues have generated considerable conflict between port authorities and competing coastal users. The issues center around the adverse environmental impacts of landfill, the purpose and justification for the project, and the management of landfill within a region.

Environmental impacts of landfill. There are adverse environmental impacts of landfill projects that coastal management programs have to deal with. The configuration of a landfill may modify water circulation and change patterns of sediment erosion or deposition. Dredging and placement of the fill material may release suspended sediment in the water column, degrading water quality and possibly smothering communities of benthic organisms with a blanket of silt. Increases in levels of pollutants and a decrease in dissolved oxygen may accompany stirring of the sediments at the site and make the area hazardous for aquatic life. Landfill may also harm important spawning, breeding, or feeding areas for fish, birds, and terrestrial animals.

Most of the coastal management programs studied have formulated general policies to deal with at least some of the adverse environmental impacts of landfill. For example, Georgia requires a permit for a landfill project from the Coastal Marshland Protection Agency, which shall "consider the public interest" by analyzing possible alterations in stream flow, potential increases in erosion or siltation, and the effects on finfish and shellfish, wildlife, water quality and other marine resources (45-140). The California Coastal Act of 1976 (sec. 30706) requires that landfill in

port areas be the minimum size necessary for the project, that it be constructed in accordance with "sound safety standards," and that the project "minimize harmful effects to coastal resources, such as water quality, fish and wildlife resources, recreational resources, or sand transport systems, and .... minimize reductions of the volume, surface areas, or circulation of water."

Washington State Department of Ecology guidelines note that "significant damage to existing ecological values or natural resources" should not occur and that "such factors as total water surface reduction, navigation restriction, impediment to water flow and circulation, reduction of water quality, and destruction of habitat should be considered." Similar policies are incorporated into each city and county shoreline master program in Washington. In addition, state resource agencies may review and impose standards on landfill in the interest of protecting a natural resource, such as Department of Fisheries standards for landfill location and construction.

Federal resource management agencies have paramount rights to review environmental impacts of landfill projects in navigable waters, so coastal management programs must consider their policies during program development and implementation. By statute and interagency agreement, the Environmemtal Protection Agency (EPA), the US Fish and Wildlife Service (FWS), and the National Marine Fisheries Service (NMFS) may review and comment to the Corps of Engineers on section 10 and 404 permit applications for construction or discharge of material in navigable waters of the United States. The review criteria they use includes strict standards to protect fish and wildlife resources, wetlands, and water quality. If one or more of the agencies objects to granting a permit, it may be denied or the case may be appealed to a higher authority in the Corps of Engineers and the resource agency.

The Port of Grays Harbor landfill projects illustrate the interaction of agencies and indicate that current coastal management landfill policies are too general to resolve controversy and effectively incorporate all federal agency interests. The port depends on landfill to make low-lying waterfront marshland useful for port purposes because there are no alternatives for waterfront expansion that do not require landfill. Several projects have been delayed because of disagreements over the effects of fill on important fish and wildlife habitats. The issue is complicated by the fact that the wetlands are not pristine, but have been used as dumps for a sawmill waste for many years.

In the case of a proposed landfill to accommodate a steel corporation's plans for an offshore oil drilling rig assembly yard (Figure 4.1), the U.S. Fish and Wildlife Service recommended denial of the Corps of Engineers permit because of potential adverse impacts to an important feeding ground for juvenile salmon. But political pressure was exerted based on the assertion that national offshore energy development policy superceded fisheries habitat protection, and the FWS withdrew its objection, the permit was approved, and construction began. Grays Harbor County's Shoreline Master Program landfill guidelines did not resolve the steel plant landfill problem: they were too general and they did not reflect federal resource agencies' policies.

Purpose and justification for landfill. It is common for coastal management programs to outline permissible purposes for landfill in general terms. The California Coastal Act of 1976 states (section 30705) that water areas may be filled for "... facilities as are required for the safety and the accommodation of commerce and vessels to be served by port facilities,... new or expanded facilities or waterfront land for port related facilities,... commercial fishing,... recreational boating," and other minor activities.

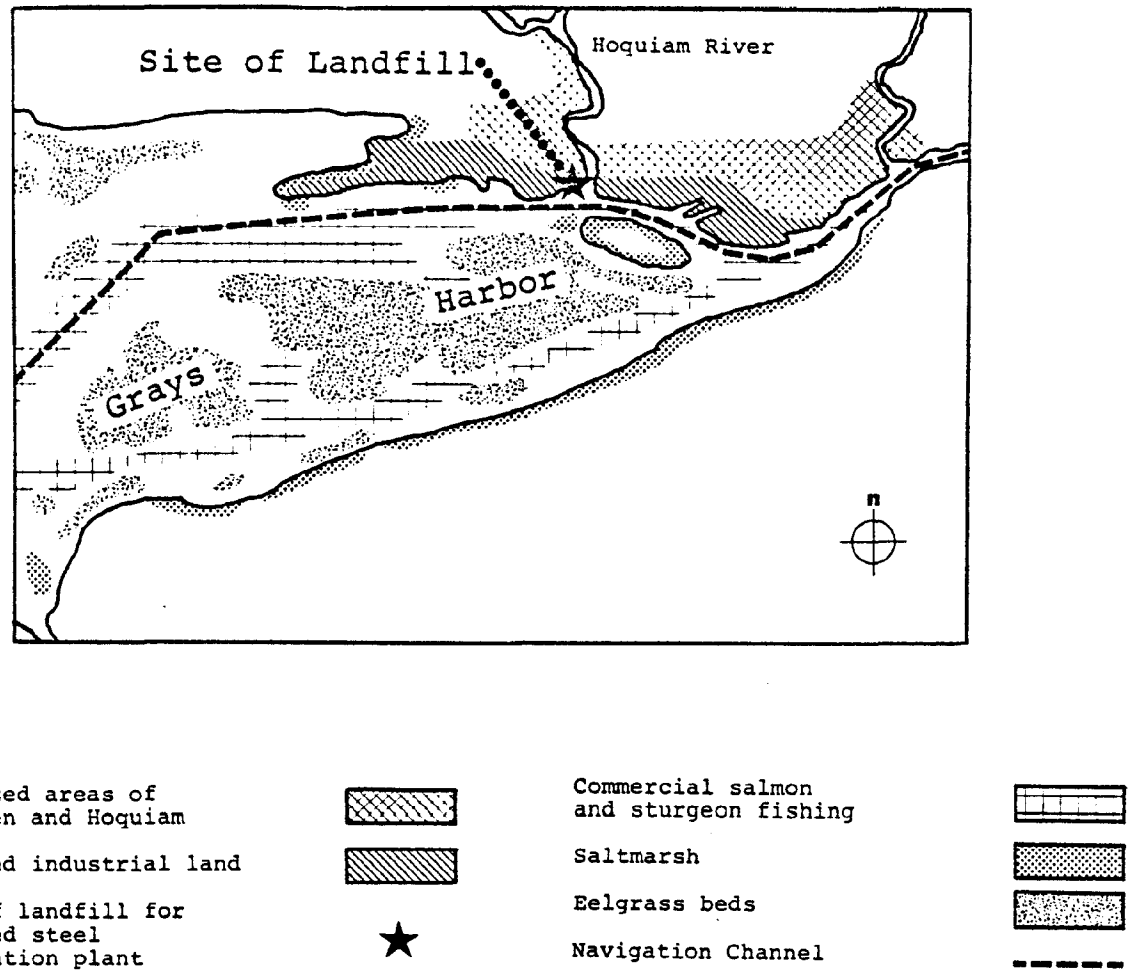


Fig. 4.1. INDUSTRIAL DEVELOPMENT AND RESOURCE PRESERVATION IN CONFLICT AT THE PORT OF GRAYS HARBOR. The conflict over industrial development of the fill site at the mouth of the Hoquiam River centered on the potential adverse environmental impacts to wetland areas, fish rearing areas and commercial salmon and sturgeon fishing grounds directly adjacent to the site. Source: Maps of Vegetation and Wildlife and Natural Resource Use, Grays Harbor Estuary Management Program.

Washington's guidelines are less specific, stating only that "Priority should be given to landfills for water-dependent uses and for public uses." Seattle's master program is equally nonspecific, permitting landfill for "water-dependent uses when no feasible alternative exists and the applicant can demonstrate a clear public benefit." In a recent case in Seattle, demonstrating a "clear public benefit" proved difficult--the need for the facility and alternative uses for the presently underutilized site were debated at length by planners, economists, and port officials.

Managing landfill within a region. To avoid dealing with landfill on a project-by-project basis, attempts have been made to focus on landfill within a region, such as an estuary or bay. A dramatic example is in the San Francisco Bay area. In 1959, a Corps of Engineers study, *Future Development of the San Francisco Bay Area, 1960-2020*, noted that the Bay had shrunk from 680 to 437 square miles in area, primarily due to extensive filling which had continued unregulated since about 1950 (Figure 4.2). Some conservationists expressed concern that soon there would be only a few narrow channels left of the once extensive Bay. One of the first tasks of the Bay Conservation and Development Commission (BCDC) was to slow the rapid filling of the Bay. Through an interim permit system, filling decreased from an average annual rate of 1700 acres per year before 1965 to 61 acres per year after 1965. (Swanson, 1975). The commission is now concerned with reconciling port development needs with policies that restrict landfill.

In areas outside of San Francisco Bay, California has articulated a landfill policy which encourages landfill in those regions where port development has already occurred. The California Coastal Act states: "Existing ports shall be encouraged to modernize and construct necessary facilities within their boundaries in order to minimize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state."

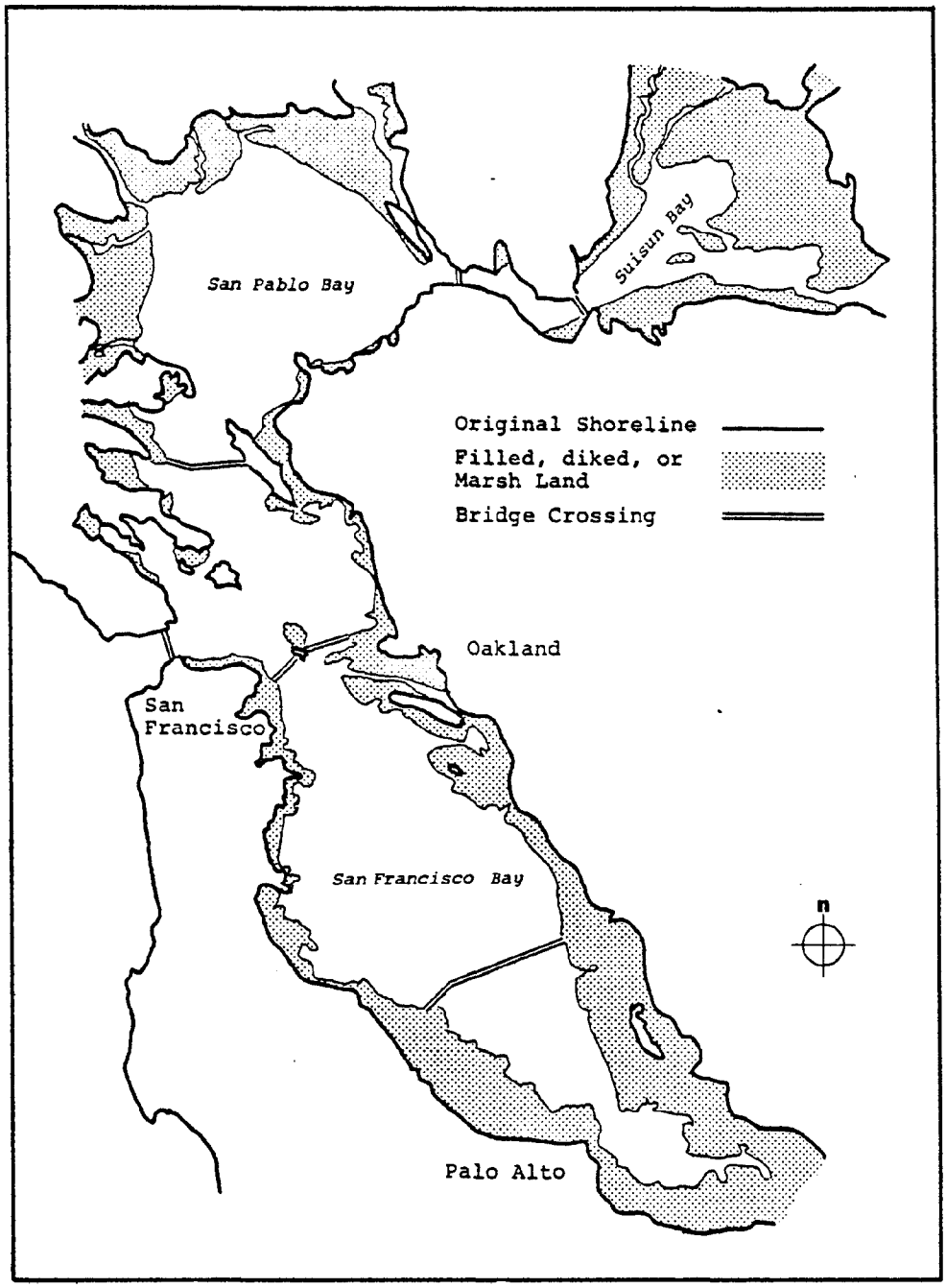


Fig. 4.2. CHANGES IN THE SHORELINE OF SAN FRANCISCO BAY DUE TO DIKING AND FILLING. The San Francisco Bay system has been reduced in size by diking and filling from 787 square miles in 1850 to 548 square miles in 1968, a loss of 239 square miles. Source: San Francisco Bay Conservation and Development Commission.

Most coastal management programs have not identified specific areas where landfill is allowed or encouraged. Yet, the pressure for development and expansion of port facilities continues to grow, resulting in landfill decisions that are made on an ad hoc, case-by-case basis. The need for more explicit landfill planning within coastal management programs is illustrated by the Port of Seattle, which is short of land for long-term future development. The port's development plans for the next five to ten years in Elliot Bay include landfill between a number of old finger piers to create new quay-type berths for container and general cargo terminal expansion. When these plans are completed, the port will have nearly exhausted all possible future sites for new landfill within its jurisdictions. Further major expansion will require wholly new facilities in remote areas, since water depths up to 600 feet in Elliot Bay preclude large landfill areas. The Seattle Shoreline Master Program has not dealt with this problem, but--ideally--the Port and the coastal management program will deal with it before specific development projects are proposed outside the port area.

A final landfill issue often raised by resource agencies is how to manage the cumulative effects of many small landfill projects within a region. One landfill project by itself may have only minor impacts on fish and wildlife habitats or on reducing the total water surface area of a bay, but hundreds of such projects spread over several decades can have far-reaching impacts. Although none of the case study programs yet provides specific approaches to this problem, coastal management personnel want to be able to predict the cumulative effect of each additional project and determine the ultimate limits of landfill development within a region. In Grays Harbor, for example, state and federal resource agencies refused to concur in new landfill activities until cumulative effects or ultimate development limits are known. In Los Angeles, before a small landfill project was approved, the applicant was required to show how it related to a 1034-acre landfill proposed in the Port of Los Angeles master plan.

Dredging and Dredged Materials Management

For a port to be competitive, it must maintain channels that can handle the new larger ships. Shipping industry trends are toward larger ships with increased draft: most of the supercarriers require water depths of 65

are already in service. The typical average depth of a U.S. port only ranges from 30 to 40 feet, thus, a large percentage of the world fleet cannot even enter many existing ports unless deeper and wider channels are dredged. Further, many natural and manmade ports in the U.S. require maintenance dredging to keep the channel free from silt and other obstructions. Ports with deep natural harbors and ports that succeed in getting federal navigation improvement funds will have a competitive advantage in the future.

Dredging and dredged materials management is primarily the concern of the U.S. Army Corps of Engineers, in cooperation with a local government agency, often a port authority. Federal funds for construction and maintenance dredging are appropriated by Congress to cover the dredging phase, but the "local cooperator" is required to pay for disposal site and right-of-way acquisition, utility relocation, and other costs incurred in dredged materials disposal.

Dredging and dredge disposal problems seen in the case studies included disposal site selection, review of need, federal government analysis of needs, and interstate coordination of dredging and disposal between two or more adjoining states.

Disposal site selection. Selecting suitable dredged material disposal sites requires balancing dredging and disposal costs and environmental protection requirements. The cost per cubic yard of dredging is influenced by a number of factors--the type of material dredged (hard or soft), type of dredge used, water depth, distance from the dredging site to the disposal site, cost of dikes for confined disposal, and special environmental protection measures required.

Disposal areas may be limited to upland sites (above the high-water mark), contained or uncontained wetland sites (diked or uncontained areas with tidal influences), and open-water sites (deep water greater than about 30 feet). Construction dredging projects generate large amounts of material over a short time, requiring disposal areas suited to that purpose. The amount of material generated by maintenance dredging is smaller than for construction dredging, but sites must be continuously available over a longer period of time.

Dredged material that is polluted with heavy metals or toxic organic compounds poses special technical and cost problems and must be disposed of in contained upland sites. The material must be stabilized to prevent erosion or leaching of pollutants into neighboring water bodies.

Traditionally, the Corps of Engineers, the local cooperator, and concerned state agencies are primarily responsible for choosing disposal sites. But a trend noted in Washington and California--fostered by coastal management programs and federal environmental protection legislation--has been to encourage more public, and local, state, and federal agency participation in decision making. Federal resource protection agencies--notably the U.S. Fish and Wildlife Service, the Environmental Protection Agency, and the National Marine Fisheries Service--are the most visible and active advocates for the protection of living resources in connection with

dredging activities. Federal statutes and interagency memoranda of understanding permit these agencies to review and comment on proposed federal dredging projects.

Regulations and guidelines governing dredging differ considerably among coastal management programs. The Coastal Marshland Protection Act in Georgia requires the Coastal Marshland Protection Agency to consider the effects of the proposed dredging on stream flow, erosion or siltation patterns, fish and wildlife, water quality, and other marine resources. The act specifically exempts federal dredging projects from permit requirements, however; while Georgia does not include provisions for long-range planning of dredged material disposal, Washington Guidelines state that "local governments should control dredging to minimize damage to existing ecological values and natural resources of both the area to be dredged and the area for deposit of dredged materials." (p. 15). Local master programs are required to develop long-range plans for the disposal or use of dredged material, but in fact no master program has yet addressed the issue.

The Shoreline Master Program for Grays Harbor County illustrates how the state guidelines have been applied at the local level:

1. Dredging should minimize damage to existing ecological values, natural resources, and the river system of both the area to be dredged and the deposit area, and shall also minimize water quality degradation.

2. Spoil deposit sites in water areas should be identified in cooperation with the State Departments of Natural Resources, Game, and Fisheries. Depositing dredged materials in water areas should be allowed only for habitat improvements, to correct problems of material distribution affecting adversely fish and shellfish resources, or where the alternative of depositing it on land is more detrimental to shoreline resources than depositing it in water areas.

3. Dredging of bottom materials solely to obtain fill material should be discouraged.

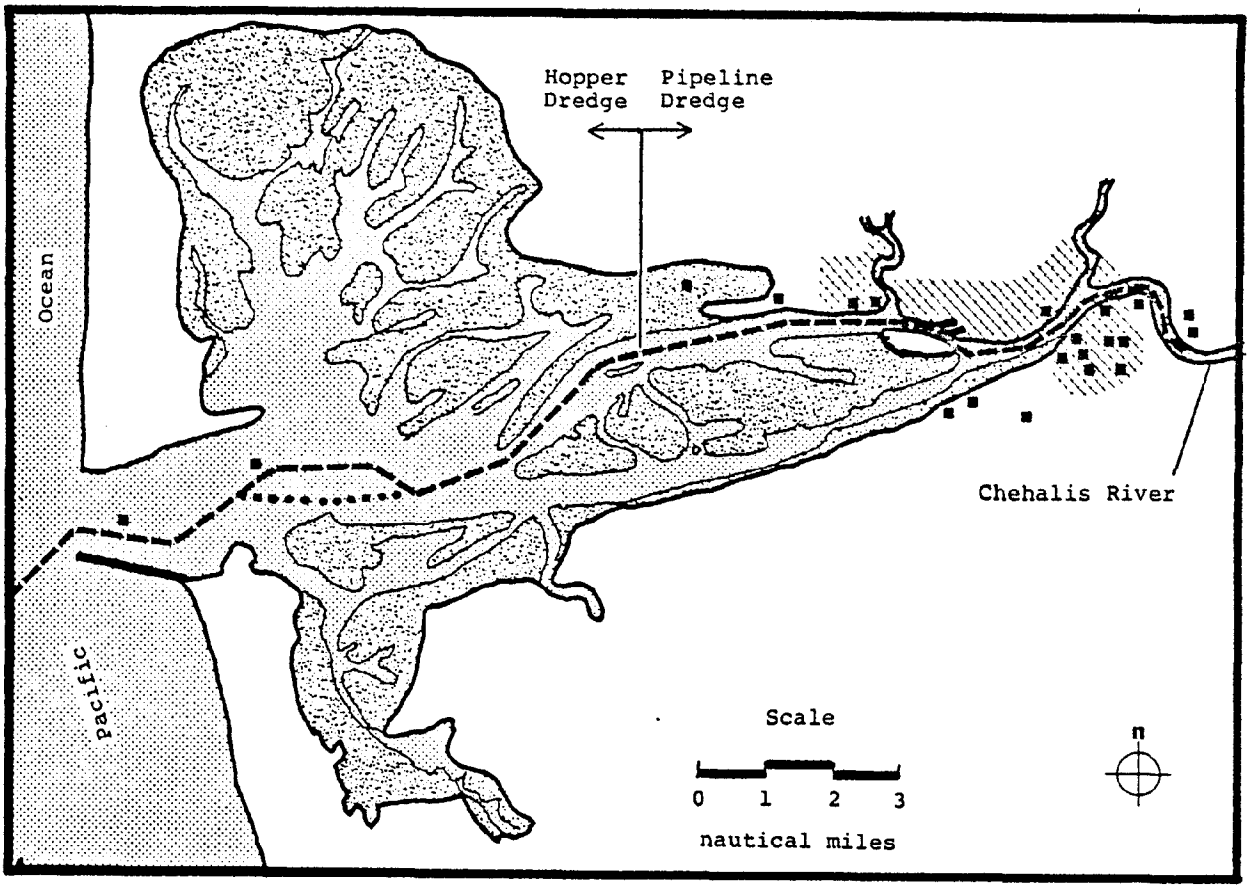
4. Ship channels and turning and moorage basins should be identified and no new areas prepared or used without sufficient evidence that existing channels and basins are inadequate.

5. The use of dredge spoils for purposes other than landfill is encouraged.

Grays Harbor requires constant maintenance dredging and an extensive channel improvement project is being studied. The need for the proposed project is generally accepted as necessary to preserve the port's competitive position, given the ever-increasing size of ships. In the past, dredged material has been disposed in both deep water and uncontained wetland disposal areas along the shoreline. Much of the new land created by dredged disposal is now prized for its natural productivity and usefulness as wildlife habitats. Wetlands that haven't yet been filled are now considered unacceptable for dredged materials disposal, which has resulted in a conflict between the port and Corps of Engineers, on one side, and the U.S. Fish and Wildlife Service, the State Department of Fisheries, and conservationists on the other.

A number of disposal sites have been identified for Grays Harbor's proposed channel improvement project, but no final selection has been made. The Grays Harbor Estuary Study Task Force may examine the issue and could refine the existing criteria for choosing disposal sites as part of the management program now being developed (see Figure 4.3).

Review of the dredging needs. Coastal management programs have not taken the position of specifically questioning the need for major federal dredging projects. States do, however, vary widely in the degree to which regulations cover the purpose and justification of need for smaller, nonfederal projects. The Washington State Guidelines do not limit the purpose of dredging (beyond prohibiting dredging solely for fill material) and do not require justification of need for a project.



Existing channel

Proposed channel re-alinement

Urban area

Upland

Intertidal land

Water areas

PROPOSED ALTERNATIVE DISPOSAL SITES

Fig. 4.3. PROPOSED DREDGED MATERIAL DISPOSAL SITES IN THE GRAYS HARBOR ESTUARY. Eighteen alternative dredge spoil disposal sites have been chosen by the Corps of Engineers. Final site selection has not been completed, but past selection has been by site-by-site review of economic, political, and environmental factors conducted by local government, the port, and state and federal environmental resource agencies. Local government and resource agency involvement is concentrated in the final selection of sites from among alternatives initially preselected by the Corps. Source: Grays Harbor Widening and Deepening Draft Environmental Impact Statement, U.S. Army Corps of Engineers, May, 1976.

The California Coastal Act (1976) requires dredging in port areas to be consistent with a certified port master plan, and limits the permissible purposes of dredging to construction, modification and maintenance of shipping channels, port facilities, commercial fishing and recreational boating facilities, and a handful of minor, incidental purposes (30705[a]).

Federal government analysis of dredging needs. As costs of dredging rise and ports request more federal funds for channel improvement projects to maintain their competitive positions, federal policies for allocating construction and maintenance dredging funds may change. This is illustrated by an example near Grays Harbor: The Corps of Engineers recently announced plans to cease maintenance dredging of Willapa Bay, 15 miles south of Grays Harbor. This decision to reallocate project dollars will result in the demise of deep-draft shipping in Willapa Bay and redistribution of existing shipping to Grays Harbor and Columbia River ports.

Interstate coordination of dredged material disposal. The Philadelphia region has the dual problem of where to dispose of maintenance dredged material in an urban area that has few disposal sites, and how to build interstate cooperation between Pennsylvania, New Jersey, and Delaware--the states that share access to the Delaware River. Presently, the City of Philadelphia is considering withdrawing the major regional disposal site from use so it may be developed.

The Pennsylvania coastal management program in its draft policies on the Delaware River, identify the need to establish suitable sites and develop criteria for assessin environmental impact but does not specifically mention interstate solutions to the problem. The key New Jersey coastal management legislation (the Coastal Area Facilities Review Act) does not currently include in its jurisdiction the section of the Delaware River where Camden's port facilities are located. There has been no serious attempts by either state to resolve the dredge disposal problem at a bistate level.

More advanced planning is occurring in Washington and Oregon, where the Columbia River Estuary (CREST) study is developing an interstate strategy to select sites for dredged material disposal. Figure 4.4 shows CREST's planning methodology for choosing potential sites.

Mitigation and compensation for environmental damage

In many areas, port development projects which require dredging, filling or channel modification of existing water bodies or wetlands are essential to the continued economic viability of the port. Although some of the harmful effects of dredging and filling may be minimized by permit conditions on dredging operations, disposal methods, and better engineering design, other environmental effects are more difficult to ameliorate. These are the degradation or permanent loss of fish and wildlife habitats in bottomlands, tidelands, marshes, and other wetlands. These habitats are valuable natural resources that have a variety of functions:

- They provide spawning, nursery, and feeding grounds for finfish.
- They contain commercial or sport shellfish beds.
- They are nesting, feeding, and breeding areas for migratory birds.
- They help to filter natural and manmade pollutants from surface water.
- They provide nutrients and planktonic forms for many levels of the food chain.

Dredging and filling projects may alter or destroy fish and wildlife habitats: they change circulation patterns, introduce heavy suspended sediment loads into the water which eventually smother aquatic plants and shellfish beds, cover the habitats completely by filling above the water line or dredging the area to a deeper depth, or release toxic substances into the water as dredging churns up polluted bottom sediments (Clark, 1974)

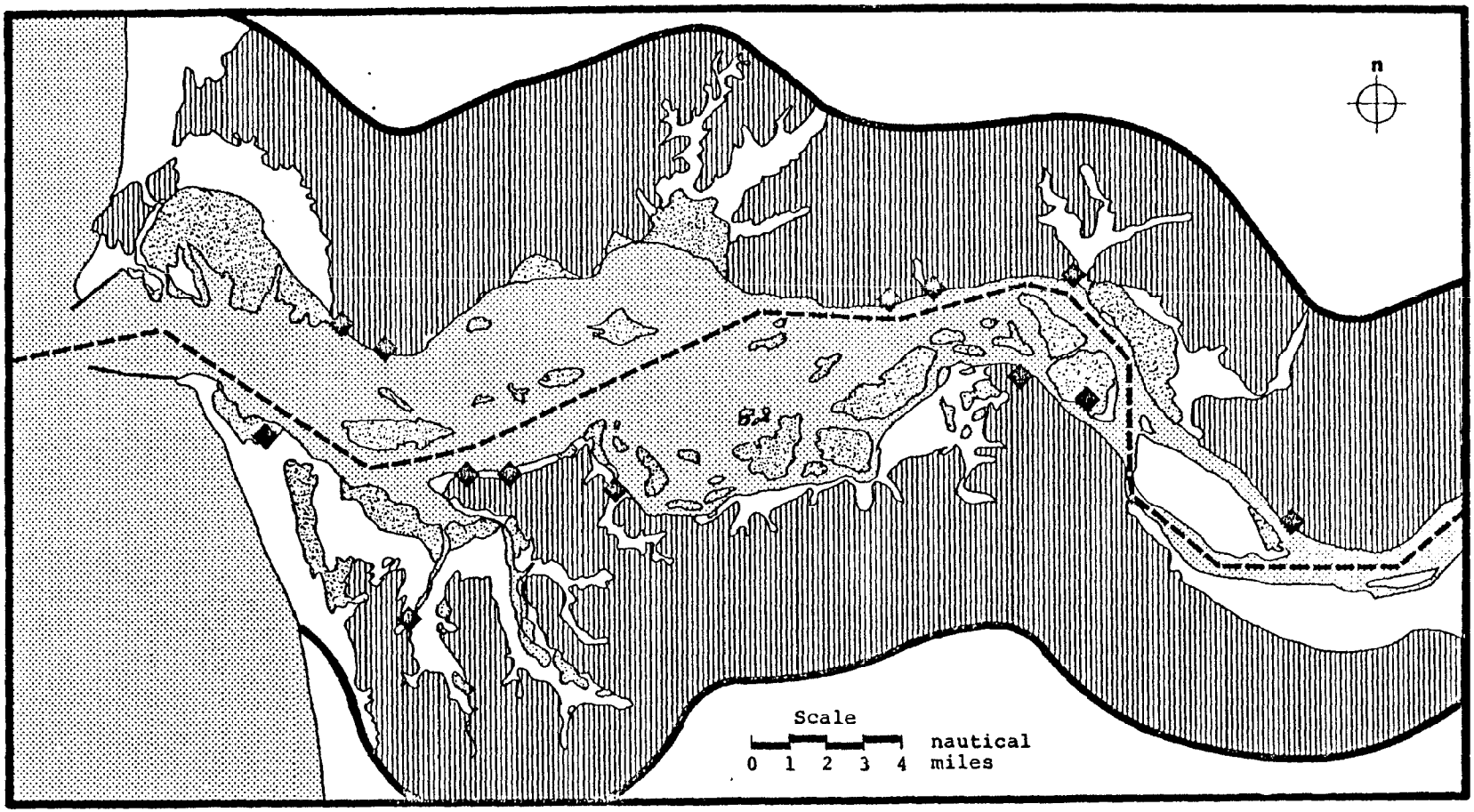


Fig. 4.4. POTENTIAL DREDGED MATERIAL DISPOSAL SITES IN THE COLUMBIA RIVER ESTUARY. Dredge spoil disposal sites on the Columbia River are selected by defining the maximum possible dumping distance for dredged material and then excluding water areas, prime agricultural land, refuge lands, and wetlands. Lands not otherwise constrained are examined in further detail, and the final selection is made by local elected officials. Local governments, state and federal environmental resource agencies, and the Corps of Engineers are involved in the selection process from the beginning. Source: Map of Potential Dredge Disposal [redacted]os, [redacted]um [redacted]Riv[redacted]si[redacted] Ma[redacted]

The permanent alteration of habitat types may have beneficial as well as undesirable results. In many areas along the east coast, material was disposed of by creating small islands to fill next to the navigation channel. Over the years, new vegetation has covered these dredge islands, which have become valuable habitats for waterfowl and small animals. New intertidal and shallow-water communities have developed where dredged material has filled previously deep water up to a shallower depth. In both cases, the existing communities were either destroyed or severely altered, but new communities--also valued as natural resources--have reestablished themselves gradually over time.

Requirements for mitigation. The present thrust of resource management agencies has been to require mitigation and compensation measures where fish and wildlife habitats will be significantly altered or destroyed by dredging or filling. Such measures may be required by state fisheries or game departments, state or local coastal zone management programs, and the U.S. Army Corps of Engineers acting together with the Environmental Protection Agency, the National Marine Fisheries Service and the U.S. Sport Fish and Wildlife Service.

The terms mitigation and compensation are defined differently by different people: according to *Webster's* the word mitigate means "to make less severe, less rigorous, less painful; to moderate," and the word compensation means "anything given as an equivalent, or to make amends for a loss, (or) damage." In practice, the Corps of Engineers uses numerous terms. For example, the Seattle District Corps of Engineers office uses the following definitions: *Mitigation* reduces the harmful environmental effects of a project. *Compensation* provides equal replacement of biological resources. *Enhancement* restores more productivity than was taken away. Corps of Engineers officials admit that there is little rigor to these definitions (interview).

Recent Oregon guidelines specially defined both mitigation and compensation:

> *Mitigation.* (a) restoration of the biological productivity of wetland areas near the site of the landfill. If sites are not available, other sites with similar potential for biological productivity may be suitable. If restoration of similar biological productivity is not possible, then other scarce biological resources in the area may be restored. (b) Transferring ownership of land to public use or dedicating land to natural uses.
>
> *Compensation.* (c) develop recreation and public access facilities as compensation for lost biological productivity. (d) funds to a public agency for land acquisition or research in natural coastal processes.

State coastal zone management programs, by and large, do not contain detailed definitions of what mitigation and compensation are or what mitigation and compensation measures are appropriate for certain development activities. Two exceptions to this are Oregon (discussed above) and California. The Oregon Land Conservation and Development Commission's guidelines permit only (a) above for mitigation and specially exclude (b), (c), and (d). The California Coastal Act (sec. 30607.1) specifies "either acquisition or equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action; provided, however, that if no appropriate restoration site is available, an in-lieu fee sufficient to provide an area of equivalent productive value or surface area shall be dedicated to an appropriate public agency,...." These provisions apply to wetlands outside established port areas, and the act contains no specific mitigation requirements within the existing ports of Hueneme, Los Angeles, Long Beach, and San Diego.

The new California Coastal Act represents a significant departure from the Coastal Plan developed under Proposition 20 with regard to mitigation. The Coastal Plan required that new habitats be created on an acre-for-acre basis to compensate for environmental damage. The provision applied to all areas, including ports.

The Texas coastal management program has not yet defined appropriate mitigation and compensation measures, and the program's hearing draft contains no detailed discussion of the problem. A bill addressing fish and wildlife mitigation passed the 1977 Texas legislature but was vetoed by the Governor. Washington Department of Ecology guidelines do not directly define mitigation or require specific measures, but they do permit the use of dredged material for habitat improvement. In states such as Washington, which has an approved coastal management program, the practice of mitigation may exist even though it is not specially treated in the legislation and guidelines. The Georgia Coastal Marshland Protection Act does not define mitigation nor does it require specific mitigation measures. Similarly, Pennsylvania's and Wisconsin's coastal management programs have not yet defined mitigation and specified measures. But states such as Wisconsin and Pennsylvania, whose coastal management programs are still being developed, may follow in the footsteps of federal resource agencies and specify requirements as their programs develop.

The most visible force behind mitigation requirements for projects that alter or destroy fish and wildlife habitats has come from the Fish and Wildlife Service, the Environmental Protection Agency (EPA) and the National Marine Fisheries Service (NMFS), acting through the Corps of Engineers Sec. 10 and 404 permit authority, (see Chapter 11). By statute and interagency agreement, all three of these agencies provide important input into Sec. 10 and 404 permit review. The Fish and Wildlife Service, in its published regulations, may require "compensational measures" (*Federal Register* Vol. 39, #159, p. 29558) to protect resources. NMFS and EPA are developing similar mitigation policies at the district and regional levels but no national agency policies have been published.

Two examples of mitigation requirements were observed in this study. In Seattle, filling between finger piers in the southwest harbor area meant the loss of fish habitats among the pilings of the old piers. Compensation measures requested by the State Department of Fisheries called for the development of a public fishing pier elsewhere in Elliott Bay, so Fisheries built the pier on land contributed by the port. The new pier does not restore biological productivity or provide replacement habitat area, but it does provide compensation to the general public in the form of better access to sport fishing.

Under the California Coastal Zone Conservation Act (1972) and the Coastal Plan (now superceded by the California Coastal Act of 1976), landfill projects had to include an acre-for-acre replacement of productive areas as compensation. The Port of Los Angeles calculated that providing the acre-for-acre replacement land stipulated by the Coastal Plan's mitigation requirements would cost $53,000,000. compared to the $12,500,000 cost of the development project. As a result of the mitigation requirements and other policies in the Coastal Plan, the port fought for special individualized treatment under the new Coastal Act. In the new California Coastal Act, port districts are specially exempt from the mitigation requirements.

Mitigation cost and financing. Private interests, local or state government must pay for mitigation requirements imposed on nonfederal dredging and filling projects. Mitigation has been attacked by port-interest groups as being prohibitively expensive, because the costs involved can turn an otherwise financially feasible project into a loser.

Three promising concepts for funding mitigation--two in use, the other under study--may help resolve the problem of costs.

1. On federal Corps of Engineers projects in navigable waters, Sec. 150 of the Water Resource Development Act (1976) authorizes the Corps to spend up to $400,000 per project to develop wetlands as part of water resources development projects.

2. In Florida, the Tampa Port Authority has implemented a temporary "Environmental Protection Service Charge" of 2¢ per net ton on all export bulk cargo, which will be dropped when revenues have reached the $5,000,000 mark. These revenues are earmarked for mitigation projects in conjunction with the Corps of Engineers Tampa Harbor Deepening Project.

3. In the Columbia River Estuary, the Columbia River Estuary Study Task Force (CREST) is discussing the concept of a "mitigation bank" of potential sites for restoring biological productivity lost in dredged material disposal. State and local governments bordering the estuary would contribute funds to acquire sites, which would be inventoried according to type and level of biological productivity possible. Use of disposal sites whose biological productivity is reduced would purchase a given number of "replacement units of biological productivity" from the "mitigation bank." This revenue would be used to acquire additional mitigation sites. The concept is in preliminary phases of discussion and has not been fully developed or approved.

Waterfront land allocation

Coastal management programs are designed to influence land allocation and use decisions to achieve their objectives. Historically, the two most important government regulatory programs influencing land use have been zoning, which designates particular uses for an area, and the imposition of health, safety, and environmental standards on uses. Public investment decisions also affect land use decisions. Coastal management programs deal with each of these types of controls.

Five aspects of coastal land allocation are discussed: priority of uses through districting, water dependency criteria, regional allocation of port facilities, influencing facility location through public infrastructure decisions, and conserving the future supply of waterfront land.

Priority of use through districting. A mechanism for allocating waterfront land through coastal management programs is to establish districts in particular coastal areas and prescribe what uses may take place in the district. This procedure is analogous to zoning. For example, the Washington State Guidelines establish four broad categories of land and water use (Wash. CZMP, p. 32-34):

1. Natural, land to remain relatively free from human influence
2. Conservancy, land where resource management and public recreation will be permitted
3. Rural, intended to protect agricultural land from urbanization
4. Urban, development permitted provided other criteria are met

Experience in Washington suggests that districting alone will not be the primary means of controlling shoreland allocation. Other criteria--such as environmental impact, water dependency (discussed below), and public access--are applied to uses and often determine, ultimately, if a use is permitted. The prescribed uses within a district initially screen out only undesirable uses. Further, giving a district a broad heading, such as "urban", does not resolve competing use problems since many competing uses may be authorized within the same district. This problem arose in Grays Harbor, where a local government rezoned an area in the port district to allow a hotel/convention center complex. This controversial rezone all occurred within an "urban" classification of the shoreland master program. Further, the establishment of districts under a coastal management program must be coordinated with local government zoning classifications, because inconsistencies between coastal management and zoning can lead to legal disputes. Finally, under Washington's districting requirements, local governments have established subdistricts to handle particular preferred uses: Seattle, for example, has established many subdistricts based on the four basic categories.

Water-dependency criteria. Water dependency is an innovative decision-making criterion being used more and more frequently in coastal management programs. The principle behind the criterion is that only those uses dependent upon a waterfront location should be permitted to locate there. A shoe factory, for example, should not be permitted on the waterfront even if the manufacturer is willing to pay more for the land than the shipyard owner or the marina developer. Implicit in this approach is the desire to conserve scarce waterfront land for those uses that must be located there.

Although the principle is appealing, water dependency is not an easy concept to apply. Table 4.1 shows three contrasting types of water-dependency criteria. The first approach, used in Washington State, lists three categories of uses by priority; water-dependent commerce, water-oriented commerce, and other water-dependent and water-oriented uses. These priority listings help the Washington State Department of Natural Resources give preference to water-dependent uses over non-water dependent uses in leasing public lands. Those higher on the priority list of water dependency get longer leases and better lease terms.

The second approach, used by the San Francisco Bay Conservation and Development Commission, applies a point rating scale to various parcels of land to determine those most suited for water-dependent industry. The rating scale recognizes that priority of use should be based on factors other than the need for channel access--that industry requiring good rail access may tend to locate in the coastal zone because rail facilities are heavily concentrated there and that industries requiring large areas of flatland may locate there because much of the region's flatland may be there.

The third approach in Table 4.1 applies an "economic benefit" test to determine if an activity or proposed use is water related. If real cost savings or revenue advantages can be attributed to a waterfront location (unrelated to land rents or costs),

the use is considered water related. This approach is being studied by the San Francisco Bay Conservation and Development Commission for possible use.

Water-dependency criteria are used explicitly or implicitly in coastal management programs. The Washington coastal management program has explicit water-dependency definitions, which differ from those used by the state's Department of Natural Resources (shown in Table 4.1). Three categories of uses are established (*Washington Coastal Management Program, p. 31*):

1. Water-dependent uses, those which cannot exist in any other location but on the water
2. Water-oriented uses, those which may be helped by location on the water, but which could function away from the water
3. Non-water oriented uses, those which can locate equally well away from water

These definitions are not very precise, however, and this has led to delays in approving permits for a new sawmill in Grays Harbor. The sawmill receives logs by truck and exports metric standard lumber by ship to the Far East. Proponents of the mill claim that it is water dependent or water oriented because it exports lumber by ship from the nearby pier; opponents claim it need not locate in the coastal zone because it could truck its products to the waterfront. This problem is being negotiated as part of the Grays Harbor Estuary Study Task Force, and refined use classifications and definitions may be included in the management plan now being developed.

The Massachusetts Office of Coastal Zone Management has developed a "preferred industries" concept within the classification of water-dependent uses. The "Coastal Zone Management Preview" designates specific industries which will receive highest priority for locating in the coastal zone and those industries which will be discouraged. This concept is applied to specific locations within Boston Harbor.

Table 4.1. Three Alternatives for Determining Water Dependency of Industries or Suitability of Waterfront Land for Water-Related Industries

Alternative 1: Washington State

Classifications of the Washington Department of Natural Resources specify maximum lease terms for leasing state lands in harbor areas.

Priority	Use examples	Maximum lease term
I	Water dependent commerce public or private port terminals handling general commerce ferry and passenger terminals marine construction and repair facilities marinas and moorage areas tug and barge companies	30 years with unrestricted renewal
II	Water oriented commerce single-user terminals, usually handling raw materials pulp, paper, lumber and plywood mills seafood processing plants sand and gravel companies petroleum handling and processing plants	30 years with limited renewal provisions
III	Other water dependent and water-oriented uses uses making limited contributions to navigation and commerce ecological and scientific reserves waterfront parks and beaches public resorts, aquariums, restaurants	20 years with no renewal
	Other uses apartment buildings hotels, taverns private residences warehouses not directly associated with waterborne commerce retail sales outlets	No new leases issued. Existing leases for 10 years, limited renewal provisions

Table 4.1. *(continued)* Three Alternatives for Determining Water-Dependency of Industries or Suitability of Waterfront Land for Water-Related Industries

Alternative 2: San Francisco Bay Area *(Present)*

The preservation of adequate waterfront sites for future water-dependent industry is a major concern in the San Francisco Bay area. The San Francisco Bay Plan (1969) presents a rating scale for comparing the physical infrastructure characteristics of different parcels of waterfront land in different locations. The higher the total score, the more desirable the land for siting water-dependent industry. (Bay Plan, p. 18)

Characteristic	Maximum Points
Channel or pipeline access	20
Rail access	10
Freeway access	10
Major highway access	5
Size of land area	15
Grade of site	10
Foundation suitability	15
Size of ownership units	5
Present use	10

Alternative 3: San Francisco Bay Area *(Proposed)*

A study of waterfront industry, done by a private consultant, recommends that the Bay Conservation and Development Commission revise its definition of water-related uses to identify industrial uses which "gain real economic benefit by being located on the water." The report suggests the following definition:

> "To be water-related, an activity or firm must gain cost savings or revenue-differentiating advantages, neither of which is associated with land rents or costs, from being located on the bay shore that it could not obtain at an inland location." (p. S-1)

For instance, because of their importance to the local economy, commercial fishing and fish processing receive high priority in the vicinity of Boston's Fish Pier and in several of the state's smaller ports, including Gloucester and New Bedford.

Oil transfer facilities are deemed vital to the Massachusetts economy, but they consume much scarce waterfront land in Boston Harbor. Massachusetts Office of Coastal Zone Management proposes a policy to encourage siting new tank farms inland, connecting them to waterfront transfer terminals via pipelines, and to phase out existing waterfront tank farms (Policy 30). This policy would be implemented by the Energy Facility Siting Council, using its permit and review process.

Even if explicit water-dependency criteria are not developed, state coastal managers tend to apply them implicitly when commenting on proposed development projects. For example, in Massachusetts, a conflict arose over a plan to locate a new community college at a site on Town Bay that is adjacent to a 35-foot navigation channel and is now zoned industrial. Coastal zone managers would consider this poor planning and a violation of the principle of water dependency.

In Philadelphia, the Navy proposes to build single-family housing at the Philadelphia Navy Yard on one of the few remaining tracts of undeveloped waterfront land in the city. City officials have attempted, without success, to influence the Navy to relocate this non-water dependent use to a more appropriate inland location and make the property available to the city for port-related uses. State and city officials are powerless to stop the project, because it is within a federal enclave, exempt by federal law from state and local control.

The use of water-dependency criteria is not limited to state and local government programs that affect coastal areas. The U.S. Fish and Wildlife Service is authorized to consider whether a project is water dependent or non-water dependent. Where

biologically productive wetlands are involved and where other upland sites are available, the Fish & Wildlife Service usually recommends denial of a (Corps) permit unless the public interest requires further consideration *(Federal Register, 1975)*. In the previously mentioned example of a sawmill in Grays Harbor, the Fish and Wildlife Service objected to issuing the permit on the grounds that the sawmill was not water dependent.

Regional port facility planning. Presently, individual port authorities decide when and where new facilities should be developed based on their own analysis of future trade needs and their own ability to finance new land acquisition, and facility construction. In intensely developed urban areas, where other uses compete for scarce waterfront land, ports will increasingly be called upon to justify the need for new facilities and provide the public with better documentation of siting decisions. Proponents of regional port facility planning cite examples of redundant facilities in neighboring ports and stress economic efficiency and conservation of land as reasons why regional facility planning is desirable. But the port industry is largely opposed to regional planning efforts, alleging that it stifles healthy competition among ports and that market forces best determine the composition and location of new facilities.

Two west coast examples show attempts to coordinate port expansion on a regional scale. One is a voluntary certification-of-need program operating in Washington State; the other is a regional planning activity underway in the San Francisco Bay area. In Washington, the Ports Systems Study, conducted by the Washington Public Ports Association (WPPA) forecasts the demand for waterborne commerce and changes in shipping technology through the year 2000. Existing port capacities were compared with projected demand, and a voluntary industry-based committee was established to review proposed new port facilities. In planning for new facilities, a member port applies to WPPA's

Cooperative Development Committee (CDC), for a "certificate of need" stating that the facility is in harmony with regional port development needs. The certification mechanism has been used by member ports only once. The procedure--established in response to proposals for a Puget Sound regional port authority being discussed in the Washington State legislature--is, admittedly, a self-policing practice of the industry association and has no legal sanction.

Regional coordination of port facilities in the San Francisco Bay area has been a controversial issue for more than 10 years. The 1969 Bay Plan noted that a more definitive regional ports plan was needed so the Metropolitan Transportation Commission (MTC) began to study ports under its regional transportation mandate. But Bay area ports, in an effort to avoid MTC regulation, commissioned their own regional facility plan under the auspices of the Northern California Ports and Terminals Bureau (NORCAL). The Corps of Engineers began a third study of port facilities and demand for waterborne commerce. These studies resulted in a range of forecasts for new facilities: MTC's forecast was low, NORCAL's was high, and the Corps' was in between.

The 1969 Supplement to the Bay Plan notes that lack of coordination of facilities planning has resulted in duplication of facilities, conversion of scarce land which could have gone to other purposes to port use, and extensive unnecessary filling of the bay. Each port's cargo demand projections have tended to be of existing trends, without consideration of regional development objectives. The supplement recommends that a regional authority coordinate port facility planning for the Bay area, although it need not be an operating authority (p. 210, 211). The Bay Plan recommended a number of potentially desirable sites for new and continued port expansion.

Presently in the Bay area, MTC has made preliminary identificatio 63 sites for new and continued port expansion. A continuing study will refine projections of demand and determine which of these sites are best suited to port development. The concept of a regional port authority has not been implemented, but continues to be a controversial topic of discussion.

Influencing facility location through public infrastructure decisions. Once the need for a port facility has been established, it may be desirable to locate it on a specific site. Short of outright purchase of the land and construction of the facility by a government agency, a coastal management program can--working in concert with other public agencies--influence the siting of a new facility.

Public investment in roads, water supply, sewers, and other infrastructure improvements has a direct bearing on port facility location and timing. For example, the 1969 San Francisco Bay Plan recommended a site near Collinsville as promising for new port development. A proposed new freeway and bridge between Antioch and Collinsville would provide the needed highway access, but because of changes in the regional highway plan, they were never built. Access to the site remains poor and the potential for port development was never realized. In this case, changes in public investment in highways reduced the suitability of the Collinsville site, thus frustrating a coastal management objective.

An example of purposefully using public investment to guide the development of a new container facility is evolving in Boston. The Massachusetts Office of Coastal Zone Management, in its Management Preview, acknowledges the need for a new container facility, and would like to see it located in Boston Harbor, rather than an undeveloped area. The Massachusetts OCZM has encouraged the Massachusetts Port Authority (Massport) to build a new truck access route to a promising South Boston site that is plagued by poor highway access in an effort to improve its suitability for development and reduce noise and congestion on city streets.

This principle applies as well to federal channel maintenance and construction dredging. The location and extent of dredging in many ports often determines which sites are suitable for development. Ports request funds for engineering studies and capital construction projects work through the congressional delegation. Congress then directs the Corps of Engineers' District Office to conduct studies and develop the project using federal funds and local cooperating agencies. State and local coastal management programs have not yet stepped into this federal political arena to influence facility location. However, because of the federal consistency provisions of the Coastal Zone Management Act, coastal management programs will have a greater role to play in planning future federal dredge and fill projects.

Conserving the future supply of waterfront land. In ports where developable land is in short supply, coastal management agencies and port authorities are beginning to take steps to use existing land more intensively.

The Port of Seattle is facing a growing shortage of waterfront land for new container facilities. The port has adopted a strategy of "building up" by stacking containers more densely, decreasing on-chassis storage, and storing empty containers at inland locations (see Figure 4.5).

The Port of Grays Harbor recently raised its tariff on the log storage at port-owned terminals, which was followed by an unexpectedly sharp decline in the number of logs stored. Log storage was shown to be very price sensitive, and logging companies chose to store logs at their own inland yards or to leave the timber standing. Reducing the number of logs stored was not the purpose of the tariff boost, but the example illustrates the possibility of using rate structures to encourage more intensive use of existing facilities (see Figure 4.6).

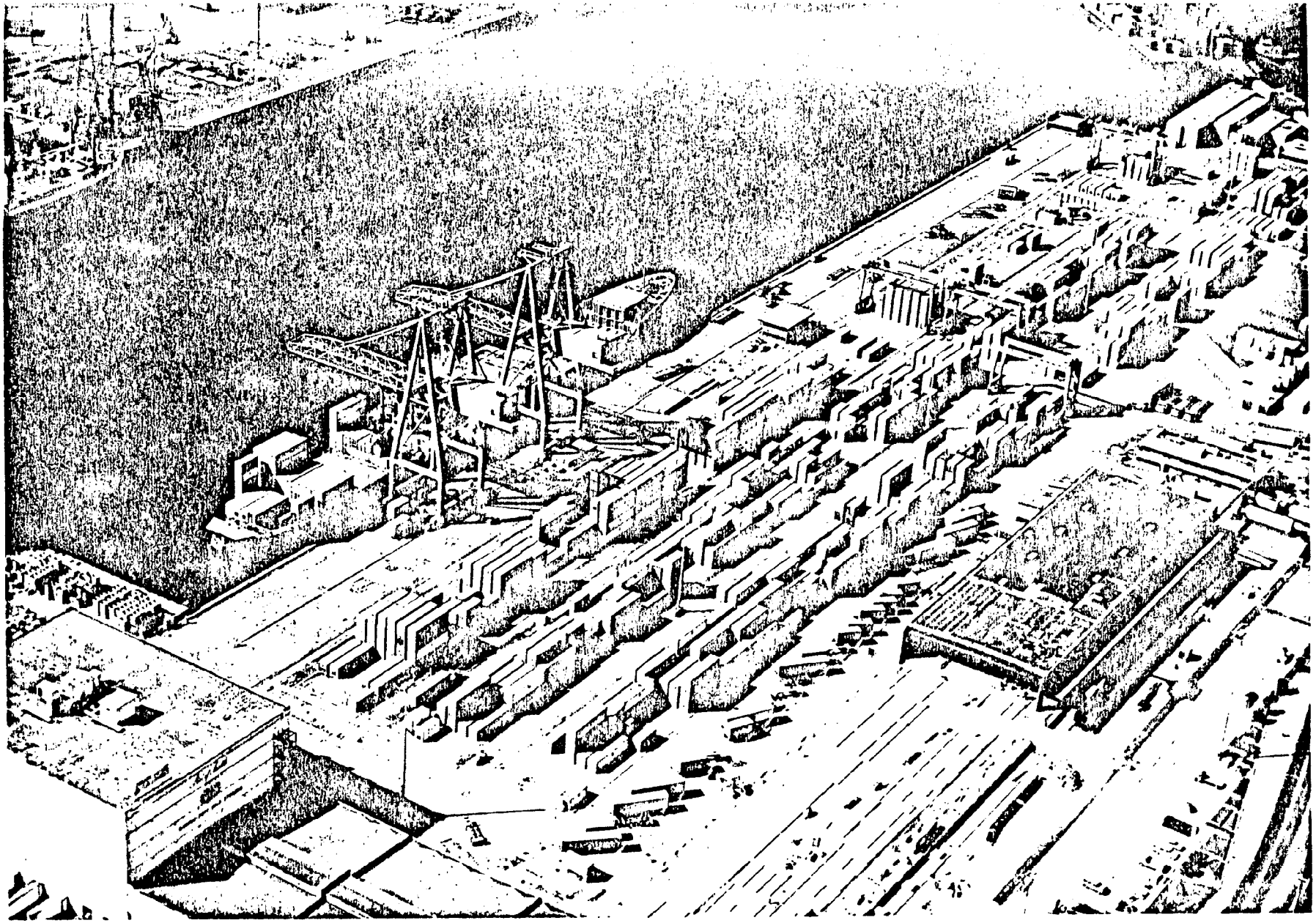


Fig. 4.5. CONTAINER FACILITIES (Terminal 25, Port of Seattle). Stacking containers four high means more can be stored, thereby reducing the demand for waterfront land. Containers are accessible using four mobile overhead "Trainstainer" cranes visible in upper right. (Photo courtesy of Port of Seattle.)

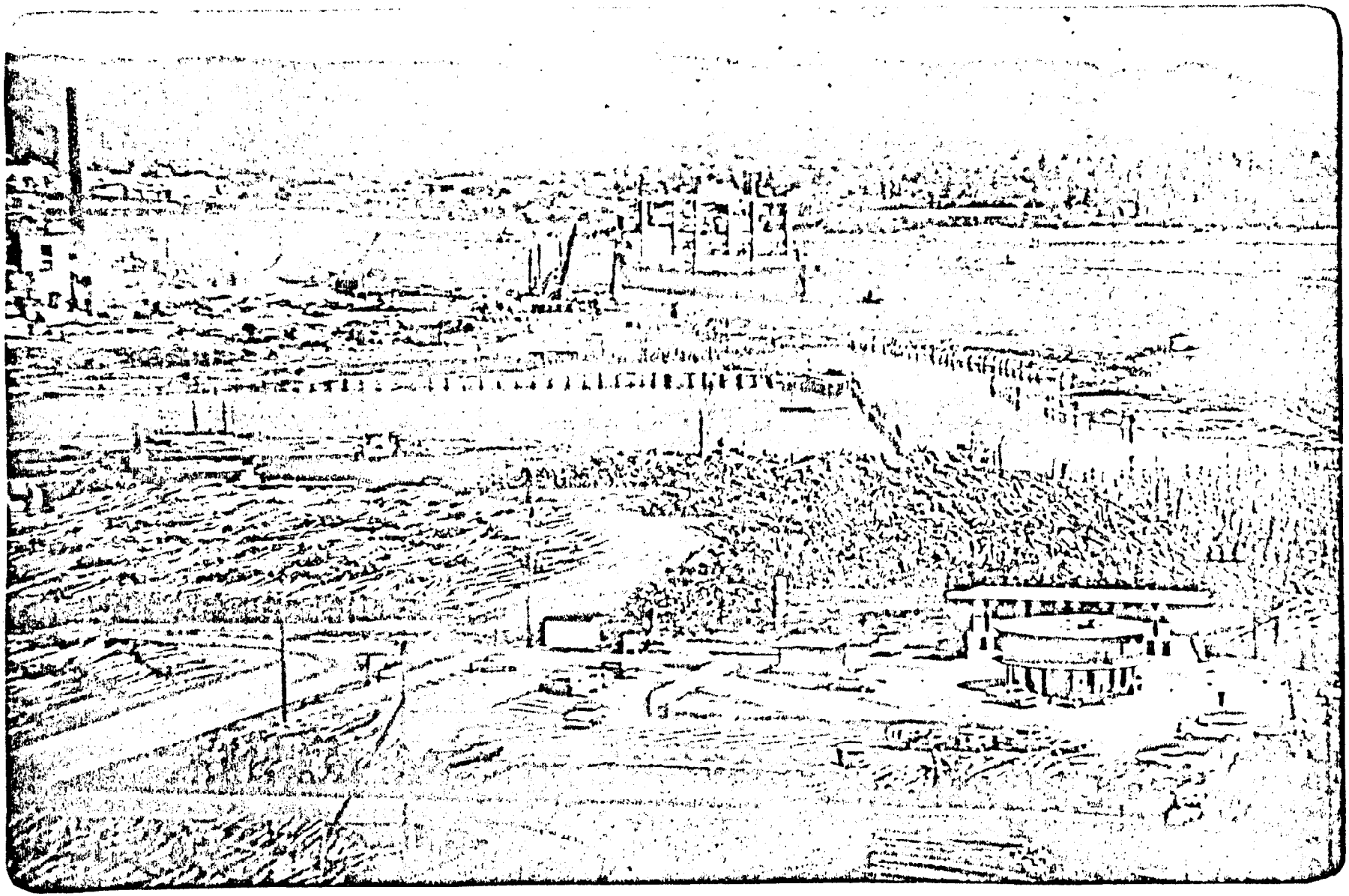


Fig. 4.6. LOG HANDLING FACILITIES. Port storage and handling charges may affect demand for waterfront land. After a tariff increase, the Port of Grays Harbor noticed a decline in the number of logs stored in waterfront storage areas. Log exporters instead preferred to retain logs in the woods or at inland yards. (Terminal 4, Port of Grays Harbor.) (Photo courtesy of Port of Grays Harbor)

In some areas, development is overflowing into undeveloped rural areas. In the example of public investment guiding site location discussed earlier, it was noted that the Massachusetts Office of Coastal Zone Management viewed Boston Harbor as the preferred location for a new container terminal. It is their policy to discourage new major facilities in undeveloped areas elsewhere along the coast.

The new California Coastal Act (1976) contains a powerful statement limiting new port development to existing port districts:

> ". . .Coastal planning requires no change in the number or location of the established commercial port districts. Existing ports shall be encouraged to modernize and construct necessary facilities within their boundaries in order to minimize or eliminate the necessity for future dredging and filling to create new ports in new areas of the state." (section 30701 [b])

This policy is implemented in part by the provisions allowing Southern California ports to prepare their own master plans for development within their existing harbor areas.

Future use of obsolete waterfront facilities

Traditionally, ports were located adjacent to a city's central business district because most of the cargo was destined for local markets and the labor force was nearby. Modern shipping and cargo handling methods have altered historical trade patterns and created demands for new types of port facilities. Space requirements for port operations have expanded and outgrown the capabilities of city-center sites, where the large parcels of land and expanded backup space that is often needed is not available. When a port moves to a new location or discontinues certain trade, obsolete or unused port facilities remain and their future use becomes an important coastal use issue.

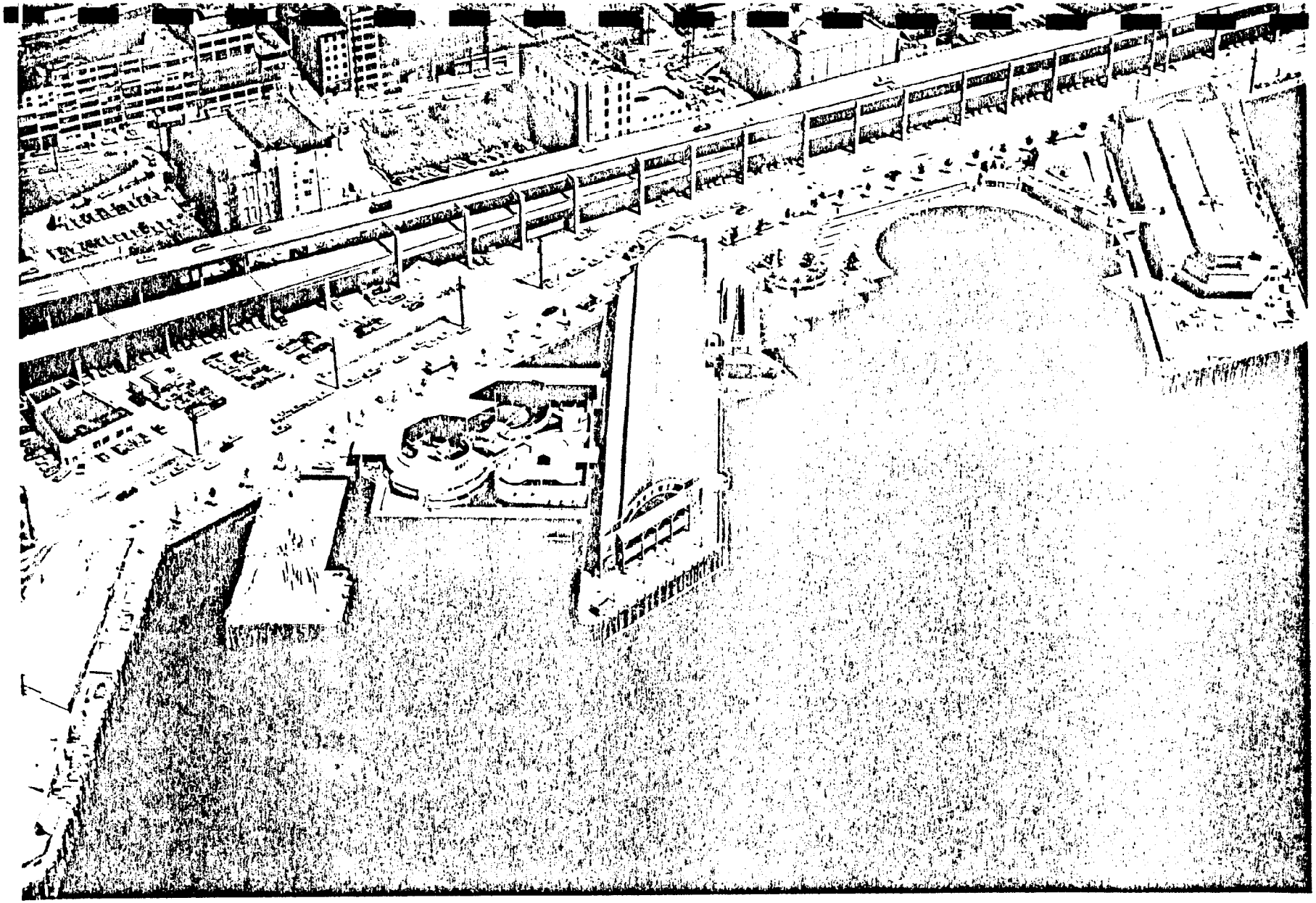


Fig. 4.7. WATERFRONT REDEVELOPMENT (Port of Seattle). The two old finger piers, shown here, no longer usable for port cargo handling purposes, have been redeveloped to provide recreation, education, and public access opportunities. Pier 57 on the right includes restaurant and shop space, and a public fishing area. Pier 59, to the left, and the modern concrete structure immediately to the left of it, house the new Seattle Aquarium. Between the two piers is the new Waterfront Park. (Photo courtesy of the Port of Seattle.)

Many urban areas are taking an active interest in revitalizing their waterfront area. Growing interest in commercial, recreational, educational, and residential uses is providing ports and cities with viable alternatives for unused waterfront property (see Figure 4.7).

The extent to which coastal management programs address this issue depends upon the emphasis given to urban areas. California, for example, oriented its coastal zone program toward less developed rural areas; control in urban areas is often left to private and local interests. Governments may request that certain residential areas be exempt from the permit requirements of the Coastal Act, and coastal policies allow four Southern California ports to plan and control development within their own existing jurisdictions.

The Massachusetts Coastal Program and the Delaware River segment of the Pennsylvania Coastal Program, on the other hand, give urban issues more attention. Among their concerns is the revitalization of central waterfronts. Georgia's program, while still in the formative stages, also addresses the needs of urban areas.

Many efforts have been made to transform obsolete port facilities to non-shipping uses. The colonial quay in Savannah has been renovated as a promenade with public-oriented commercial enterprises. The Port of Los Angeles allocated old shipping property to a "Ports of Call," which contains shops and a restaurant. The Port of Seattle has worked with the City of Seattle and private concerns to convert unused piers to non-port uses amenable to public access: new uses include parks, shops, restaurants, and an aquarium.

A major renovation project along a half mile of the Delaware River in the center of Philadelphia's historical district is the Penn's Landing redevelopment project, a joint effort between public agencies and private enterprise. City/state funding

created the landfill site, bulkheading, and public improvements (e.g., utilities, paving, landscaping, etc.). The Philadelphia Port Corporation provided technical support for the landfill and bulkheading operation but private developers will complete the project with shops, restaurants, entertainment facilities, and an apartment-office-hotel complex. Less massive efforts have also been undertaken along Philadelphia's waterfront to reuse obsolete port facilities. Upstream from Penn's Landing, moorage is provided for two yachts which have been converted into restaurants; downstream is a warehouse which has been converted into tennis courts.

Studies conducted under Pennsylvania's coastal program explicitly address the issue of revitalizing the urban waterfront, with specific reference to obsolete finger piers. Pennsylvania's draft objective does not discuss the major effort occurring at Penn's Landing, but supports the principle by promoting "...the establishment of economically viable, coastal-dependent uses on abandoned or vacated waterfront areas." (p. 7)

The Massachusetts coastal management program has incorporated policies for urban waterfront renovation which directly support ongoing efforts of the City of Boston. On its downtown waterfront, Boston has adapted old wharves and a market building for new uses. This redevelopment emphasizes such goals as encouraging a mixture of land use, promoting marine or marine-oriented activities to stimulate tourism and symbolize Boston's historic connection to the sea, and providing public parks which enhance pedestrian access to the harbor (Tobin, 1977).

The preliminary Massachusetts Coastal Plan sets forth policies pertaining to ports and harbors which encourage water-dependent economic development activities. However, on shores no longer suitable for shipping, the program encourages "urban waterfront redevelopment and renewal in developed harbors in order to link residential neighborhoods and commercial downtown areas with physical and visual acess to the

waterfront." (Policy 20, MCZMP, 2-E/23). This policy is harmonious with current restoration activities along Boston's waterfront, and the program proposes to actively promote it using existing state and federal programs. The program will-

1. "Champion" applications to the U.S. Department of Housing and Urban Development (HUD) through the Housing and Community Development Act of 1974 and Community Development Block Grant Program;

2. Disburse Coastal Zone Management Act implementation funds (Sec. 306) to support the preparation of harborfront plans aimed at improving public access;

3. Advocate proposals for U.S. Bureau of Outdoor Recreation funding under its Land and Water Conservation fund;

4. Encourage Urban Mass Transportation Administration to provide grants and loans for the Department of Public Works to provide transit projects for the area, develop bikeways and walkways, and ensure that new or improved roads and bridges provide visual and physical access;

5. Insure that the Massachusetts Waterways Program actively supports bulkhead, public pier, wharf, jetty, and shore protection projects which aid redevelopment (pp. 2-E 23-25).

6. Utilize the information channels of Massachusetts Environmental Policy Act, National Environmental Protection Act, and A-95 reviews to encourage waterfront redevelopment.

Public access and aesthetics

Limited and diminishing public access to the nation's shores and beaches was a major concern leading to passage of state coastal management statutes and the federal Coastal Zone Management Act (Englander, 1977). Section 305(b)(7) calls for participating states to "(develop) a planning process for the protection, and *access* to, public beaches and other coastal areas..." (emphasis added). The act authorizes 50 percent federal funding to assist states to acquire access rights, but this program has been slow in implementation.

THIS IS RECORD NUMBER 14 OF THE 16 YOU FOUND IN THE CATALOG

TC223 .P67 1978

Title: Ports and coastal management : a study of U.S. port development and coastal management program development : review draft / by Marc J. Hershman . .. [et al.].

Publication info: [Seattle, Wash.] : Coastal Resource Program, Institute of Marine Studies, University of Washington, [1978]

General Note: "January, 1978."

Local note: Obtained from Coastal Zone Information Center (CZIC).

Held by: CHARLESCSC

Subject term: Coastal zone management--United States.

Subject term: Harbors--United States.

Added author: Hershman, Marc, 1942-

Added Author: University of Washington. Institute of Marine Studies. Coastal Resources Program.

(Displaying 1 of 1 volumes)

CHARLESCSC	CALL NUMBER		COPY	MATERIAL	LOCATION
1	TC223 .P67 1978	(36468000828433)	1	BOOK	STACKS
		(36468000028441)	2	BOOK	STACKS

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The federal act and its regulations give attention to both physical *and* visual access to the shoreline. Ports that propose new or expanded developments in urban waterfronts are encouraged or required to provide public access in their site planning. But such requirements, unless carefully carried out, could conflict with both the security and safety of port operations. Occupational safety laws and regulations preclude public access to working port areas and the security of general cargo would be compromised by unrestricted access to docks, wharves, and sheds. There are, however, two kinds of public access consistent with port operations that can be realized:

1. Physical access via secure sections of the waterfront on port-owned land, through easements or dedication;

2. Visual access to the water, achieved through careful siting and landscape design of the facility, or from special structures such as observation towers located to command views of port operations.

At the state level, in 1976 California established the California Coastal Conservancy which authorizes the acquisition of public accessways and reservation of signifcant coastal resource areas for public use and enjoyment. A bond issue of $280 million passed by the voters partly finances this acquisition program.

Local governments in Washington are required under the Shorelines Management Act to include a public access element in their master programs. On "shorelines of statewide significance" this requirement is given higher priority and local jurisdictions are admonished to "(i)ncrease public access to *publicly owned* areas of the shorelines" (emphasis added, WAC 173-16-040[5][e]). Ports are singled out for special attention in this regard: "port facilities should be designed to permit viewing of harbor areas...which would not interfere with port operations or endanger public health and safety." (WAC 173-16-060 [10][b]).

At first glance, the City of Seattle appears to apply these guidelines vigorously. Clear standards for public access in both public and private shorelines have been developed. Table 4.2 lays out the physical and visual access requirements of Seattle's Master Program. The Port of Seattle effectively resisted a provision to require public access in port areas devoted to water-dependent uses and, as a result, received an exemption (see Table 4.2, item 4). The issue is far from settled, however, as the following case reveals:

> During review of a major renovation and expansion project for a new container terminal, the city pressed the Port of Seattle to provide onsite public access. In spite of the Master Program provisions cited above, the Port agreed to build a public observation tower on a port-owned pier adjacent to the project site. Serious consideration is being given to amending the public access provision of the Master Program and removing the exemption granted the port.

Often, coastal management programs will allow less desirable development if public access is provided. For example, non-water dependent uses of shorelines in Seattle require public access. Consequently, public access is still required if the Port of Seattle leases a portion of the harbor for industrial or commercial uses that do not require access to the water. Whether, in fact, this will deter non-water dependent uses of the shoreline remains to be seen. Another example is the California Coastal Act which allows ports to justify minor fills if they improve shoreline appearance or facilitate public access. A trade-off is made between policies that discourage fill and the goal of protecting "scenic and visual qualities of coastal areas."

Aesthetic considerations are more troublesome aspects of coastal management programs. While the Coastal Zone Management Act calls for protection of aesthetic values (Section 305 [b][7]), it is difficult to implement because aesthetic tastes vary widely. Restrictions on development which are labeled "aesthetic" deal mostly with height, bulk, and site coverage restrictions to ensure visual access.

Table 4.2. Public Access Requirements of the Seattle Shoreline Master Program

	Type of Property	Regulated Public Access
1.	public property - public use(s)	required
2.	public property leased or rented for private, non-water dependent use(s)	required
3.	central waterfront - public and private property	15% of total water area covered by structure(s), or 5,000 square feet, whichever is greater
4.	public property leased or rented for private, 100% water dependent use(s)	not required
5.	public or private property, 100% water dependent use(s)	not required
6.	private property, non-water dependent use	required, if four or more residential units and 100 or more of waterfrontage, shoreline PUD, or commercial or industrial use, unless exclusively residential development on salt water shoreline and public access to shoreline from street is available within 600'
7.	private multiple residential development on salt water	required if not within 600' of public access to water

Source: Seattle Shoreline Master Program, Seattle Department of Community Development, 1976

Port developments usually are large scale, prominent industrial landmarks, composed of massive, skeletal cargo-handling structures, and large vessels which come and go. Views are blocked and then revealed as mosaics of containers and ship superstructures are created and erased, often over the course of a single workshift. At night the scene takes on almost surrealistic qualities.

Two management concepts that have already been discussed--water-dependency criteria and urban waterfront redevelopment--have a bearing on both public access to and visual amenity of port areas. Locating non-water dependent industrial developments on upland sites conserves waterfront areas for uses requiring water access. In Seattle, for example, the space between the port's elevator and the grain facility provides bike and pedestrian pathways along the shore, which the grain conveyer system passes over (see Figure 4.8). Similarly, separating oil terminal facilities from tank farms that are located inland, can provide the public with access along the shore. The Union Oil products terminal in Seattle is arranged in such a manner and this principle could be applied to other liquid and dry bulk terminal facilities where space permits.

Redeveloping obsolete finger piers for retail shops, promenades, and public waterfront parks can conserve the scale and texture of old port structures, provide physical access, and in some cases, produce commanding views of active port areas on adjacent or nearby sites. In New Orleans, through a joint port/city effort, a small section of riverfront terminal facilities was razed to visually link the French Quarter and the Mississippi River. Standing on the levee, an observer can view both the operations of the port and the activities in Jackson Square, thereby gaining a sense of New Orleans' riverport origins and her historical port dependency.

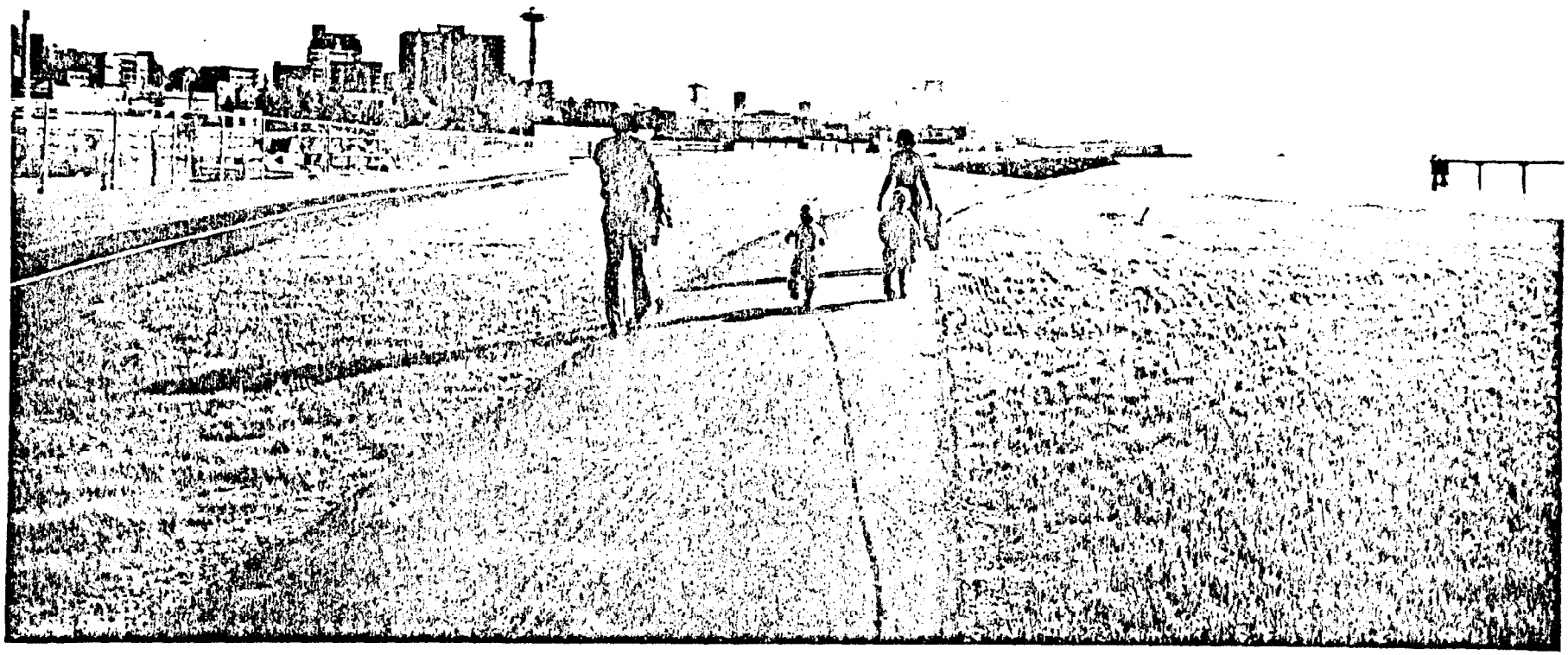


Fig. 4.8. Elliott Bay and Myrtle Edwards parks, sponsored jointly by the Port of Seattle and the City of Seattle, follow the Seattle waterfront for some 4000 feet near the Port's Pier 86 grain elevator. (Photo courtesy of the Port of Seattle)

The Massachusetts coastal program anticipates that successful revitalization of the urban waterfront will depend upon integrating harbor views with development. Proposed development guidelines recommend that marine terminal development should conform as much as possible to existing shoreline configurations, height should be limited, and "seafaring" qualities should be maintained or enhanced.

Where massive industrial structures such as liquid natural gas (LNG) tanks dominate an urban shoreline, other techniques can be used to mitigate their visual impact. The Bostongas LNG were decorated with super-graphics by a commissioned artist. What was just another huge LNG tank has become an attractive visual landmark visible from the Southeast Expressway. Had the same facility been constructed on a rural shoreline, the tanks could have been painted in earthy, muted colors to blend with the natural landscape. (Mann Associates, 1975, p. 129)

These examples illustrate ways that ports and their industrial lessees can mitigate the visual impact of shoreline facilities. Coastal management programs generally have addressed coastal aesthetics through broad policy statements only; project-by-project review must deal with site-specific visual impacts during the design phase of project development. Seattle's Master Program is explicit here: any *public* development may be reviewed for visual design quality by an ad hoc panel of design experts prior to a formal application for a shoreline substantial development permit. Such a review applies to port-owned developments but not to those of its lessees (Seattle Shoreline Master Program, Section 21A.39).

The Massachusetts program has well-developed visual access policies which apply directly to port activities. These policies acknowledge that marine terminals operations require large-scale facilities on large flat tracts of waterfront, and recognize port facilities as an integral element of the coastal landscape which will be

listed in the proposed inventory of coastal sites. Public access policies include provisions for educational tours and public viewpoints of port operations.

Air and water quality

Federal involvement in air and water pollution control predates the Coastal Zone Management Act. Statutes provide for specific pollution abatement procedures, point-source permits, and grant-in-aid programs to state and local governments for planning and implementing abatement programs. Of these, the federal Water Pollution Control Act and the Clean Air Act, as amended, are the most prominent. Detailed rules, regulations, and standards have been adopted at state and federal levels and offices have been created and staffed to implement them.

When the Coastal Zone Management Act was passed in 1972, Congress recognized the possibility that states might create duplicate air and water quality management for their coastal areas. Therefore, the act requires that the provisions of the federal Water Pollution Control Act and the Clean Air Act, together with state and local programs developed pursuant to those acts, be incorporated into state coastal management programs and "shall be the water pollution control and air pollution control requirements applicable to such program(s)" (CZMA section 307 [f]).

Except in limited instances, coastal management programs will not modify or create new programs to address air and water quality in the coastal zone. They are primarily programs for land and water use planning and allocation, leaving specific resource management responsibilities in the hands of single-purpose resource agencies. This is true even where executive reorganization has created super-agencies to deal with resource problems, as occurred in Georgia under Jimmy Carter's [state] administration. Such agencies usually have assumed packages of responsibilities,

formerly housed in narrower single-purpose agencies, thereby integrating functions under a single umbrella agency to enhance coordination and efficiency.

By passing specific coastal legislation that amends or strengthens existing water and air quality statutes, states can and have created changes with potential impact on ports. Furthermore, local governments, too, can and have passed ordinances addressing air or water quality aspects of specific coastal uses. In some areas, notably Texas, new state permit review procedures have been proposed to speed and expedite project review. (This issue is treated in depth below.) Such individual cases, however, are probably exceptions to the general proposition that coastal management programs will not affect how ports deal with air and water quality regulatory agencies and their requirements.

In California, the Coastal Act deliberately addresses avoiding duplication of existing state agency missions relating to water resources. Two exceptions are noted, however. First, the Coastal Commission retains jurisdiction over coastal wastewater treatment plant siting, size, and phasing of services, and delineation of service areas (section 30412). Second, there is an explicit policy for maintaining or restoring water quality in biologically sensitive coastal areas, which include estuaries and coastal wetlands (section 30231). Techniques to implement this policy include controlling both point and nonpoint discharges, avoiding depletion of ground waters and, encouraging wastewater reclamation. Section 15 of the act amends the California Water Code to be consistent with these policies.

Although, on the surface, these policies of the Coastal Act seem redundant, they alert the EPA, and the California Resources Agency and its Water Resources Control Board to the high priority placed on maintainir

and enhancing coastal water quality. Thus, the effect of these policies on ports is to accelerate compliance with the wastewater management programs already mandated by federal statute.

A similar observation could be made concerning Seattle's Master Program requirements dealing with air and water quality at cargo-handling facilities. These policies call for cargo-handling equipment that is designed to avoid accidental discharges of particulates into the air and water and require measures that are adequate to treat or clean up spilled materials. (Seattle Master Program, p. 36)

Finally, in Texas, the Brownsville Navigation District has assisted an industrial lessee on port-owned land to comply with waste discharge requirements of the Texas Water Quality Board. Two wastewater aeration lagoons were constructed using a $4,600,000 pollution control bond sponsored by the port.

Small-craft harbor facilities

In state after state, studies indicate accelerating growth in water-based recreation activities and a critical shortage of adequate moorage facilities to accommodate small craft. The most critical shortage of moorage is for larger, non-trailerable sailboats and powerboats, charter fishing vessels and, in some cases, commercial fishing boats. As the impact of the Federal Marine Fisheries Conservation Act of 1976 (establishing the 200-mile economic zone) is felt through expansion of the U.S. fishing fleet, some coastal states will need additional or expanded harbor facilities to accommodate increased numbers and larger sizes of vessels.

The public and private sectors share responsibility for providing small-craft harbors, with public port authorities playing an important role. The U.S. Army Corps

Engineers, through its civil works projects, provides funding and engineering assistance to local public sponsors proposing new or improved small-craft harbors. In naturally protected areas where extensive navigation improvements are unnecessary, private capital sources are often sufficient to develop a facility. Such sites, however, often intrude on sensitive environments (estuaries, wetlands, or shallow embayments) that are subject to protection under coastal management programs or special resource protection statutes. The trend, then, is toward large, public harbors-of-refuge where private lessees may be permitted to develop moorage and boat service establishments (e.g., Marina Del Rey, California), or where facilities are managed entirely by public agencies, often public port authorities (e.g., Shilshole Marina, Port of Seattle).

Some port authorities are constituted solely to promote small-craft harbors, complementing, or directly competing with the private marina operator. The complementary role is particularly important: public ports usually provide berth space and ancillary services for commercial fishing vessels, whereas private marina operators do not. In fact the "open to all on an equal basis" clause found in Corps of Engineers contracts, mandates such accommodation of commercial small craft. Where fishing fleets are seasonably mobile, as in the Pacific Northwest, public ports experience high turnover in occupancy. Where peak commercial vessel occupancy coincides with peak moorage demand for recreational boating, public ports suffer "feast or famine" seasons--such problems would cripple "for-profit" moorage enterprises.

Public ports commonly set aside special facilities for fishing vessel permanent moorage, which minimizes conflicts between fishermen and recreational boaters. Dock space is provided for storing and repairing fishing gear, loading supplies, and unloading the fish catch. Shoreside space is made available for marine fishing supply houses, boatyards, marine electronic businesses, and other ancillary services. Restaurants

capitalizing on the general public's fascination with the colorful fishing vessel harbor activities are also frequently located in these harbors. Revenues derived from these dockside businesses often are used to subsidize deflated moorage rates for fishing vessels.

Three aspects of small-craft harbors are noted for special attention in coastal management programs: that they are obviously water dependent, provide access to marine recreation, and provide essential services to the commercial fishing industry. However, in the more populous states the virtually unlimited demand for recreational boating is recognized and technological alternatives to the proliferation of "wet" moorage are encouraged. Of these, dry storage, upland facilities, dredged back shore marinas and public boat launch ramps have received prominent attention in coastal management programs. In a move to deflate demand, California's Coastal Plan also included a policy to encourage the cooperative ownership of recreational boats; it was deleted in the Coastal Act, however.

California's Coastal Act mandates that California ports protect commercial fishing harbor space, unless adequate facilities are provided elsewhere or there is no longer a need for such facilities. Recreational marina facilities must not interfere with commercial fishing operations. Coastal policies permit ports to dredge, fill, and dike within their harbor areas for fishing fleet facilities, subject to severe restrictions. Expansion of facilities for small craft in the Port of Los Angeles proposed Master Plan requires that marina and fishing fleet facilities be separated from industrial port uses, thus minimizing potential navigational conflicts.

In Massachusetts' proposed coastal management programs, recreational small-craft harbor planning is tied to state capital budgeting. Highest priority for state recreational funds is given to public boat ramps. Expenditures for dredging new moorage facilities are restricted except where a regionwide boating public is to be served, or where there is no other way to resolve conflicts between recreational boating and commercial fishing (Massachusetts CMP).

Washington's coastal management program deals with marinas in two ways. First, state guidelines for local master programs address marina siting and design questions (WAC 173-16-060 [5]). Second, through the Shorelines Management Act and the State Environmental Policy Act, the Department of Ecology (DOE) and other agencies review specific marina proposals for consistency with local master programs and identify significant adverse effects on the environment. Planning and siting of marinas still remain the prerogative of local government, however, and significant variations in their treatment of marinas is evident (Goodwin 1976, 1977a, and Washington CMP, Vol. 2, pp. A9-A45). Nevertheless, a state can influence the location and size of marinas in other ways. For example, the Department of Natural Resources leasing policies, leasing rates, and lease terms affect the location and profitability of new or expanded marina facilities. Further, the Inter-Agency Committee on Outdoor Recreation (IAC), which dispenses Federal Bureau of Outdoor Recreation (BOR) funds, and local governments using unclaimed state marine gas tax rebates for public recreational facility construction and land acquisition, can influence public sector investment decisions. Finally, sanctions can be imposed subtly by state resource agencies that object to particular projects during project review--sanctions likely to be reinforced by federal reviewing agencies during Corps of Engineers Section 10 and 404 permit reviews (Goodwin 1977a).

Of 242 permits issued by local governments for marinas in Washington State only 26 have been appealed to the Shorelines Hearings Board (SHB). Of these, only seven resulted in formal hearings, the remainder being resolved through informal prehearing conferences. Three of the appealed projects were upheld by the SHB, two were remanded to local government for conditions to be imposed and only two, less than one per cent of the total marina-related permits, were denied. State guidelines have been applied rather flexibly by the SHB, for two apparent reasons: first, marinas provide increased public access to water-based recreation; second, the present shortage of moorage space in the Puget Sound region seems to encourage a favorable review of marina proposals.

The SHB's approval of two marinas, (one port sponsored) located in Tacoma on Commencement Bay, was due in large part to their enhancement of public access. While, in both these cases, shoreline filling and dredging actions strongly discouraged in the DOE guidelines were allowed, their urban location was considered a mitigating factor.

In contrast, a private marina on Whidbey Island, Washington, is proposed on an undeveloped shore. Although the SHB approved the proposal, the prospective owners must account for any adverse impacts upon local water quality and marine life. Because the developer conducted a thorough impact assessment, involving an analysis of circulation and flushing through the use of a physical hydraulics model, the proposal was approved.

Although the SHB might reject a developer's original plan, it has shown itself willing to consider a revised version of the proposal. One example, a marina proposed for downtown Kirkland on Lake Washington, provided very little public access, and a commercial building unassociated with the marina exceeded the Shoreline Management Act height limits. For these reasons, the SHB reversed the local approval.

The project was then substantially redesigned, incorporating three remodeled historic ships as a floating maritime museum and providing more public access to the waterfront. The revised project approval was not appealed and the project is now completed. Although this was a private project, public port authorities could find themselves in similar circumstances.

A privately sponsored development complex on port-owned land in Aberdeen originally included a motel, restaurant, 80-slip marina and a parking facility. Among issues raised by the proposal, were 30,000 square feet of over-water development. However, the site was termed "an environmental disaster area" and the SHB felt the project would have some restoration value. The Board approved the project, subject to preparation of an environmental impact statement and resolution of certain inconsistencies in the local Shoreline Master Program. This development, together with other fill projects proposed by the Port of Grays Harbor, lead to development of the Grays Harbor Estuary Study. Unfortunately, these delays were partially responsible for a loss of financial backing and the project was dropped. This is the only documented instance where project failure is associated with delays due to Shoreline Management Act and State Environmental Policy Act requirements.

While a review of Shorelines Hearings Board cases reveals a history of favorable treatment toward marinas since the implementation of the Shoreline Management Act, three of the approved marina developments are stalled by federal permit requirements. Where federal/state conflicts such as these arise, further refinements of the state's coastal management program are indicated. An effort is underway in the Department of Ecology to do this by reassessing the guidelines for developments in aquatic areas. But until federal agencies such as the U.S. Fish and Wildlife Service (USF&WS) reach agreements with state and local agencies concerning developments in marine waterbottoms and wetlands, conflicts will continue to arise over where marina developments are permitted.

In cases cited above, two federal agencies (USF&WS and Bureau of Indian Affairs) have taken a hard line on developments in intertidal, estuarine areas of Commencement Bay. Where marinas have been proposed in the badly deteriorated City Waterway in Tacoma, however, prior understandings between the USF&WS and the city lead to rapid approval of permits by the Corps of Engineers during Sec. 10 and 404 review. Therefore, the degree to which federal agencies are consulted during the development of master programs--a requirement under the Federal Coastal Zone Management Act--will continue to effect the treatment of marinas during federal permit review (Goodwin, 1977b).

Siting hazardous facilities

Hazardous facilities are those facilities which manufacture, store, or utilize commodities having a high risk of fire, explosion, or leakage of toxic or dangerous substances. Nuclear, petrochemical, and other facilities are hazardous if accidents or improper operations should occur. Liquified natural gas (LNG) is one type of hazardous facility receiving attention in coastal management programs. It is discussed here as an example of how coastal programs deal with siting hazardous facilities.

Declining domestic production has resulted in significant increases in imported natural gas. Special tankers are equipped to transport natural gas, which is liquified at extremely low temperatures, to -259°F. The tankers unload the liquified natural gas into cryogenic storage tanks at coastal locations. Current technology requires that the tanks be located at the point of unloading to avoid the risks involved in pumping LNG through pipelines over long distances (Massachusetts CMP, p. 227).

Since a 600-fold reduction in volume is achieved by cryogenic liquefaction of natural gas, substantial economies in ocean transportation are realized. Yet the

risk of fire during vessel movement in port, offloading, and storage imposes constraints in siting LNG facilities. Furthermore, LNG tanks are large, obtrusive elements in the landscape and decisions to site LNG facilities in sparsely populated rural areas carry with them a visual amenity cost. Finally, LNG tankers have drafts of approximately 40 feet and therefore require deep-draft channels--either existing channels or new dredged channels (likely to be necessary in a remote area).

Given these risks and tradeoffs, how have coastal management programs addressed the LNG facilities siting question? California has recently established a separate siting procedure for LNG facilities. Washington and Massachusetts have created, by legislative action, special energy facility siting councils, with explicit responsibility to recommend sites for power plants, refineries, and LNG and other energy-related facilities.

California's LNG Terminal Act of 1977 gives licensing authority to the Public Utilities Commission (PUC), but requires the Coastal Commission to study potential sites and make recommendations to the PUC. The PUC has exclusive authority to issue a single permit for one LNG facility, preempting any other local or state license or permit previously required. The PUC is required to select the site given the highest ranking by the Coastal Commission unless it can either show deficiencies in the evaluation process, or determine that the site selected imposes unreasonable construction delays that will adversely affect adequate gas supply. Among the conditions imposed on the facility by the Act are its size, origin of gas shipments, timing of construction (related to demand and existing supply factors), and maximum population densities at various distances from the site. This last provision is explicit: within a one-mile radius of the site, population density may not exceed ten persons per square mile; within four miles of the site the permitted density is sixty persons per square mile. Power of eminent domain given to the successful permit applicant may be exercised to restrict or reasonably reduce population densities to meet this requirement (Section 5590 [b] and [c]).

The Energy Facilities Siting Council (EFSC) in Massachusetts and the Energy Facilities Site Evaluation Council (EFSEC) in Washington State have similar, but less extensive mandates than those given the PUC in California. Each can override local government zoning and land use decisions and preempt other state permit and license requirements. Further, each has sole responsibility for preparation of an environmental impact statement. However, the councils are not restricted to single-site limitation, nor is the coastal management agency in either state mandated to conduct independent siting studies, as in California--this is the role of the councils. Further, the councils' jurisdictions extend beyond LNG facilities to include power plants and refineries. (The California LNG Terminal Act also calls for the Coastal Commission to study potential sites for mono-buoy oil terminals).

Under Washington's EFSEC certification procedure the substantive requirements of other state regulatory programs must be respected. Whether such requirements include the policies of local shoreline master programs is in doubt, however. A 1977 legislative battle raged over the provision in the Energy Facilities Siting Act allowing EFSEC to override local zoning.

A memorandum-of-understanding between EFSC and the coastal management program's lead agency in Massachusetts provides for assessment of environmental and safety risks, evaluation of the size of buffer zones around facilities, and an assessment of the impacts on *"existing or future port operations"* (Policy #30, emphasis added). In addition, a four-part procedure for assuring consistency with coastal management program policies is created:

1. Restricted areas such as coastal wetlands and ocean sanctuaries will be avoided.
2. In evaluating energy needs and site suitability, the policies of the state's coastal management program are incorporated into the decision process.

3. During review of the project, adverse impacts will be mitigated in conformance with resource management provisions of the coastal management program's lead agency, and local governments will have an opportunity to review the project for conformance with local zoning.

4. If conflicts arise between the applicant and local or state government over conditions or delays imposed on the project, the EFSC can override other state or local agencies' objections (Massachusetts CMP, p. 259).

Could the California, Massachusetts and Washington energy facility siting program allow an LNG terminal in an existing port area? In California it appears that LNG facilities will not be sited in existing public ports. In fact, the favored site, and one against which others will be assessed, is at Point Conception between Los Angeles and Santa Barbara. An application from the state's gas utilities has been filed for that site (Coastal News, 1977).

In Massachusetts and Washington, the siting councils could approve a site within an existing harbor area. Three LNG facilities are located on the waterfront within the Boston metropolitan area--one at Dorchester (Bostongas), and two at Everett (Bostongas and Distrigas). A major expansion plan at the Everett location is awaiting permit approval from the Energy Facilities Siting Council.

Beyond state authority to regulate LNG facilities siting, any proposals for a new or expanded LNG project are subject to the licensing requirements of the Federal Energy Regulatory Commission (FERC). An executive interagency task force on liquified natural gas imports is currently assessing, among other factors, safety and siting questions of LNG facilities. (Coastal Zone Management, 1977). Given the "national interest" and "federal consistency" requirements of the Coastal Zone Management Act, the findings of this task force will have important implications for state coastal management programs and for public port authorities within whose harbor areas LNG facilities may be sited.

Streamlining environmental permit procedures

Since 1970, a spate of environmental legislation at both federal and state levels has required additional planning for new or expanded facilities in marine and shoreland environments. These recent statutes might require development permits in wetlands, environmental assessments or impact statements for significant developments, compliance with land and water use plans, and maintenance or enhancement of air and water quality.

This incremental, piecemeal approach to environmental management has lead to duplicative, uncoordinated multiagency review of projects proposed in the coastal zone. Excessive delays in processing permit applications cause project costs to escalate beyond original estimates. In some cases, detailed engineering designs necessary to support permit applications must be amended or discarded as a result of an agency's proposal review. Capital tied up in anticipation of project approval incurs interest costs, which--in the case of public ports projects--are partially borne by the local taxpayers. A port's competitive advantage may be eroded if shippers' needs for waterfront facilities are not met in a timely fashion. Port development opponents can and have delayed construction through lawsuits that rest on narrow procedural questions rather than substantive issues of siting, design, or environmental impact.

In a nutshell, port capital improvement projects face a high degree of uncertainty which results in additional costs to society. Coastal management programs are directed by statute to develop mechanisms to ameliorate this uncertainty: specifically they must--in cooperation with the policies of federal, state, and local agencies--determine permissable uses, designate "geographic areas of particular concern," and establish priorities of use. Thus, some geographic specificity of permissable

developments should be possible. Ideally, coastal programs are designed to be able to tell ports and other users, in advance, how and where development may proceed--thereby removing much of the uncertainty facing coastal users. However, site-specific allocation of uses has occurred only in limited instances where major facilities are involved. Coastal agencies have neither the time, nor the information to prescribe site-specific use designations. Instead, coastal management programs are requiring coordinated multiagency review of coastal developments when projects are proposed. To facilitate this coordination, programs are addressing the following permit-related issues:

- Coordinated identification of required permits
- Consolidation of information requirements for multiple permit applications
- Ensuring timeliness of agency review
- Informal preliminary review of projects
- Elimination of duplicative reviews by the same agencies
- Simplified procedures for minor projects

Identification of required permits. While most port planning staff are familar with permits required by state and federal resource and environmental protection agencies, their lessees may not be. Procedures have been developed to require the agencies themselves, at some government levels, to identify required permits.

In Washington State, the Environmental Coordination Procedures Act (ECPA) provides that, where more than one state agency permit is required for a development, the applicant may submit one "master" application to the Department of Ecology (DOE), which circulates copies to all other state agencies. Each agency receiving a copy

of the master application must respond within 15 days of receipt, or forfeit the right at a later date to require a permit for that development. Each agency requiring a permit notifies the DOE, which mails to the applicant all required permit forms. The applicant returns the completed forms to the DOE, together with a certification from local government of compliance with local ordinances. The DOE then forwards the applications to the appropriate state agencies, collates agency responses in one document, and returns this to the applicant.

Local governments, may opt to use the same procedures to process rezones, variances, and conditional uses. To implement the Environmental Coordination Procedures Act, the DOE disburses funds to local governments to defray administrative costs. The act provides for voluntary compliance by local government, but does not require it. Some critics argue this is a major weakness in the procedure.

In other states most, if not all permitting divisions of resource agencies fall under one "super-agency." A central permit clearinghouse coordinates permit applications required of each of its divisions. In Georgia, the Department of Natural Resources houses fisheries, wildlife, parks, air and water quality, coastal erosion, and coastal marshlands protection functions. Similarly, in New Jersey, the Department of Environmental Protection has integrated resource management functions intramurally. An Environmental Coordination Section in the Division of Marine Services identifies all marine-related state permits required in coastal wetlands, waters, and water bottoms under state jurisdiction.

Consolidation of permit information requirements. Permits required by different agencies in various levels of government may require similar information concerning the proposed development and its environmental impacts. In some cases, master

applications have been developed to standardize the information asked of developers.

In Georgia the Department of Natural Resources and the Corps of Engineers have agreed upon a standard form to be submitted for both state and federal coastal development permits. Because of the Department of Natural Resources' broad resource management authority and the standardized permit application form, Georgia's coastal management program has the potential for realizing a one-stop, state/federal permit procedure for coastal development projects. Local permit requirements will remain in force, however.

The California Coastal Act instructs local governments to "endeavor to consolidate the coastal permit application and hearing with other required procedures...." A parallel requirement at the state level mandates the Coastal Commission to "establish a joint development permit application system with (other) permit issuing agencies, where feasible."

Under Washington's State Environmental Policy Act (SEPA) a standard "environmental checklist" has been developed to determine whether or not the applicant must prepare an environmental impact statement. Together with architectural or engineering plans for the project, the checklist is circulated among state and local agencies for review and comment. Any agency can determine that a full environmental impact statement needs to be developed using this "threshold determination."

Any application for a development project falling within the jurisdiction of the Shoreline Management Act (SMA) is submitted on a standard form, regardless of the local government involved. This is important since SMA permits are issued by local governments--of which there are 226 abutting Washington's marine and freshwater shorelines.

Sequence of permit applications. The order in which permit applications must be submitted, and in some cases, the requirement that one agency give approval before another agency will review the application, can lead to unnecessary delays in acquiring final approval of port projects. Attempts to allow concurrent permit applications are evident among the case study states. Under Washington's Environmental Coordination Procedures Act, applicants for state and local permits may, at the discretion of local government, submit concurrent applications for state and local permits. Final action by state agencies, however, is contingent upon local certification of compliance with local ordinances. Similarly, while Corps of Engineers permits may be processed concurrent with state and local permits, final action must await approval by state and local agencies.

Legislation to delegate Corps of Engineers Section 10 and 404 permit authority to the states has been anticipated by several states. In Texas, the Corps 404 Delegation Act, 1977, declares that:

> "Effective and efficient regulation of such (dredged material discharge) activities can best be accomplished at the state level, and it is the proper role of state government to take responsibility for such regulation" (Section 2 [c])

Texas' detailed scheme for rationalizing the review of state permits through the restructured Natural Resources Council (formerly the Interagency Council on Natural Resources and the Environment) would be strengthened were section 404 delegation to occur. State agencies would not be required to review the same proposal twice, and would be unable, therefore, to alter their decision, as has sometimes been the case when time elapses between reviews of state permits and under Section 10 or 404 federal permit review.

Timeliness of review. Statutory minimum and maximum times to respond to, process, and act on permit applications have been incorporated into state environmental policy

laws modelled after the National Environmental Policy Act (sometimes known as "little NEPAs"). In Washington, the State Environmental Policy Act (SEPA) requires the preparation of an environmental impact statement for projects having a significant impact on the environment. Statutory minimum and maximum times are provided to complete consulting agencies' reviews of draft and final environmental impact statements, to establish the need for public hearings, and--as with the Environmental Coordination Procedures Act--to identify agency jurisdiction or expertise affected by the proposed action or project. An agency that fails to respond to the lead agency, cannot allege a defect in the environmental impact statement at a later date. A final environmental impact statement must be completed within 75 days of the date that the draft was circulated for review, subject to extension for large or complex projects.

All agencies, including local governments implementing Washington's State Environmental Policy Act, are required to establish guidelines for determining completion times for environmental impact statements. Seattle's Department of Community Development (1976) has prepared a 14-page public information document on the act which contains a simple flow chart outlining the process and timing of environmental reviews conducted pursuant to it.

The Wisconsin Environmental Policy Act and its guidelines establish similar statutory minimum and maximum times for permit processing. It should be noted, however, that statutory times refer only to the process of review and comments, public hearings, and agency actions, and do not include the time needed to prepare draft environmental impact statements. For projects having a significant impact on the marine environment, data gathering, sometimes involving field measurements, can be particularly time consuming.

Concern for the timely review of permit applications prompted a spokesman for the Brownsville Navigation District to comment in support of the proposed Texas coastal management program:

> "We think that the improvement in this permitting authority, at least as far as navigation districts are concerned, would come with a better coordination among the state agencies. We find that many of our permits are held up for one reason and another, because it is set on somebody's desk in a state agency and does not get back to the Corps. I think that is one of the vital functions of the Interagency Council on Natural Resources and the Environment. If they could have a uniform policy under which these permits are reviewed, better applications can be made and certainly it would speed up the way of doing it." (Lantz, in Brownsville Hearing)

In the Natural Resources Council Act, (1977, section 3 [c]) the Texas legislature declared that it is the "policy of the state that....state permitting processes be refined...." and that "systematic, fair and prompt review of such (state and federal) permit applications is essential to protect public and private interests on the Texas Coast." (Section 2 [e]). The Act passed into law the intent of the proposed Texas coastal management program, described in the *Hearings Draft* and *Appendices*. The need for streamlined permit procedures, proposed as part of the "activity assessment routine," appears prominently in these documents.

The Wisconsin coastal management program lead agency is studying the potential for county or regional level "one-stop shopping centers" for information and technical assistance and review of potential coastal management activities. Presumably, permit information would be one of the functions provided.

Preliminary informal review of proposed projects. Delays and unnecessary engineering and design work revision caused by agency objections to development projects could sometimes be avoided if the applicant and agency reviewers were able to conduct formal, but not necessarily binding, early negotiations to identify serious conflicts or problems. Coastal zone legislation, in some cases, includes provisions for such consultation.

In Texas, the Coastal Coordinating Act (1977, Section 5 [d]) provides that:

> "(a) prospective applicant...may obtain a preliminary analysis of the proposed activity for which the permit is sought, or a reasonable number of alternative proposals for performance of the activity, from any state (permitting) agency...*such preliminary analysis shall be held confidential* ...(and) shall not be a final decision, and neither the agency...nor the applicant shall be bound by the results.... no state agency....shall on the basis of such analysis express such an opinion of the likelihood that a permit...will be granted or denied." (emphasis added)

The assurance of confidentiality is important for ports and other coastal users operating within the vagaries of the marketplace. The competitive advantage gained by a port's initiative to capture trade through expansion or change of technology could be lost if competitors learned of those plans at the preliminary inquiry stage.

The preapplication conference has been used successfully in New Jersey's coastal area. Under the Coastal Area Facilities Review Act (CAFRA), all major coastal projects must acquire a permit from the Department of Environmental Protection (DEP). The proponent is required to develop an environmental impact statement which, if the project permit is denied, imposes nonrecoverable costs. Prior to formulating specific land use designations in the Coastal Area, the DEP produced interim development guidelines against which projects would be assessed. To assist the developers in ensuring that their projects will be compatible, a preapplication conference is held between DEP staff and the developer.

> "...the developer can test how project proposal fits with the guidelines. He can negotiate with the state staff to relax some requirements in exchange for ultimate approaches or mitigating measures....They will match the proposal against the guidelines to indicate the projects likelihood of being disapproved, approved, or approved with conditions--along with the kinds of conditions likely to be imposed. The developer can respond by making modifications or counter proposals and can maintain contact with the staff as final designs are being prepared for permit application.
>
> No commitments are made by the state or the developer in these sessions: a permit application is required under law before any final decisions. But the procedure establishes a clear picture of likely outcomes." (Rivkin, 1977)

Washington's State Environmental Policy Act Guidelines provide for a "pre-draft" consultation" between the developer and consulted agencies prior to preparation of a draft environmental impact statement. Such a consultation can be initiated by a request to the lead agency from the applicant. Washington's experience is noteworthy in two other instances:

1. At local government levels, there is usually an informal, presubmittal consultation between planning staff and applicants seeking shorelines "substantial development permits."

2. Where local government decisions are appealed to the Shorelines Hearings Board, informal, prehearing conferences provide a setting in which "out of court settlements" may be negotiated between the applicant and agency representatives.

At an informal monthly meeting of state and federal agency permit review officials in Washington State--known as the "Musk-Oxen Club"-- prospective permit applicants can determine in advance of formal submittal the kinds of problems their development is likely to encounter. This arrangement provides an opportunity for conflicting agency opinions to be resolved prior to formal review. Naturally, no binding commitments can be made, but since the personnel who review permits are present at the informal meetings, it is unlikely that serious reversals of opinion will occur later. It should be noted that attendance is voluntary on the part of agency personnel.

Simplified procedures for minor projects. Where small projects that will have only insignificant environmental effects are proposed, simplified or streamlined procedures have been developed to accelerate agencies' actions. In California the state and regional coastal commissions place groups of small projects on a "consent calendar," obviating the need for full hearings on each individual project, unless such a hearing is specifically requested (Section 13100 - 103). In addition, port projects that conform with the ports' state-certified local coastal programs are exempted from appeal to the state Coastal Commission except for certain energy-related facilities, non-port related activities, and roads not principally intended for internal port use. (Sections 30715 [a] thru [f]).

At the federal agency level, the Corps of Engineers issues "nationwide permits" for certain small, replicative activities involving discharge of dredge and fill material under Section 404 jurisdiction. (33 Code of Federal Regulations 303.4-2 through 4-4). The District Engineer can override such provisions and require individual or "general" permits at his discretion: the "general" permits may be issued for other minor, replicative projects within his jurisdiction. The intent of both "nationwide" and "general" permits is to minimize paperwork for minor projects. For important port expansion projects, however, the Corps of Engineers will continue to require Section 10 and 404 permits. In a recent amendment to Section 404, states can be given authority under Section 404 if their programs meet certain minimum standards.

CHAPTER V

PORT DEVELOPMENT AS AN ASPECT OF COASTAL MANAGEMENT PROGRAMS

This chapter deals with ways port and coastal management program personnel have interacted to develop policies concerning land and water use problems (discussed in Chapter IV). When this interaction is frequent and ongoing, mutually agreeable coastal management programs may result. However, when there is infrequent or ineffectual contact between port authorities and coastal management program personnel, policy accords may be hastily arranged in legislatures or courts, and the legitimate objectives of both activities may be undermined.

HOW PORT NEEDS HAVE BEEN ADDRESSED BY COASTAL MANAGEMENT PROGRAMS

Fortunately, this study has shown that, though it varies, there is some interaction between ports and coastal management programs in all case study areas. This section describes those interactions and the attendant organizational arrangements and, where possible, identifies those that have been successful and the reasons why. Moreover, three important questions are raised and discussed:

1. How have port authorities and coastal management personnel interacted with one another and how have they exchanged information?

2. Is there an appropriate role for port authorities in coastal management program implementation, through a permanent organizational arrangement?

3. What organizational arrangements can help resolve port-related coastal zone problems which cross jurisdictional lines?

Interactions between ports and coastal management programs

Interaction between port authorities and coastal management programs cannot be avoided. The Coastal Zone Management Act mandates that the development and implementation of coastal management programs include all interested parties and governmental units. The act specifically mentions that port authorities be given full opportunity to participate in developing coastal programs. Beyond this mandate, however, there is a history of interaction between port authorities and land and water regulatory agencies that predates the act by many years. Because these agencies are often the same ones charged with developing coastal management programs, port authorities often will be dealing with familiar agency personnel and well-established lines of communication. Moreover, interaction is unavoidable because the two activities are mutually dependent: comprehensive coastal management programs must consider marine transportation needs, and port developers must establish future coastal facility requirements. The key question is how interaction can be most effective.

Ideally, interaction between port authorities and coastal managers should be frequent, timely, and ongoing--occurring at many levels within the respective organizations and addressing many different issues. But there are practical limitations. Although ports must deal with many environmental and land use programs,

only the larger port authorities have sufficient staff to follow the developments in all these programs. Similarly coastal management programs must deal with all coastal land and water users and ports are only one of many important users. Under the Coastal Zone Management Act, the time allowed for the development of coastal management programs is four years, with a one-year transition period. This time frame limits the amount of in-depth attention that can be paid to each user group. However, once programs are approved and implemented, particular users can be given closer attention and coastal management programs can be refined. Thus, continued development and improvement of those aspects of coastal programs affecting ports can be achieved after program development ends and program administration begins.

Another limitation to effective interaction between ports and coastal management programs has been that port authorities have hesitated to assist actively in the policy development of coastal management programs at an early stage. Because these programs are recent, with only broadly stated goals and objectives, their impact on port planning and operations have become apparent only as state programs begin to establish boundaries and to air policy alternatives regarding permissable uses and their priorities. Involvement in early formulations of policy has frequently been affected by a port authority's governmental level relative to the level at which a coastal management program operates.

Public port authorities are organized at various governmental levels: city, special district (usually county or multicounty) or state. Coastal management programs, though still being developed in many states, tend to fall into one of three categories:

1. Programs which rely heavily upon the coordination of existing state authorities to regulate coastal uses;

2. Programs which delegate most authority for program development to local levels of government, but where the state retains a strong oversight and intervenor role;

3. Programs in which existing local regulation of land and water use remains the principal authority.

Where the port authority and coastal management program level are closely aligned (as in Georgia, where the focus of both efforts is at the state level), communication between the two has been facilitated during the early program development. In Georgia, the director of the state port authority sits as an equal with other state agency heads on the Governor's advisory council, a policy-advising group directly overseeing the development of the state's coastal management program. Similarly, in Grays Harbor, Washington, development of the coastal program and port development both are focused at county and regional levels--a situation which has facilitated early and ongoing interaction.

Where the governmental levels of ports and coastal management programs are divergent, special arrangements must be made to enable ports to interact with coastal management personnel. In some cases, these arrangements have not been effective. In Texas, where ports are special districts that operate at the local level and the coastal management program operates at the state level, the port representative on the coastal management advisory committee speaks for port interests in general terms but does not represent the views of the ten coastal port authorities. In California, after attempts to interact effectively with the state Coastal Commission failed, the California Association of Port Authorities created a special committee to lobby for port interests during the development of coastal legislation. An accord was hammered out at the very last minute. In both of these cases, port personnel monitored the progress of coastal management program development; but while the port authorities urged that ports be explicitly recognized, they did not

formulate specific policy recommendations prior to receiving draft policies from coastal management programs. When draft policies were circulated, ports reacted vigorously, however, providing valuable feedback to coastal management officials at public hearings and in less formal settings. Thus port and coastal program interaction began in earnest late in the program development process and only when ports recognized potential impact on port development. If there had been more effective interaction at the earlier stages of program development, some friction might have been avoided and the acceptability of policies to both parties enhanced.

In Wisconsin, where ports are departments within city government, the state coastal management agency commissioned an independent assessment of Great Lakes ports and provided for appointment of one port director to the coastal management citizen's advisory committee. Though the coastal program and ports are at different levels of governement in Wisconsin, the result has been a highly visible and positive program to encourage the revitalization of Great Lakes ports.

Despite these institutional barriers to interaction, however, once involved in a dialogue with coastal management program personnel, port directors and their staff have negotiated effectively to ensure recognition of port values as a part of coastal management programs. In two cases, port staff members had previous experience in coastal management program development, thus facilitating interaction and information exchange.

Mechanisms for information exchange

In all case study states, some information about port-related problems in the coastal zone has been shared between coastal management personnel and port officials. However, the form of this information exchange has varied considerably. Because of

the variability among ports and coastal management programs, it is difficult to state with certainty that one form of exchange worked better than another.

All coastal management programs have public participation programs involving advisory groups, hearings, and public information documents. In most states, ports participate directly on advisory committees or councils where policy preferences and information can be exchanged in a face-to-face setting. Advisory councils and committees addressing coastal management programs occur at all levels of government, though the level chosen for public participation varies from state to state. Public information documents--such as newsletters, surveys, tabloid brochures, and draft policy papers--have been used extensively in some cases and virtually ignored in others. Public hearings, too, have been either perfunctory or extremely effective. Finally, special studies and reports have been commissioned by port associations and coastal management agencies in some states but have been overlooked as a technique in others.

Table 5.1 provides a summary of the kinds of interaction occurring between port and coastal management program personnel in the case studies. Communication forums or techniques which appear to be most effective are asterisked.

The discussion that follows emphasizes communication techniques employed in the six case study states. It does not represent findings that can be applied nationally, but does provide examples that individual port authorities or coastal management programs might find useful.

Advisory committees and councils

State-level advisory committees and councils are the primary points of contact between ports and coastal management programs in Wisconsin and Georgia. The director

Table 5.1. MECHANISMS FOR INFORMATION EXCHANGE

Port	Advisory committees or councils	Public information documents or surveys	Public hearings	Legislative involvement	Informal contacts
Milwaukee, Wisc.	*Port Director is a member of Citizens Advisory Committee to the Governor's State Advisory Council, and the Technical Advisory Committee to the S.E. Wisconsin Regional Planning Commission.	Public opinion questionnaire run in the newspaper included ports among the CZM issues. Citizens' Committee developed an information worksheet on ports for public information. State CZMP and DOT funded a background and future alternatives study for Wisconsin's Great Lakes Ports.	**		
Ameriport Philadelphia Port Corp.	Delaware River Port Authority is a member of the CZM Steering Committee	Port Corporation receives public information documents from CMP agency	**		*Key staff person in city planning is an unofficial information liaison between the port and CZM. DRPA initiates contacts with New Jersey coastal program.
South Jersey Port Authority		Port Corporation receives public information documents from CMP agency	**		Special assistant to the mayor is an unofficial information liaison between the port and CZM.
Port of Georgia at Savannah	*Port Director is a member of State CZM Advisory Council, Chairman of the Subcommittee on Ports and Waterborne Commerce, and serves on the Industrial Development Subcommittee	**	**		Through close association with the Savannah Port Authrolty, GPA stays in touch with local planning agencies

*Mechanisms which appeared to be unusually effective.

**These states have public participation programs, but no particular significance to ports was noted during case studies interviews, due to early state of program development.

Table 5.1. *(cont.)* MECHANISMS FOR INFORMATION EXCHANGE

Port	Advisory committees or councils	Public information documents or surveys	Public hearings	Legislative involvement	Informal Contacts
Brownsville Navigation District	Port Director is Chairman of Transportation Subcommittee of the Brownsville City Planning Commission. Counsel for Port of Corpus Christi is a member of CZM Advisory Committee, and represents port interests on Texas coast.	*"Hearings Draft" CZMP document and Appendices mailed to coastal user and interest groups prior to ten regional public hearings with CZM Agency Director and consultants present. Texas Coastal and Marine Council publications on ports and related issues are widely distributed and receive legislative attention.	Port Engineering Director represented Port at CZMP Hearing in Brownsville.		
Los Angeles, Calif.		*Draft coastal plan elements affecting ports were circulated statewide and alloted ports to restrictive provisions affecting thier interests.	Legislative aide and planning department staff attended hearings throughout the state, during development of California's Coastal Plan.	*Port Director played a primary role in making CAPA the spokesman for California ports during CZM negotiations. CAPA's first lobbyist was an excellent mediator. Port's legislative aide performs a formal liaison function with city government.	The port/environmental division head has informal contacts with commission staff.
Grays Harbor, Wash.	During master program development an official port representative served on the citizens' Advisory Committee. *Port is an active charter member of the Regional Planning Commission. Port participated with RPC in early CZM study. Port serves on Grays Harbor Estuary Task Force.		Public hearings were held to review local Master Program before formal adoption.	Port assisted in drafting the Shoreline Management Act in response to an environmentally more restrictive initiative measure. Ports resited legislative proposals to create a state port authority.	*Past director of regional planning commission is present port planner. Present director of RPC maintains informal liaison with port.

*See legend on previous page

**See legend on previous page

of the Port of Milwaukee, a municipal port authority, serves on the governor's coastal management citizens advisory committee. This body provides public input to the Coastal Coordinating and Advisory Council, which is composed of state agency representatives and locally elected officials, including a representative from the City of Milwaukee. The director of the Georgia Ports Authority, a state agency, sits as an equal along with other state agency directors on the Georgia coastal zone management advisory council. He therefore has a stronger position with respect to policy formulation than his Milwaukee counterpart and is potentially more effective in these matters.

The Port of Brownsville is not represented on the coastal zone management advisory committee in Texas. In fact, the only port representative on the council is counsel to the Port of Corpus Christi. Indirectly, however, major coastal industrial corporations who lease port landholdings represent marine commerce and industry interests on the council.

In Washington state, there was strong public participation during the preparation of local shoreline master programs. A port employee served on the Grays Harbor citizens advisory council, but there is no conclusive evidence that his presence enhanced the port's position during the development of the local master program.

Three regional planning commissions whose constituent jurisdictions abut Wisconsin's Lake Michigan and Lake Superior shorelines have citizens or technical advisory councils. These councils review and comment on state coastal management goals and policies. The director of the Port of Milwaukee serves on one of them--the Southeast Wisconsin Regional Planning Commission's technical advisory committee--in addition to serving on the state-level committee.

Operating ports in New Jersey, Pennsylvania, and California have no direct representation on advisory committees or councils and must, therefore, rely on other forums for expressing their views on coastal management policies. The Delaware River Port Authority, a promotional agency for Delaware River ports, is a nonvoting member on the Pennsylvania Advisory Council and indirectly represents the Philadelphia Port Corporation.

Public information documents and surveys

To involve the broader citizenry in developing coastal management programs, many coastal states distribute information documents to a wide audience. Wisconsin has effectively used such documents in its public participation program. The roles ports play on the Great Lakes are described in widely distributed brochures which the port director from Milwaukee assisted in producing. A survey conducted through a newspaper questionnaire prepared by the coastal management agency showed that ports were favored coastal users in those areas of the state for which responses had been processed (Lake Superior region). Prominent concerns identified by respondents included "promoting port development" and "state assistance for Great Lakes ports." State coastal program development in Wisconsin is proceeding with a thorough understanding of key port issues drawn from ports, independent consultants, and citizen participants.

In Texas, two widely distributed sets of documents addressing port issues have increased awareness of port-related issues in the legislature and among coastal users. The first of these, the *Coastal Management Program Hearing Draft and Appendixes*, was mailed to interested parties prior to hearings in ten locations. Moreover, the Texas Coastal and Marine Council (TCMC)--an independent, legislatively created advisory group--has issued a series of reports dealing with ports and marine commerce

on the Texas gulf coast. (Some of these reports are *Report to the 65th Texas Legislature on Marine Commerce, Texas Port Fact Book, Public Port Financing in Texas, Economic Impact of Marine Commerce in Texas,* and *Gulf Intracoastal Waterway in Texas.)* In the latest report, the TCMC recommended that seven actions be taken by the legislature to complement the state's proposed coastal management program. All but two of these measures were acted upon by the 1977 legislature.

In Washington, local governments were given almost complete responsibility for incorporating ports into local master programs with little guidance from the state coastal management agency. Program developers mostly relied on direct public participation, in public hearings, but in some cases, local draft goals and policies were circulated for review.

In California, regional commissions circulated drafts of coastal plan elements for public review. Policies affecting ports in the south coast region first came to light through these documents. Ports were able to influence the South Coast Regional Commission's (SCRC) positions on port development, but attempts to intercede at the state commission level were ineffective.

Public hearings

Public hearings can be useful vehicles for obtaining public reaction to proposed coastal management goals and policies. In some cases, notably Wisconsin and Georgia, there was ample prior opportunity for ports to assist in policy development through reports and surveys, or representation on policy-making or advisory councils. But in Texas, formal hearings provided the first and only opportunity for ports to learn of and react to policies affecting them. The Brownsville hearing provided the only

direct contact between the port and the Texas coastal management agency. The *Hearing Draft* and its appendixes had been mailed to all user groups prior to the hearings (held in ten locations), enabling users to submit their reactions in both written and oral form.

In Washington, public hearings were lengthy processes, sometimes running for over a year, during which detailed land and water use allocation decisions were debated hotly. In Seattle, for example, six redrafts of the local master program were produced before the city council finally approved the plan. Then, over issues involving, among others, Port of Seattle holdings on the Duwamish River estuary, the program was rejected by the state coastal management agency. More hearings were held before a marsh island, previously designated a "conservancy" area, was redesignated "urban development" for port expansion purposes. The port's role in this case was resolute and aggressive. Another issue vigorously debated was a major development proposal for the harbor area of downtown Seattle's waterfront. Public hearings were used by numerous factions to fight detailed land and water use designations in one of the longest and most reported public debates in Seattle's history.

Legislative involvement of ports in coastal management programs

California's draft policies of the South Coast Regional Commission (SCRC) alerted ports in the region to the need for incorporating port concerns into the coastal management policies. To increase their effectiveness, the ports united their efforts through the government relations committee of the California Association of Port Authorities (CAPA). The SCRC responded favorably to the port association's information. Unfortunately, when the regional plans were incorporated into the state plan, elements important to the ports were not included. The subsequent strategy

adopted by the south coast region ports was to become directly involved in redrafting the implementing legislation. Again, using the same committee, ports lobbied for an acceptable bill. The result was Chapter 8 of the California Coastal Act which gives four south coast region ports special authority to develop their own local coastal plans and to issue permits in conformance with their own state-certified plan.

In Washington, an initiative drive by the Washington Environmental Council (WEC) resulted in Shoreline Management Initiative 43 being placed on the ballot in 1971. A legislatively proposed alternative measure, Initiative 43B, was drafted with the substantial involvement of ports personnel, notably from the Port of Seattle. Initiative 43B, passed by the voters, placed more responsibility with local government for planning land and water uses in a smaller management area (200 feet inland versus 500 feet proposed in 43). Washington ports, which are special units of local government appear to favor dealing with their local governments (counties and municipalities) rather than with a state agency (Department of Ecology) on matters of land and water use allocation.

Informal contacts between ports and coastal management agencies

There are many informal mechanisms for sharing information among ports and coastal management agencies that occur at all levels in agency and port organizations. Staff contacts are frequent and ongoing among permitting agencies and port planning and engineering personnel. Shared professional values, membership in professional organizations, and familiarity with ongoing environmental and land and water use programs provide flows of information about each other's needs and regulatory authoritie

At upper management levels, port directors and commissioners often have access to state agency directors and their legislative oversight committees. Such contacts complement formal communications through advisory councils, hearings, and coastal policy position papers. The political clout wielded by ports varies according to their size and economic importance to the region, the composition of their boards of commissioners, the balance between inland and coastal interests represented in the legislative bodies and, of course, the political affiliations of key port officials in state legislatures.

When their interests are threatened, as evidenced in the California Coastal Plan and Washington's Shorelines Initiative, ports will use their informal political power to influence legislation. This power may be wielded directly by port officials, or through port associations and organizations representing commerce and development interests. Ignoring or discounting legitimate port concerns could result in last-minute amendments which could compromise the coherence and integration of coastal management program elements.

Regional trade and facility forecasting studies

Several regional trade and facility forecasting studies have been undertaken or are in progress by various port groups. The studies may be used to coordinate future port facility development, to educate the public regarding the potential of ports, and to describe the current port facilities and their uses. Moreover, they also provide information on new facility needs when a specific project proposal is addressed, although the validity of the information is often attacked by those opposing these developments.

To date, regional studies have been completed in Washington, Wisconsin,

San Francisco Bay, and Texas. Both the Washington Ports Systems Study, conducted by the Washington Public Ports Association (WPPA), and a Wisconsin study of Great Lakes ports illustrate the problems of aggregated data. They discuss regional trends only, without allocating future facilities to specific ports. In the Washington study, needs for new facilities are given by commodity type for each of four subregions in the state, but there is no mention of individual port expansion plans. Some ports disagree with this study methodology and projections used to develop the forecasts.

In response to legislative proposals to amalgamate port districts into a Washington state port authority and to counteract the threat to their members' autonomy, the WPPA commissioned a consultant to produce the port systems study. One of the study recommendations was that the WPPA establish a Cooperative Development Committee (CDC) through which a port may seek an evaluation of the need for new or expanded facilities relative to the projections in the ports systems study. A favorable evaluation results in a "certificate of need" being issued. In fact, the certificate procedure has been used only once to date. As a mechanism for allocating expansion projects regionally, peer review like the CDC certificate procedure is weak, since a decision is not binding on a member port.

In the San Francisco Bay Area, NORCAL-1 and NORCAL-2, studies done for the Northern California Ports and Terminals Bureau, Inc., assessed the short-and long-term future needs for port-handling capacity in Bay area ports. The studies found, for example, that by the year 2000, NORCAL ports in the Bay area would need to handle one and one-half times as much break-bulk cargo, two and one-half times as much dry bulk cargo, and nine times as much container/LASH/RORO cargo. By the year 2020, these figures would triple. The study predicts expansion for particular ports, such as

Richmond, but the factors leading to the expansion were known prior to the study. The study justifies the direction of port expansion already underway in the region.

Data collected for NORCAL-1 and NORCAL-2 are proving useful for the Bay Conservation and Development Commission (BCDC) study of ports. The BCDC is assisting the Metropolitan Transportation Commission in developing a regional ports plan for the San Francisco Bay. Phase I of the plan, dealing with cargo projections, requires a reconciliation of the port's view as stated in NORCAL-1 and NORCAL-2, and the U.S. Army Corps of Engineers projections done in a special study for that region. Phase I also evaluates the capacity of existing facilities and assesses alternative port configurations. Results will be used by BCDC to prepare an update to the Bay Plan. The Bay Plan's current allocation for future port expansion was based on the port's statement of needs in 1967-68. The BCDC hopes that their study, conducted in conjunction with the ports, environmental groups and government agencies will allow better allocation of shoreline space for port purposes.

The Texas Coastal and Marine Council's study of waterborne commerce, while not strictly a regional facility forecasting study, does assess the financial capability of individual ports to carry out proposed expansion plans. By assessing how much capital a port is likely to be able to raise in the near future, planners may be able to separate serious proposals from "puffing" and apply their planning resources to those areas most likely to develop.

The Corps of Engineers conducts studies on maintenance dredging and channel and harbor improvement projects which often contain information useful to coastal management programs. The studies discuss expansion plans of a port, the Corps' analysis of costs and benefits of the project, expected growth in trade, changes in technology, the size of ships, and other factors. Information contained in these

studies may be useful for planning purposes, in identifying areas likely to grow, or for assessing impacts of a proposed project during permit review. Two case study ports, Grays Harbor and Los Angeles, are currently under consideration by the Corps for major channel and harbor improvement projects.

These Corps studies and projects often affect the regional allocation of port facilities. In Grays Harbor, for example, a decision was made to widen and deepen the Grays Harbor channel, but maintenance dredging will cease in Willapa Bay to the south. These two decisions preclude development of deep-draft port facilities in Willapa Bay and concentrate port development in Grays Harbor. In Los Angeles, actions of the Corps to widen and deepen the harbor and to create new port lands resulted in continued competition between two contiguous ports, Los Angeles and Long Beach, rather than toward concentration of facilities. The Corps' analysis of the need for the harbor improvements in Los Angeles did not take a regionwide perspective, since the future of the Port of Long Beach, which shares the same bay and the opposite end of Terminal Island, was not thoroughly considered.

The Corps has long recognized the regional implications of civil works projects and the need for simultaneous review of many proposed projects before deciding upon which will receive funding.

HOW PORTS HAVE PARTICIPATED IN COASTAL MANAGEMENT PROGRAMS

In addition to arranging to share information during states' coastal management program development, there are certain ways in which ports can participate directly in program implementation. In some cases port authorities have either been given, or have assumed, responsibility for coordinating permit applications for their projects,

or those of their lessees. Depending upon their statutory authority, ports can play an effective role in implementing the economic development goals of their states' coastal management programs. Finally, ports can encourage renewal of obsolete facilities on urban waterfronts.

In only one case have ports been delegated a regulatory role in coastal management. In California's south coast region, ports issue permits (to themselves and their lessees) which must conform with a state-certified port plan that was developed by the south coast port authorities.

Local plan implementation role for ports

During program implementation, ports might play a prominent role. Although implementation implies a regulatory or property management function, it might also imply more detailed, site-specific planning. In California, south coast region ports have been given authority similar to local government to develop plans for managing lands within port districts. These plans are submitted to the Coastal Commission and must include proposed land and water uses; proposed harbor alterations; an assessment anticipated environmental impact; mitigation proposals; and any proposed developments which will be subject to appeal.

Projects which may be appealed generally include all those not directly associated with shipping functions of the port. Except for policies concerning wetlands, estuaries, and existing recreational facilities, policies governing port development are contained in the special legislative chapter on ports. Public and agency participation is required before a port plan is completed and public hearings must be held before the plan can be adopted by the port. Once the plan is certified by the

Coastal Commission, the port authority assumes responsibility to ensure that all new developments within its jurisdiction comply with the certified plan. If a project can be appealed, the State Coastal Commission must be notified during the planning and design phases. Ten days before construction begins, all interested persons, organizations, and agencies must be notified. Such an appeal mechanism should assure port compliance with state-certified plans.

The four California ports to which this special implementation authority is given will receive program administration funds from the state commission to hire additional staff, contract with consultants, or defray other legitimate implementation costs. Conceivably the ports would also be eligible for grants to train their staffs to conduct coastal management planning activities. Furthermore, where port holdings present opportunities for public access to beaches or other areas of cultural, educational or aesthetic value, "Estuarine Sanctuaries and Beach Access" grants would be available to provide easements and accessways for public use.

Direct participation in estuary management studies

In Washington and Oregon, there are several examples of comprehensive estuary management studies growing out of the conflict between port needs for terminal expansion, channel improvement and waterfront industrial development and other competing land and water uses such as recreation, fisheries, and wildlife protection. The objective of these studies is to involve all the affected interests, including ports, in working toward the allocation of shoreline uses to accommodate all the diverse interests. Such studies are normally headed by a professional manager--an individual respected by the participants but not affiliated with any one of them.

After a state moratorium on dredge and fill projects was imposed, the Port of Portland, Oregon, provided seed money for a management study of the lower Willamette

River. The resulting management program allocating land and water uses is enforced by state and federal permit agencies, and according to the consultant, dredge permits now are being approved in as little as 15 days.

The Grays Harbor Estuary Study Task Force provides an example of an ongoing, comprehensive, estuary management program which was modelled after the lower Willamette study. The study, which is coordinated by a private consultant, brings together representatives from local, state, and federal government agencies, environmental protection groups, businessmen, and citizens with responsibilities and interests in the coastal zone of the Grays Harbor estuary. The Port of Grays Harbor is represented by its director. A technical team provides detailed environmental, land use and economic data to be used by the task force in developing an estuary management plan to guide future development. The port planner serves on the technical team, providing detailed information on port development and operations.

The principal impetus leading to the creation of the estuary study was excessive permit delays encountered in projects related to Corps channel realignment and deepening, and unresolved, incremental filling of tidelands. Through its membership on both the task force and the technical team, the port is able to address its needs on the Grays Harbor estuary in the presence of all affected parties, including regulatory agency representatives. The resulting management plan will bind all such parties to specific land and water use allocations and should facilitate timely processing of local, state and federal permits required for site-specific projects.

In the Columbia River estuary, a similar project is underway involving the states of Oregon and Washington. A bistate task force (CREST) is coordinating the interests of local governments and state and federal agencies in developing an estuary management

program similar to that in Grays Harbor. Both the ports of Astoria (Oregon) and Ilwaco (Washington) serve on the CREST policy-making council.

In both these cases, ports have a role to play in coastal management programs after they have been implemented. The policies and shoreland allocation schemes developed by the Grays Harbor and CREST task forces will refine the affected master programs in Washington. In Oregon, on the other hand, the CREST plan will be the first implementation of coastal policies set out by the Oregon Land Conservation and Development Commission (LCDC), the backbone of the Oregon coastal management program.

In neither of these studies do ports receive direct coastal management Section 305 or 306 funds. Instead, funds are allocated to the Grays Harbor Regional Planning Commission, to the local government units in Grays Harbor and on the Columbia River in Washington, and to local governments and the CREST organizations in Oregon.

In Tampa, Florida, an ad hoc committee composed of a variety of interest groups, including the port authority, meets regularly with the Corps of Engineers to decide upon the siting and configuration of dredge spoil disposal for sections of a major channel improvement project. The added costs of dredge spoil disposal due to requirements for environmental mitigation and enhancement, suggested by the ad hoc committee, are met through a tarriff imposed by the Port of Tampa on exports of phosphate rock mined in the region. This strategy avoids delays in the project by providing mitigation funds locally, rather than waiting for congressional approval of such funds.

The San Francisco Bay area's BCDC/Metropolitan Transportation Commission (MTC) regional ports plan is another example of direct port participation in estuary management studies. Local, state, and federal agencies and port authorities in the

Bay area are conducting a three-phase study which will be used to update BCDC's coastal management program. The project is being managed by the Seaport Policy Committee of the MTC, utilizing Section 305 funds. The first phase compares various regional port demand forecasts, notably NORCAL and Corps studies. Phase II assesses the needs for future facilities and compares their impacts on various environments within the Bay. Finally, in Phase III, a specific regional allocation plan for new facilities will be developed.

Environmental permit coordination

Port staff can play an important role in coordinating the various local, state, and federal permits required for projects accommodating their lessees' facilities. Port engineering and planning personnel, by maintaining frequent contacts with their counterparts in regulatory agencies, are familiar with specific regulatory permit requirements. For example, the Port of Brownsville acts as an agent for its industrial tenants and secures necessary permits. In each lease agreement, the tenant is required by the port to conform with all environmental regulations affecting their operations. Recently the port negotiated with the Texas Water Quality Board on behalf of the Union Carbide Corporation, whose effluent discharge into a navigation channel failed to meet agency standards. The port, using pollution control bonds, has completed a major wastewater treatment facility for Union Carbide and the corporation is now in compliance with state and federal water quality standards.

The Port of Grays Harbor has played a similar role. A wood products-related chemical corporation, Ventron, with port encouragement and technical assistance, located off port property in Grays Harbor County. Services provided by the port included site selection, arranging for provision of utilities and securing the

necessary land use and environmental permits. On port land within the harbor area, the Port of Grays Harbor has also prepared a site for the Kaiser Steel Corporation's offshore oil drilling-rig fabrication plant. The port secured the necessary permits for dredging, filling, and land use change.

Providing services such as securing permits and ensuring compliance with environmental regulations can be to the port's advantage because, to some degree ports are responsible for the actions of their lessees. For example, when a lessee in the Port of Los Angeles resisted installing wastewater treatment facilities, both the port and the lessee were cited for the violation. A similar case occurred in Milwaukee where the C&O car ferry, a coal-burner fleet, violated air quality standards and incurred fines for the port and the steamship company.

If ports continue to provide these services for their lessees, they can play an important coordination role for a large segment of industrial coastal users, some of whom may be uncertain about a particular state's coastal management policies and procedures. Similarly, agencies with regulatory functions can continue to conduct their business with a single, informed agent, rather than dealing with each lessee in a piecemeal fashion. Existing lines of communication between individuals already sensitive to each other's needs will facilitate coastal management.

Achieving economic development goals of coastal management programs

Port authorites are important promoters of regional economic development. In several case studies, the industrial enterprises which ports have helped attract into their regions have provided employment opportunities and trade beyond the jurisdiction

served by the port. Certainly the effect of trade increases will be felt in increased cargo movements through port facilities, but self-interest is not a port's only motive. A successful port director and his commissioners perceive their roles as broadly supportive of regional economic development and are strongly aligned with citizens groups and planning organizations with similar goals--chambers of commerce, economic development agencies, and planning commissions.

Where coastal management programs identify selected coastal areas as having high economic development potential, port authorities usually are appropriate and aggressive proponents of development policies. In most of these cases, ports are identified as preferred users of coastal sites. Industrial activities that are not water dependent usually are discouraged or prohibited from locating on waterfront parcels. For example, the Port of Brownsville recognizes its obligation in this regard and steers general industrial tenants to upland sites, reserving land abutting the navigation channel for activities related to waterborne commerce. This practice is to the long-term advantage of the port.

States may be able to capitalize on this approach to help implement development aspects of coastal management programs. Depending upon the statutes under which it is organized, a port may own land, lease lands from the state, act as the state's agent and sublease to other harbor or tideland users, or act as an economic development agency encouraging industrial development both on and off lands leased or owned by the port.

None of the case study ports were solely concerned with cargo movement across port-owned facilities. Most of the ports were involved in promoting industrial development within their jurisdictions, even on sites they neither owned nor leased.

In some cases, enabling statutes require ports to provide commercial fishery and recreational moorages in their facilities.

In Brownsville, the port director views his industrial development role as encompassing the entire lower Rio Grande Valley, including northeast Mexican communities like Matamoros. A major transportation realignment proposal being explored with the help of the U.S. and Mexican governments will involve heavy infrastructure investments by both nations. If implemented, new road and railroad river crossings will funnel trade into the Port of Brownsville. Congested rail and road routes in central Brownsville would be bypassed and new terminal facilities built near the port. Moreover, major industrial parks, responsive to chronic unemployment and plentiful labor, are planned.

Similar proposals on a more modest scale have been undertaken or are planned for Grays Harbor, where a bypass highway, port expansion, and navigation channel realignment and deepening will improve the capacity and accessibility of this port. Within Grays Harbor County the port has also helped the Washington Public Power Supply System locate and secure the site upon which the Satsop Nuclear Power Plant will be built, pending federal approval.

Port role in urban waterfront redevelopment

As landlords or lessees of considerable waterfront property, ports can cooperate with coastal management agencies in another important way. Frequently, ports find themselves burdened with obsolete or underutilized waterfront properties in prime urban locations. Working together, ports and coastal management agencies can identify facilities needing rehabilitation as geographic areas of particular

concern (GAPCs). Urban waterfront that is not utilized by ports can be redeveloped for either long-term or interim use to fulfill non-port related policies of coastal management programs. Many projects have been undertaken by ports, independently or in conjunction with local governments, to restore these areas for non-port related commercial or public uses. In Seattle, finger piers that were once owned, leased, or operated by the port have been refurbished for use as specialty shops, an aquarium, and waterfront parks.

In Washington, the state resource agency (Department of Natural Resources), acting under statutory and constitutional restrictions on state-owned submerged lands, enforces a schedule of lease terms favoring water-oriented commerce. The uses discussed above, while permitted under the provisions of the Seattle Shoreline Master Program, are classified as "interim," enjoying less favorable lease terms. Discussions continue at the Governor's cabinet level to amend such restrictions to permit major investments on state-owned lands. Most observers recognize that a constitutional amendment is necessary to accomplish this goal, and the port supports such an amendment since its own bonding arrangements would be enhanced by longer repayment schedules. Critics of this approach point to the need for conserving scarce urban waterfront for future, undefined, waterborne commerce uses and oppose any modification to the existing lease arrangements. The focus of this controversy is a huge office, hotel, marina, and shopping complex proposed for Seattle's central waterfront. The State Harborlines Commission, a cabinet-level board, in 1976 shifted the harborlines to accommodate the developers' space needs on one portion of the property. Litigation is underway to reverse the decision.

Such difficulties notwithstanding, ports can have a significant impact on alternative uses for decaying waterfront properties in urban areas. Where such uses

are considered "interim," as in Washington ports, the public enjoys a revitalized waterfront and the port does not forfeit space for future port-related uses, should the demand arise. Similar ventures can be seen at Fisherman's Terminal in San Francisco, Ports of Call in San Pedro Harbor, and Penn's Landing in Philadephia. Although the Philadelphia development was conducted through the Penn's Landing Corporation, a state-backed nonprofit corporation, the port provided engineering and technical assistance.

MECHANISMS TO ADDRESS MULTIJURISDICTIONAL PORT-RELATED PROBLEMS IN THE COASTAL ZONE

Water bodies on which port facilities are located frequently present jurisdictional problems. Often, river estuaries form state boundary lines (Columbia River, Savannah River, Hudson River, etc.). More frequently an estuary, embayment, or lake lies within several local jurisdictions served by a single port authority, such as Grays Harbor. In other cases two or more port authorities share the same water body (e.g., Los Angeles/Long Beach), compounding interjurisdictional relations.

Coastal management programs must provide mechanisms for coordinating programs that address regional land and water use issues in their states. Dredging projects for channel improvements and maintenance, dredge spoil disposal, and land and water use allocation affecting ports need to be dealt with on a water-body-wide scale to ensure consistencies among local jurisdictions. In general, there is great resistance to multijurisdictional management programs. From the case studies and other sources, certain organizational arrangements--particularly suited to addressing these regional issues--have been identified.

At the interstate level, states have an opportunity to develop unified policies

to address problems and issues common to contiguous areas of two or more states. Section 309 of the Coastal Zone Management Act, as amended, provides for "interstate grants" to accomplish such interstate coordination. Either formal interstate agreements or compacts, or temporary ad hoc planning bodies may be used to achieve the intent of this policy. Funds may soon be available to supplement existing planning and implementation funds.

Multistate river basin commissions and related organizations

Where ports and coastal management issues span state boundaries, regional commissions and interstate compacts provide a forum for cooperation. The New England River Basin Commission (NERBC), and the Great Lakes Basin Commission (GLBC), do have some direct involvement in coastal management programs. Through its member states, NERBC receives coastal zone management funds to address regional problems such as power plant siting and outer continental shelf-related impacts in the coastal zone. The GLBC has established a standing committee on coastal zone management that performs similar functions. Recently the committee began to address such port-related topics as transportation of hazardous materials on the Great Lakes, vessel design standards, and shipboard waste handling. Coastal management agencies from all Great Lakes states are represented on the GLBC.

The Delaware River Port Authority (DRPA) operates under a bistate compact between New Jersey and Pennsylvania, and has been concerned primarily with bridges and high-speed transit between the two states. The DRPA also promotes trade for "Ameriports," the three deepwater ports on the Delaware River (Philadephia, South Jersey, and Wilmington). DRPA has studied the potential of the region to develop support facilities

for offshore oil exploration and production and the possibility of deepwater ports in Delaware Bay. These are important coastal management issues and demand a regional perspective. Unfortunately, DRPA is not addressing two pressing regional issues relevant to the developed portion of the Delaware River: sites for disposing dredged material, and the need for a new container terminal.

In response to outer continental shelf oil and gas development, interstate coordination committees composed of governors' representatives have been formed on the east and west coasts. These committees were organized to coordinate and negotiate with large federal agenices to ensure that state views are incorporated in federal agency decisions. Representatives of west coast states formed the West Coast Oil and Ports Group to coordinate problems of the transportation and importation of Alaskan crude oil, and they have provided specific input to the Federal Energy Administration, Coast Guard, Bureau of Land Management, and other federal agencies. The Mid-Atlantic Governors' Coastal Resources Council has been active in developing state policy on issues of offshore oil and gas development. There have been no direct ties of either group to coastal management program development in the member states, but they may be useful models to apply to interstate port development issues in the future.

Ad hoc interstate planning

The Columbia River Estuary Study Team (CREST), a joint Washington/Oregon planning effort funded by the states' coastal management programs has representatives from local governments on both banks of the Columbia River, including the Ports of Astoria, Oregon, and Ilwaco, Washington. CREST is designed to address the land and water issues peculiar to the region and propose policies to local jurisdictions, including ports, implementing the coastal management programs of the two states.

A similar interstate water and land use study involving the Great Lakes ports of Duluth and Superior is being conducted by the Metropolitan Interstate Committee. The Department of Housing and Urban Development and the Office of Coastal Zone Management are funding this project under a pilot interagency coordination program because new facilities for increased dry bulk cargo movement, stalled maintenance dredging projects, and urban development pressures all require interstate, interagency coordination. Both the Wisconsin and Minnesota coastal management programs participate in this effort.

Intrastate regional planning commissions

Intrastate regional planning commissions are proving to be an important coordination element for coastal zone management. Georgia has two regional planning groups--the Savannah/Chatham County Metropolitan Planning Commission (SCCMPC) and the Coastal Area Planning and Development Commission (CAPDC)--working to keep local governments informed of coastal management program developments and, conversely, to bring a local coastal perspective to the state personnel headquartered inland in Atlanta. State coastal management funds support one staff position in the SCCMPC and three in the CAPDC. As coastal management staff, four planners have participated in developing issue papers, including one dealing with ports and waterborne commerce.

Washington state also provides an excellent example of the role a regional planning commission may play in program development. In Grays Harbor County the regional planning commission developed a model master program which all participating local governments subsequently adopted with minor revisions. Through this mechanism all local governments were able, simultaneously, to satisfy the planning and public participation requirements of the Shoreline Management Act. The Grays Harbor Regional Planning Council is lead agency for the Grays Harbor Estuary Study.

Independent advisory commissions and councils

Independent advisory commissions or councils, created at the state level and concerned with coastal and marine affairs in general, may be an appropriate forum for reconciling port and coastal management issues. Because of their unique structure, technical coordination committees, under the umbrella of such an organization, may be more effective than either a state line agency or a port effort. The Texas Coastal and Marine Council is an independent advisory council which has maintained good relations with the state legislature, the executive branch, and interest groups; at the same time, it has been instrumental in developing much of Texas' recent coastal legislation. The council is considering the merits of forming a technical coordinating committee of key port staff from all Texas ports and representatives from selected state agencies to address problems common to the State's public ports: air quality and the nondegradation issue, requirements for donating land for wildlife preservation, dredge spoil disposal, and environmental permit procedures. In Washington, a similar group, the Oceanographic Commission of Washington (OCW), has been involved in technical and policy planning for oil transfer facilities and oil tanker movements on inland waters. It is, potentially, an organization which can address other port issues as well.

CHAPTER VI

RECOMMENDATIONS AND CONCLUSIONS

Having described port development and coastal management programs, and having identified emerging coastal management policies and port-coastal program interactions, what can be concluded? Can there be harmony between the two? Or, are their mandates so differenr that accommodation based on respective power advantages is all that can be expected?

Continuing harmony is more than can be legitimately anticipated. Development and conservation interests will always have different views on some subjects. In fact, as pressures on coastal regions increase, differences may become frequent and intense. The future may require that more choices be made--accentuating the need for a decision-making process that emphasizes equity and efficiency in resolving important public policy issues. Whether issues are resolved by accelerating development or by curtailing it will often depend on values prevalent at the time and place where new development is proposed. But the process by which plans are made to meet anticipated problems, and by which affected parties are involved in plan preparation or conflict resolution, can result in decisions being reached fairly, equitably, and efficiently.

The analysis of port development and coastal management program development in this study suggests that further interaction between the two groups, beyond that evident from the case-study analysis presented, is necessary. A planning and conflict resolution process that is fair to port development and other competing interests

will require refinement of the existing process in three ways:

1. National or regional analysis of port development needs and coastal management program impacts

2. Involvement of port development interests in coastal management programs

3. Specific subprograms strategies to meet pressing port-related development problems and needs in coastal management programs

In all three cases, initiative and cooperation are needed from both port development and coastal management program officials.

The first two recommendations and conclusions resulting from this study address national and regional aspects of refining decision processes on port development Private, local, and state interests currently dominate these processes for both port development and coastal management programs. However, it is time for regional and national entities to begin to address port facility needs and the effects of coastal management programs on them.

Recommendations and conclusions 3 through 7 address steps for refining coastal management programs when port-related issues are at stake. As coastal management programs mature, more specific planning procedures involving port interests will be necessary to implement portions of coastal management programs and provide focused mechanisms for conflict resolution.

Recommendations and conclusions 8 through 10 address the specific problems of redeveloping obsolete port facilities and the problems related to dredging, dredged spoil disposal, landfill, and the mitigation of attendant adverse environmental effects. These problems are faced by many ports throughout the country, and coastal management programs can be catalysts for resolving the financial and technical problems associated with them.

1. Effects of coastal management programs on port development

States' coastal management programs should give specific attention to port development activities:

- *Policies and decisions about port development should be made with full knowledge of their potential impact on trade patterns and a port's competitive advantages and disadvantages*

- *Coastal land and water use decisions should be based not only on environmental impact criteria but should consider also the type of use being regulated, its dependency on a coastal location, and its social and economic effects on a region's population.*

Port authorities and shippers have expressed concerns that coastal management programs could restrict or delay port development and upset competitive balances between ports. They predict that reduced trade and loss of economic benefits (locally, regionally, or nationally) will result.

Because coastal management programs are, in most cases, still in the early stages of development, their impacts on specific port development projects cannot be assessed systematically. Further, coastal management programs are part of a network of environmental programs which can affect port development, and it would be difficult to identify a single program as the cause of delay in port development. Thus, this study cannot answer the concerns of port and shipping officials directly.

It is fair to say, however, that both the intent and design of coastal management programs studied accommodate port development activities. Policies of these programs recognize port development as a coastally dependent use and one which makes valuable contributions to local, regional, and national economies. In fact, ports have been designated a priority use by some state programs, and some are directly assisting port development by funding studies of future port needs. Even states that have strong coastal environmental protection objectives encourage port development, so long as it occurs within established harbor areas, thereby reducing pressure for new ports in undeveloped areas.

2. National interests, port development, and coastal management programs

The federal office of Coastal Zone Management, in conjunction with other federal agencies concerned with port development, should:

- *Study regional and national interests in port development and marine transportation*
- *Assist states in considering impacts of their policies and programs on port development activities locally, regionally, and nationally.*

Because coastal management programs are developed at the state and local level, policies affecting the coastal environment and port, trade, and industrial development vary among coastal states. One state's policies may restrict port development while another's promote it, resulting in shifts in trade among ports. This may, in turn, affect total U.S. port capacity. Ports have traditionally argued for free competition among ports, but if shifts in trade among ports and changes in capacity become intolerable, it will be necessary to articulate national interests and policies in port development.

State coastal management programs are required to address the question of national interest; however, they have limited information and expertise for such a task. Although some federal agencies collect data on ports and trade, perform regional and national port studies, and review shipping rate structures, there is no single, coordinated national policy addressing port development to guide state coastal management program development. Unless national port interests are addressed, perhaps leading to national policies, port development patterns may be affected differentially by decisions of state and local governments, federal resource agencies and others.

3. Ports and the definition of the coastal zone

The definition of the coastal zone under the federal coastal zone management act should be interpreted broadly to insure full and fair consideration of port development needs and multiple-use programs within the management program.

- *Ports that are in reasonable proximity to coastal waters and port development activities that raise significant questions of compatibility with other important coastal users should be included in coastal management programs.*

- *Ports on channels or rivers somewhat inland from heads of estuaries, which regularly serve ocean or coastwide trade, marine fishing, or coastal recreational boating should be included in coastal management programs.*

The federal Coastal Zone Management Act defines the coastal zone as extending inland to include shoreland uses which have a direct and significant impact on coastal waters. Most large-scale port development activities in coastal regions fall within this definition, but its ambiguities raise the possibility that some ports or port activities in coastal *regions* could be considered outside the legal definition of coastal *zone* in the federal act. For example, it can be argued that ports serving ocean-going vessels on rivers or channels, beyond tidal influence, are not in the coastal zone because port development activities do not affect coastal waters. It can also be argued that the coastal boundary in urban areas should be drawn at the bulkhead line because port activities inland of this line similarly do not affect coastal waters.

Coastal management program development efforts in the United States have not settled on a single, unified approach to defining the coastal zone. Of those programs which have been approved, two approaches are evident. In the first case, the coastal zone boundary is drawn a relatively short distance inland (i.e., 100-200 ft): developments proposed within this area are subject to special permitting procedures, while some inland port activities are not. In the second case, the boundary is drawn

further inland (up to 1000 yards, for example, or to include whole coastal counties) but there is no special permitting procedure. Plans and controls which local governments have traditionally applied to port development activities--such as zoning--are augmented with state and regional coastal policies and procedures. This second approach includes more port development activities than the first but does not directly or immediately affect port activities.

These boundary definitions are not mutually exclusive. Some states employ both a narrow "permit zone" and a wider "planning area" in their programs in a two-tiered approach to defining the coastal zone.

4. Port participation in coastal management programs

Coastal management program personnel should actively solicit ongoing port participation in the development of coastal policies and plans.

- *Ports should sit on formally established advisory committees to ensure regular and effective dialogue on policy issues concerning development interests and other interests.*
- *Coastal ports should develop organizational units within their state or regional port associations so that they are at the same governmental level (i.e., state, county, or local) as the coastal management programs.*
- *Ports should continue to provide relevant information to coastal planners regarding cargo characteristics and trends, facilities and port controlled land uses, port administration, organization and financing, and major future plans and capital expenditure programs.*
- *If necessary, the status and trends of port development within a state or region should be assessed by independent expert, mutually acceptable to ports and the coastal management program, to provide information for program development. Ports should participate in designing such studies and reviewing the findings.*

Ports should assist in refining or implementing appropriate elements of coastal management programs.

- *Ports should play a lead role in implementing economic development objectives in coastal areas designated for that purpose.*

- *Ports should assist in developing a dredged material management program* (see recommendation 9) *and an obsolete facilities redevelopment program* (see recommendation 8), *coordinating permit requirements* (see recommendation 6), *and identifying research and environmental assessment needs.*

- *The California approach (Southern California Port Authorities are now developing and implementing port master plans, covering port and non-port related uses) should be evaluated to determine if port authorities, rather than local governments, are the appropriate governmental unit to handle this function.*

Coastal management programs consider issues that are important to ports, such as future economic growth in coastal regions, the interconnection of transportation modes, and the relationship of commercial and industrial development activities to such uses as recreation, fisheries, and wildlife enhancement. The competing uses can only be balanced if the users--such as ports with a stake in the region--are fully involved in the program.

Port participation in coastal management program development has varied widely. Some ports often provided information and policy input, while others had no contact with coastal management program personnel. Some coastal management programs identified ports as key coastal users early in program development, generated special port studies, and made special initiatives to ports through public information programs. Other programs neglected ports, dealt with port issues late in the planning process, or dealt with port questions through an intermediary (such as a local government unit).

When ports and coastal management programs did interact, they became sensitive to each other's problems and responsibilities. Port officials recognized the broad planning and environmental mandates of coastal management programs and sought adequate attention to ports in them. Coastal management officials recognized the economic importance of ports and understood the competitive framework in which they operate. Continued interaction between the two groups should increase understanding and help them to avoid legal or political disputes.

Although there was some participation and mutual education of port and coastal management officials in almost all case study states, interactions during program development tended to remain at the broad policy level. Even then, ports largely reacted to policies that had already been drafted. Technical planning coordination on such issues as dredged material management, trade forecasts, and facility needs rarely occurred prior to policy formulation. Since most coastal management programs are still in the program development - rather than program implementation - phase, and the time frame for program development is short, the emphasis on broader policy matters is understandable. Detailed, refined planning is expected in most cases after the programs are approved, as is now occurring in Washington State and the San Francisco Bay region.

One explanation for ineffective or nonexistent interaction between ports and coastal management programs relates to the level of government at which the two activities are focused. In the case studies, communication between port authority and coastal management program officials occurred most smoothly if they were at the same level of government. When a program is developed at the state level, it is best for ports to develop a statewide view of port issues and to share information within port associations, informal multiport coordinating groups, or a state port authority. Similarly, programs developed at the local level dealt best with port issues when the port authority jurisdiction was also at the local level. Where the governmental levels of the two activities differed, special mechanisms for interaction between them were created--such as special port association committees or specially designated port representative seats on coastal management program committees.

In the case studies observed, the most effective ongoing interaction between ports and coastal management occurred when ports belonged to formal coastal management

advisory or planning committees. The regular, face-to-face interaction allowed the people on the committee to identify critical issues and exchange useful information. It facilitated, as well, the development of mutual sensitivity and understanding of each other's programs and needs.

The boldest effort in the country to involve port authorities directly in coastal management programs is in California, where ports develop and implement master plans for their area, subject to state oversight and review. Public port authorities have traditionally been special purpose public agencies concentrating in marine commerce, economic development, and related transportation functions. In some cases, when required by law, recreational boating and commercial fishery needs have been accommodated by port authorities. California's requirement--that ports now consider public access and recreational and environmental values in reviewing activities that occur in their legal geographic boundary--is a unique and significant departure from traditional port functions.

5. Development of regional land and water use allocation plans

Proposed port development activities should be reviewed in accordance with a sub state/regional use allocation plan, which should relate existing port facilities to regional needs, subject to coastal environmental constraints.

- *A multiagency government task force or committee (led by the coastal management program and including all levels of government and port authorities) should develop the use allocation plan. Its objectives should be to agree on specific areas and locations for phased, long-term port development.*
- *The plan should include performance standards addressing conservation of waterfront land, avoidance of adverse environmental impact, provision of public access, and environmental mitigation features. More intensive use of existing port lands and locating port activities that do not require a shoreline inland should be urged to conserve waterfront land. Public access and environmental mitigation requirements should be required where port development preempts public use and identified environmental values are sacrificed for port development.*

- *The task force or committee should be assisted by citizen and technical advisory panels, and by independent consultants. Technical assistance from the national level should be provided.* (See recommendation 7.)

- *The plan should be implemented by incorporating it into each participating agency's existing review procedures.*

- *Where multiple-use problems involving port development occur in a water body common to two states (e.g., Duluth, Minnesota, and Superior, Wisconsin), a multiagency task force or committee approach should be taken. Existing river basin commissions and regional commissions might be used to assist this function.*

- *Development activities should be monitored for conformance with the allocation plan and its performance standards. The plan should be reviewed and updated periodically.*

- *Prior to and during the development of the land and water use allocation plan, port development activities should be reviewed on a project-by-project basis, augmented by interim performance standards adopted by the coastal management program with the participation of port representatives.*

Because of increased user demand for shoreland space and interest in recreational development and environmental protection, governmental review of port development projects is complex and involves many different agencies. The problems of competing uses faced by these agencies involve complex environmental impact and land use issues.

Development projects tend to be addressed on a project-by-project basis. Many resource conservation and land use planning agencies now oppose this review approach. They argue that the key issues are the cumulative effect of the projects and the lack of any foreseeable limits on the encroachment of development activities into environmentally sensitive or recreationally important areas. They urge that plans be developed to determine long-term future uses of particular areas, and that this be done before decisions are made on major individual projects. Such approaches are now being developed by the San Francisco Bay Conservation and Development Commission and in Grays Harbor, Washington.

Coastal management programs must consider future uses in particular areas and significant environmental impacts. The federal Coastal Zone Management Act requires that permissible uses be identified and guidelines be developed for determining the priority of uses in particular areas. To date, coastal management programs have developed procedures for considering competing land and water use issues and broad decision-making policies, but very little planning has been done to accommodate specific uses in specific areas of the coast. This has inhibited the resolution of some multiple-use problems and caused two of the more experienced programs in the nation--Washington's and California's [San Francisco] Bay Conservation and Development Commission to establish special task force studies to look into port development activities long after their respective programs had begun operating. Land and water use allocation schemes should be advantageous to ports, since existing, uncoordinated environmental programs have frequently caused substantial delays or denials of proposed port development activities. In principle, mature coastal management programs should facilitate port development; policies will be clarified in advance, thereby removing much of the uncertainty of project approval.

6. Resolving permit delay problems

- *Coastal management agencies should develop a project review system to identify required permits and to comment on proposed projects before financial commitments are made.*
- *Applications for development activities should be processed rapidly and reviewed thoroughly. Time limits should be specified for processing permit applications for small noncontroversial projects. Coastal management programs should initiate development of a rational permit review system among environmental and land use agencies, to avoid duplication and encourage coordination.*
- *Port authorities should assist their lessees to obtain necessary permits for facility development projects and meet land use and environmental requirements.*

Port facility development projects must be approved by local or state land use planning agencies, state and federal environmental and resource management agencies, the Corps of Engineers, and others before they can be undertaken. The number of reviewing agencies has increased dramatically in recent years, and each project receives increasingly detailed scrutiny. Sequential review procedures often delay final resolution of port development projects. Delays can be especially long where projects occur in sensitive environments, or are otherwise controversial.

Coastal management programs are required to closely coordinate their efforts with the plans and programs of other governmental agencies. Further, there is great pressure from users and elected officials to avoid redundancy and streamline government permit processes. For this reason, coastal management programs are addressing the problems of duplication and delay in the environmental and land use programs that review coastal development activities.

7. Information exchange and technical assistance between port authorities and coastal management programs

Port authorities and coastal management programs should continue to exchange information, including programs of technical assistance and continuing education. The Sea Grant Program's Research and Advisory Services activities should assist (when appropriate) this information function. Exchange of personnel between port authorities and coastal management programs should be encouraged. Three import components of a technical assistance program should be included:

- *Information and techniques to determine future port facility needs, should be available to state and local land-use and environmental management personnel, including -*

  Projections of foreign trade,
  Fleet characteristics,
  Methods for calculating port capacity, and
  Cargo handling technology and related land-use requirements.

- *Coastal management programs and the U.S. Army Corps of Engineers should sponsor planning workshops on regional dredged material management for development, environmental, and regulatory interests. They should stress technical, economic, and planning aspects of the use or disposal of dredged material for commercial, environmental, or recreational development purposes.*

- *A national conference should be initiated by the federal Office of Coastal Zone Management on the potential for redevelopment of obsolete port facilities in urban waterfront areas* (See recommendation 8). *It should involve interested governmental, industrial, and professional organizations and should consider potential use alternatives, planning and design factors, funding mechanisms (including strategies for combined public/private redevelopment ventures), and methods for coastal management program participation at local, state, and federal levels.*

The federal Office of Coastal Zone Management should enhance its research and technical assistance activities, and Congress should act expeditiously to appropriate funds to carry out its legislative intent for this function. Port-related technical assistance should address the following:

- *Port operations and cargo storage and handling practices as they relate to waterfront land use, and appropriate technologies and practices for efficient use of shoreland space.*

- *Monitoring the performance of coastal management programs and their effect on port development. Results would provide a basis for proposing coastal program modifications if inefficiencies or inequities became apparent.*

- *Needs identified by port and coastal management personnel polled frequently by the office of Coastal Zone Management.*

Information exchange between port and coastal management officials has varied considerably around the country, mostly focusing on broad policy issues, not technical matters. Until now, information exchange, in the form of technical assistance and detailed planning coordination, has occurred only with respect to particular project proposals.

The need for information exchange is likely to increase. Coastal management programs are maturing, and in future years will develop detailed plans and programs related to particular coastal user groups, such as ports. Port and shipping technology is changing and creating needs for new shorefront facilities, which must be reviewed and approved by coastal management programs and other agencies. Special problems such as dredged material management and redevelopment of obsolete waterfront facilities will require close planning coordination. Also, as competition for space in crowded coastal areas becomes more acute, port development needs and the needs of other user groups will have to be analyzed and trade-offs made in the preparation of shoreland allocation schemes. These future interactions will be more effective and result in better use of coastal resources if the respective participants are informed about each other's policies, operations, and objectives.

8. Redevelopment of obsolete port facilities

- *Coastal management programs should give greater attention to the resolution of urban waterfront problems since they offer opportunities for improving the built environment, broadening the economic base of a region, and enhancing the recreational opportunities of a state. Using coastal management program funds, general purpose units of local governments should identify obsolete or underutilized waterfront facilities in their jurisdictions that have potential for redevelopment to meet port or non-port uses on a permanent or interim basis. Redevelopment programs should address:*

  - *Strategies for intergovernmental coordination, private sector cooperation, and port authority participation*

  - *Identification of potential funding sources, including federal, state, and local government and port authority capital improvement funds, or a new coastal conservation and development fund* (see recommendation 10).

- *Port policies should give full consideration to the potential for redevelopment of waterfronts for non-port purposes, specifically those policies which address leasing or disposal of obsolete or underutilized facilities and surplus lands.*

Ports are often plagued with obsolete or underutilized facilities that can no longer serve modern ships and cargo-handling equipment. Although, obsolete facilities can sometimes be renovated or redesigned to meet modern shipping needs, in many areas the facilities are adjacent to congested urban areas and the back-up space and land transportation connections are inadequate. Further, urban areas adjacent to the waterfronts are changing character; expanded central business district activities, historic districts, and revitalized neighborhoods are out-of-character and incompatible with modern port terminal operations.

In many cities, obsolete waterfront facilities are being transformed to serve non-port functions. Parks, marinas, novelty and import retail trade, restaurants, promenades, housing and office buildings are appearing where port, rail, and warehouse activities once were located. A combination of public urban renewal programs, public works projects and private capital investment has supported most waterfront redevelopment and renovation. Port authorities have cooperated with government agencies and private investors by providing technical assistance, buildings, and surplus lands to aid the redevelopment scheme. However, the initiative for conversion of obsolete port facilities to non-port uses has tended to come from outside the port and trade community. Because ports view this type of redevelopment as ancillary to their primary goal of serving marine commerce and associated industrial development, in some cases non-port use of waterfront facilities is allowed on an interim basis only, thus reserving future use of the area for port needs.

Coastal management programs have given priority, in these early years, to rural and urban fringe regions of the coastal zone, where many environmental and recreational issues are pressing. However, urban waterfront areas and redevelopment of obsolete facilities, are beginning to receive attention and policies for urban waterfront redevelopment are emerging. While coastal management funds may not be used for capital improvement projects, they can be used for planning waterfront programs.

9. Dredging, dredged material disposal, and landfill; mitigating their adverse effects

- *Coastal management programs should require dredged material management plans within those estuarine regions of the state where channel improvement and maintenance activities occur. The plan should be developed by an interagency task force led by the coastal management program and appropriate port authorities, with independent consultants and advisory panels to assist them* (see recommendation 5). *It should identify potential uses of dredged material to serve multiple needs, including -*

  Fish and wildlife habitat improvement

  Recreational development

  Landfill for port use

  Scientific and public education

- *Use of dredged material should be determined by needs identified in the plan, giving weight to both environmental and recreational needs, as well as landfill and disposal needs. An information clearinghouse should be established to promote regional coordination of dredged or excavated material supply with use sites, both upland and coastal.*

- *Financing mechanisms appropriate for achieving the objectives of the plan should be identified, such as federal civil works funds, user charges imposed and collected by port authorities, state and local bonds, or a coastal conservation and development fund* (see recommendation 10)

Major port development activities often require dredging for channel maintenance and improvement, disposal of dredged material, and creation of new landfill. The Corps of Engineers, through its civil works program, is responsible for channel improvements and dredged material disposal. Planning for dredged material use or

disposal--traditionally the responsibility of the Corps, local sponsors (e.g., port authorities), fish and wildlife and state waterbottom management agencies--has related to specific projects and normally has not included local or regional land use planning agencies, or coastal management programs. Although dredged material management has been viewed as a disposal problem rather than a resource management problem, research, experiments, and demonstration projects in recent years show great potential for using dredged material for marsh creation, control erosion, habitat islands, and aquaculture.

Where wetlands or water bodies are involved, state and federal fish, wildlife, and pollution control agencies watch development activities carefully to insure minimum damage to fish and wildlife resources. They may require that mitigating and compensating features be added to development projects to make up for any harm to resources or recreational uses. Requiring developers to dedicate natural areas to public use in exchange for the development area is one form of mitigation. There have been conflicts, however, over whether an agency can compel mitigation, how to measure the extent of environmental harm, how to fund additional costs, and how to determine the appropriate site and techniques for implementing the mitigation program.

Coastal management programs are beginning to develop mitigation policies in connection with dredge and fill activities: California requires mitigation by replacement for filled wetlands, and Oregon requires restoration of biological productivity within estuaries. In other states, mitigation policies will likely be formulated as coastal management programs mature, since federal and state fish and wildlife agencies (with whom they must deal closely) regularly apply such mitigation requirements.

10. Capital improvement projects to enhance the coastal environment

- *Coastal management programs should include the capability to finance selected capital improvement projects, which enhance the goals and objectives of the program and which go beyond the specialized programs available through federal coastal management sources (estuarine sanctuary, public access acquisition, and energy facility impact assistance).*

- *A state-level conservation and development fund should be established, drawing upon the example of the California State Coastal Conservancy (discussed below), to supplement private investment and traditional federal, state, and local capital improvement funding sources. Use of the fund should be limited to coastal enhancement projects, which are certified as consistent with the state's coastal management program. The fund could be used to provide the state's share of federally supported projects, to participate with private developers in redevelopment activities, to assist in land acquisition and retention, to help pay for rehabilitation of environmentally degraded coastal areas, or to add public use features to development projects.*

Most aspects of coastal management program implementation and administration--including regulatory procedures, planning, and coordination activities--can be funded by combined federal Office of Coastal Zone Management (80 percent) and state matching funds (20 percent). Although these funds cannot be used for capital improvements, in some cases there are opportunities to achieve specific coastal goals through capital improvements. The redevelopment of obsolete waterfront facilities (see recommendation 8) and aspects of dredged material management (see recommendation 9) are two examples of coastal program goals that require capital investment funding.

The federal Office of Coastal Zone Management has two specialized programs which do allow capital expenditures. The new Coastal Energy Impact Program (CEIP) provides loans and grants to local governments to help pay for local capital improvement projects necessitated by outer continental shelf oil and gas development. The CEIP also provides funds to ameliorate environmental and recreational losses resulting from coastal energy activities. Further, the federal Office of Coastal Zone Management will pay up to 50 percent of the cost of acquiring and managing estuarine sanctuaries and acquiring access lands to coastal areas. These funds may, in limited

instances, be available for port-related capital improvement activities--for example, assisting a port authority finance a new facility that is necessary to serve outer continental shelf oil and gas activities, or acquiring land for redevelopment of old facilities or for public access.

Although the Office of Coastal Zone Management and the Coastal Energy Impact Program capital improvement funds are limited by amount and purpose, there are other federal funds available for capital improvements that, while not oriented toward coastal activities, could be used for that purpose: land and water conservation funds for park acquisition, urban renewal funds for land acquisition in connection with redevelopment, and public works assistance funds. Further, the amount of federal funds available, and the purpose for which they can be used, vary greatly from year to year.

There are other potential sources for capital improvement financing. Funds for coastal improvement projects can be authorized through voter-approved bond issues, or by state legislature or city council appropriations. These tend to be allocated on a project-by-project basis. There has also been considerable private investment, in coastal enhancement activities, much of it in urban waterfront areas where old piers and wharves have been restored for new commercial and recreational purposes.

California has adopted a coastal-oriented capital improvement program as a part of its coastal management activities. The state coastal conservancy is authorized to -

1. Acquire and protect coastal agricultural lands
2. Restore, redesign, and improve land use that affects the coastal environment
3. Enhance the natural and scenic values of coastal resources by correcting previous misuse--such as indiscriminate dredging and filling and improperly located or designed improvements

4. Acquire lands within "buffer areas" to protect beaches, parks, natural areas, and fish and wildlife preserves

5. Provide loans to allow significant coastal resource sites to be held and reserved for ultimate public use purposes

6. Acquire public accessways to the coast

California's coastal conservancy has not been implemented as yet, but holds significant potential for port-related enhancement and restoration projects.

CHAPTER VII

CASE STUDIES

This study is primarily a synthesis and analysis of case studies of port authorities and coastal management programs in the United States. Case studies proved to be the best vehicle for determining the most important land and water issues faced at present, the types of interaction between the two groups, and the policies emerging in coastal management programs that deal with port development issues. Six case study areas were selected for detailed analysis. One of them involved two states and two port authorities--the Philadelphia Port Corporation and the South Jersey Port Corporation in the Delaware River portion of Pennsylvania and New Jersey. This chapter therefore summarizes the activities of seven port authorities and seven coastal management programs.

In addition to the case studies, documents from four additional state or port authority areas were used: Port of Seattle, Washington; Massport, at Boston, Massachusetts; San Francisco Bay Conservation and Development Commission, California; and, the State of Oregon. Policies that are being developed in these areas were especially useful in rounding out the information base.

Case study information was compiled by two researchers who visited each of the case study areas for three to five days, from September through December 1976. Key documents were collected from port authorities and coastal management program offices, including statutes and regulations, plans and policy studies, annual reports,

and other relevant studies and documents. Port facilities were visited and photographed. Coastal areas were visited as well, especially those stretches of coast considered to be possible areas for future port development. In-depth interviews were conducted with port directors and their aides, representatives of lessees or shipping companies, city or county planning officials, state and regional coastal management program staff, and some key federal agency personnel. The information summarized in the case study reports in this chapter is current through the summer of 1977.

Each case study begins with a summary of the most important aspects of port and coastal management program development, and how they interact. Port development and coastal management program development are then discussed in detail. The documents and interviews upon which the study is based are listed in Appendix A.

PORT OF MILWAUKEE/WISCONSIN COASTAL PROGRAM

Summary

The Port of Milwaukee (Figure 7.1) is governed by a five-member Board of Harbor Commissioners under close city supervision. The city common council controls the port budget and must approve all plans for harbor improvements and industrial leases.

Although the Port of Milwaukee is one of the few ports on the Great Lakes which is free of ice year round, it is currently experiencing a decline in demand. General cargo movements are limited by the size of ships that can use the St. Lawrence Seaway. In addition, because of a single-rate freight structure connecting sea transport with rail and truck service, ocean ports are used more and more to serve the interior states, thereby reducing the demands on Great Lakes ports. The decline may be partially reversed if coal production and trade--the port's major export commodity--increases.

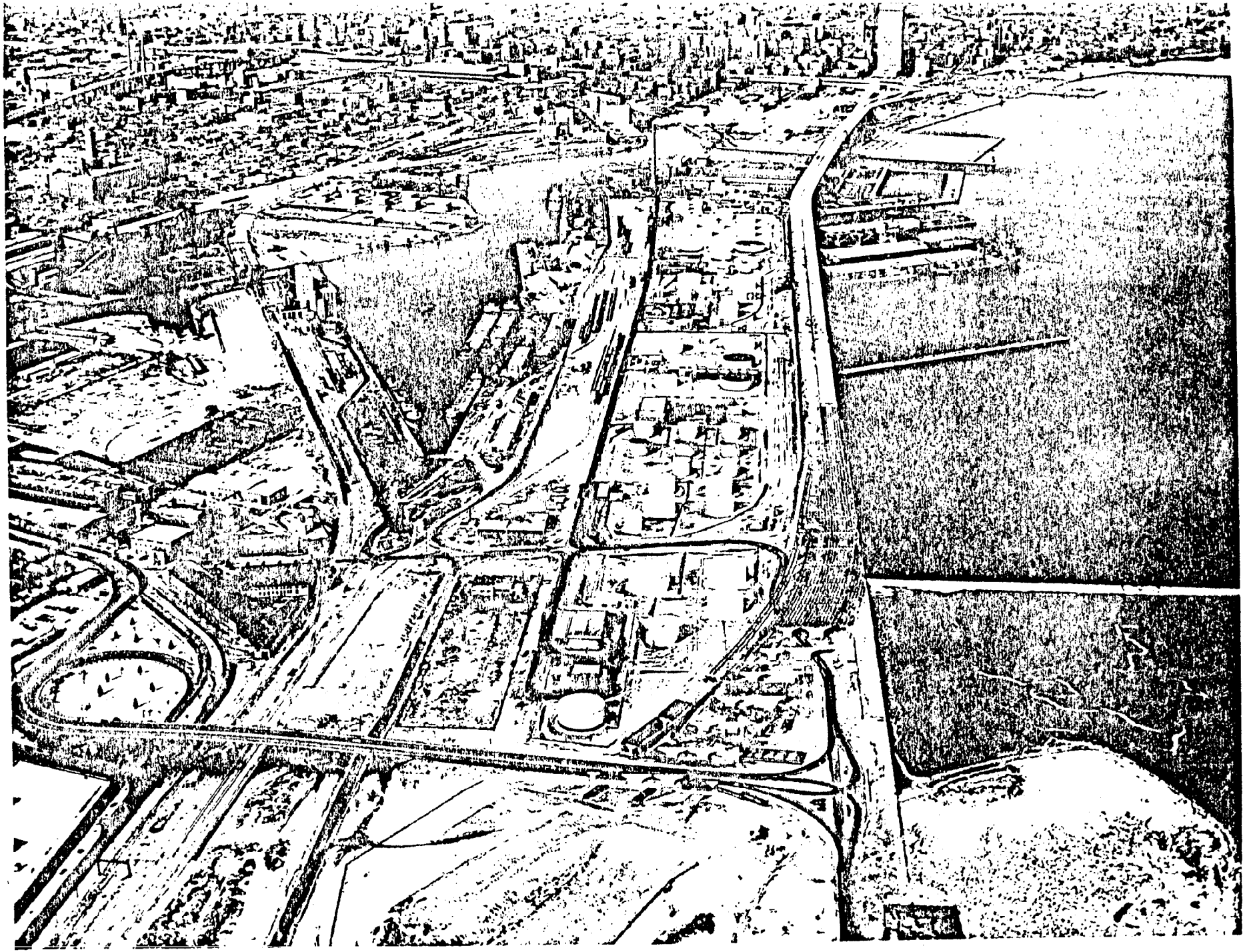


Fig. 7.1. Aerial photo of the Port of Milwaukee looking north. Jones Island is at the center of the picture, with [illegible] to the left. (Photo by Clair L. Wilson, [illegible] courtesy of the City of Milwaukee, Board of Harbor Commissioners)

Declining cargo requirements, limitations on the sewer system, and apparent city preferences for recreational development presently limit any major port development plans. Instead, finding alternative uses for port facilities and sites and improving air and water quality around the port are issues that now involve the port and have implications for the state's coastal program.

The Wisconsin coastal management program is in its third year of development: its proposed program is now being circulated for review (Wisconsin Coastal Coordinating and Advisory Council, 1977). At this time the state proposes to rely on existing local, regional, and state authorities, such as the Shorelands Act which regulates shoreland uses in unincorporated county areas (Lauf, 1975) to regulate uses of their fifteen-county coastal zone.

Wisconsin has taken an aggressive role in dealing with port issues. First, a highly respected port scholar (Mayer, 1975) compiled the essential background material for decision making. Information on ports has been widely disseminated and public opinion has been actively sought on the issue of future port development in Wisconsin.

Three alternatives for addressing port-related issues were postulated during the early stages of policy development. First, the coastal program might continue the present state laissez-faire practice of not intervening or directing future patterns. Second, the program could actively promote the present system of port development, encouraging each port to maintain its current competitive position. Third, the state program could actively promote a plan for directing port growth. Under this last approach, one proposed policy would be to focus shipping activities in major ports as marinas (Wisconsin Department of Transportation, 1976)

The coastal program presently under consideration fails to address port issues to the extent indicated by the preparatory work. The proposed coastal management policy stipulates only that the program will advocate "the role of Great Lakes ports both within the state and at the national level" (Wisconsin Coastal Coordinating and Advisory Council, 1977). The proposal also recommends that a state Citizens' Advisory Committee include representatives of shipping and port interests.

Although the Port of Milwaukee has not actively participated in the state coastal program, it could do so through its director's membership on two planning advisory committees. One of them, the Citizens' Advisory Committee, advises the Coastal Zone Coordinating and Advisory Council, thereby having a direct relationship to the coastal program. The director also sits on a technical advisory committee to the Southeast Wisconsin Regional Planning Commission. Because that commission has been delegated some responsibility in developing Wisconsin's coastal program, the technical advisory committee indirectly affects the coastal program.

Port of Milwaukee, Wisconsin

Cargo characteristics. In 1975, the Port of Milwaukee handled approximately six million tons of cargo. The Municipal Harbor Terminal facilities handled about 41.1 percent of the total port commerce, while the balance was handled at private docks. Principal commodities are coal, cement, limestone, clay, sand and gravel, gasoline and nonmetallic minerals.

The Port of Milwaukee is presently in a state of decline, and is unable to use all its facilities (Figure 7.2). There is a problem finding new uses for old terminals and there are no potential new users.

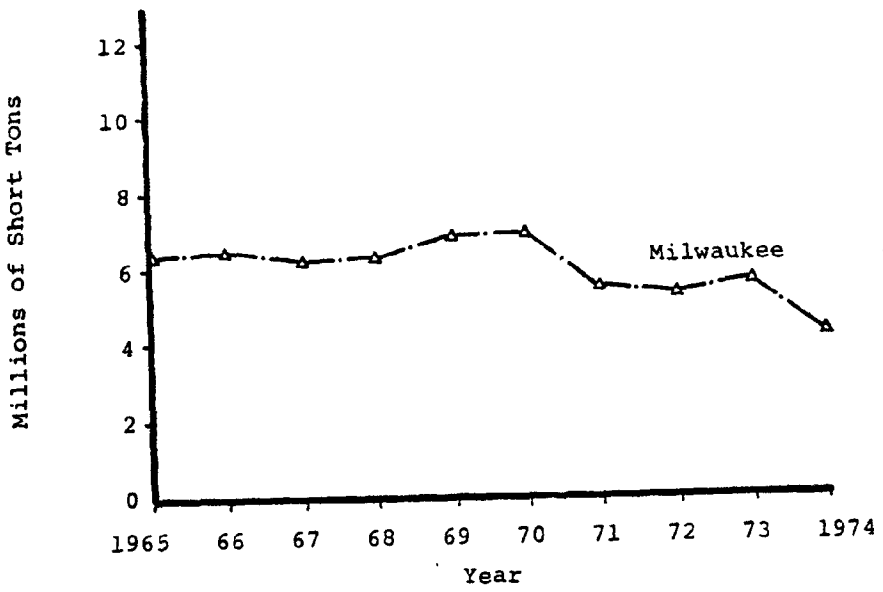


Fig. 7.2. Milwaukee Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, Vol. 4, p. 7.4a. 1974.

There are three major factors affecting the port of Milwaukee and the Great Lakes as a whole (Schenker and Smith, 1973):

1. Very large vessels have been developed that cannot enter the St. Lawrence Seaway system and cannot call at Great Lakes ports.

2. The development of containerization eliminated many tons of general cargo from the Port of Milwaukee. The port was particularly affected by the development of the Port of Halifax, Nova Scotia, and intermodal transportation (unit trains). General cargo that traditionally came from Europe and the Far East to Milwaukee now is off-loaded at Halifax and Seattle.

3. The near completion of the interstate highway system promoted a shift of cargo from Great Lakes ports to coastal ports.

In addition, there are factors that especially have affected the Port of Milwaukee: coal shipments--the port's major commodity--have declined, automobiles once transported by water are now usually carried by rail, and oil pipelines have greatly reduced the amount of oil transported through this port.

Port facilities. The Port of Milwaukee has both public and private dock facilities. There are specialized coal docks which handle large tonnages of lakeborne coal. Waterborne petroleum is served by private terminals concentrated at Jones Island. The port is well-equipped to serve the important general cargo trade with either municipally or privately owned terminals. Other important port facilities include carferry terminals, cement and building material wharves, grain elevators, open docks, and heavy-lift cranes. Major port facilities are described below (Figure 7.3):

1. Petroleum terminal: Six oil companies have built modern terminals on leased harbor property on Jones Island. Waterborne petroleum receipts are 500,000 to one million tons per year; storage capacity is approximately 80 million gallons.

2. Municipal carferry terminal: Milwaukee's first municipal port facility was placed in service in 1929; it was renovated and expanded in 1960. The facility handles more than 69,000 railroad cars and approximately 21,000 tourist automobiles each year.

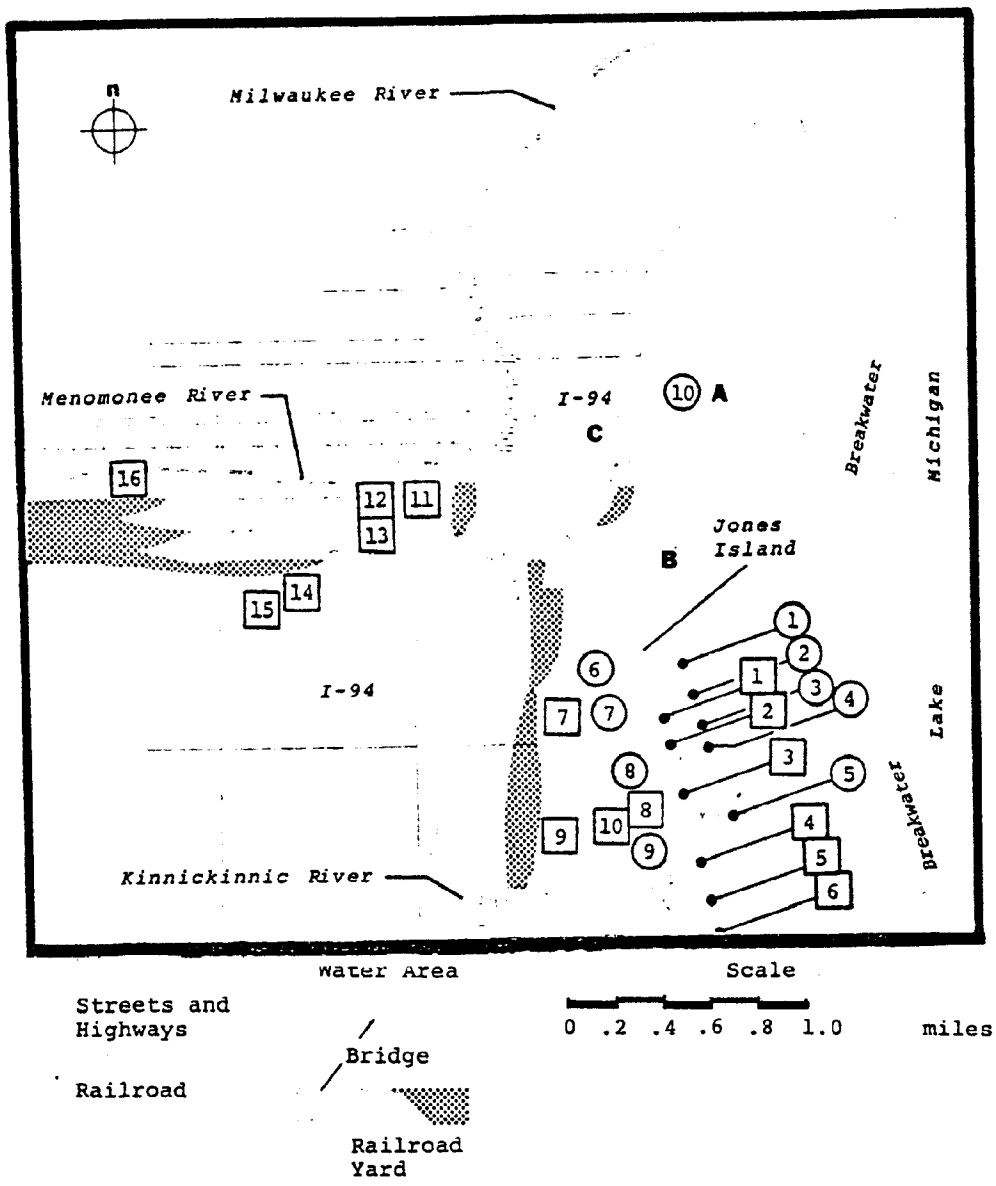


Fig. 7.3 PORT OF MILWAUKEE. Port-owned facilities ○ : (1) general cargo terminal #1; (2) general cargo terminal #2; (3) general cargo terminal #3; (4) general cargo terminal #4; (5) liquid cargo pier (6) car ferry slip; (7) heavy lift dock; (8) bulk cargo dock; (9) municipal mooring basin; (10) municipal passenger pier

Privately-owned facilities □: (1) American Oil Co.; (2) Mobil Oil Corp.; (3) Shell Oil Co.; (4) Texaco; (5) Wisconsin Petroleum Terminals; (6) Phillips Petroleum; (7) Atlantic Richfield Co.; (8) International Salt Co.; (9) Milwaukee Solvay Coke Co.; (10) Continental Grain Co.; (11) Morton Salt Co.; (12) Universal Atlas Cement; (13) Marquette Cement; (14) Huron Cement; (15) Penn Dixie Cement; (16) Great Lakes Coal and Dock Co.

Issue areas: A. unused passenger terminal; B. vacant 20-acre landfill; C. uncompleted freeway; D. Fishermen's Park

Source: Milwaukee Harbor, Wisconsin, Chart No. 743, National Ocean Survey, 1972.

3. Municipal heavy lift facilities: Milwaukee has a reputation as the pioneer heavy-lift port on the Great Lakes. The largest crane on the U.S. side of the Great Lakes was put into service in 1960; it can lift up to 200 tons. The city's 1,860-foot heavy-lift dock handles heavy bulk commodities such as steel, pig iron, scrap metal, and heavy machinery.

4. Continental Grain Company elevators: These privately owned grain elevators have a storage capacity of 3.5 million bushels.

Location and physical characteristics. Located on the west shore of Lake Michigan, the Port of Milwaukee is one of the few ports on the Great Lakes open to navigation throughout the year. Although there is Lake Michigan traffic, there is no interlake traffic from about mid-December to mid-April because of ice conditions at the Straits of Mackinac. The port lies wholly within Milwaukee city limits and consists of two main groups of facilities:

1. An outer commercial harbor protected by a breakwater--known as Jones Island--is the municipal port area administered by the port's Board of Commissioners.

2. An inner commercial harbor is located on the three rivers which flow through the city; the confluence of the Milwaukee, Menominee and Kinnickinnic Rivers with Lake Michigan occurs at the entrance to the inner harbor. This is an industrial and coal-receiving area, with many rail and track junctions.

The direct approach to the outer piers is one of the main assets of the Port of Milwaukee and the Corps of Engineers has deepened the port's channels to full Seaway draft of 28 feet.

Port administration. A hearing conducted by the Great Lakes Port Committee and subsequent study of port laws led, in 1958, to the basic statutory authority governing water ports in Wisconsin. The statutes give local governments the authority to create a Board of Harbor Commissioners and generally outline the board's powers to develop, operate, and maintain a port. The statutes also emphasize the state philosophy of local control and foster a competitive atmosphere among commercial ports.

The Board of Harbor Commissioners of the City of Milwaukee is composed of five members, appointed by the mayor for three-year terms, subject to confirmation by the City Common Council. Board membership is honorary and carries no compensation, although there are salaried civil service staff to execute policies and programs. The board can retain necessary administrative and engineering personnel, but its annual budget--both for operational purposes and for construction--is controlled by the common council.

Under the Wisconsin statutes, the board is authorized to plan, construct, operate and maintain docks, wharves, warehouses, piers, and other port facilities for the needs of commerce and shipping, including cranes and equipment necessary for the efficient handling of freight between land and water carriers. It is authorized to plan improvements of all waterways within the city, and to plan, construct and operate airports contiguous to the waterfront. Plans and projects for harbor improvement and industrial leases all must be approved by the council, but the board has exclusive authority over the day-to-day commercial operations of the public port.

The board also serves as the promotional agency for development of the commerce of the port, and has been successful in attracting industrial development. It advises the mayor and council with respect to transportation developments and serves as a legislative watchdog to guard against legislation--whether state or national--adverse to the economic and transportation interests of Milwaukee's waterfront.

Major planning and capital expansion programs. Because of the decline of the port, there are no major expansion plans at present; moreover, the City of Milwaukee has not indicated any interest in port expansion projects. Land for future port development is close to downtown and would conflict with expansion of the central business district.

Issues of current importance. Deteriorated dock facilities in the inner harbor and internal waterways require major redevelopment investment. The city is proposing a major redevelopment in the waterway area which will phase out obsolete port facilities in favor of barge traffic and land transportation links. However, urban renewal funds cannot be used for redevelopment because the city already owns the land. Another potential problem is that overlapping leases and lessee-owned improvements effectively preclude major aggregations of land parcels for redevelopment.

Significant acreage of filled land, both north and south of the harbor area, remains vacant. Interim uses of these holdings include a Summerfest (fairground structures utilized for only two weeks per year), parking for a car convoy company, and a salt packaging plant. Other uses were discussed, but they were subsequently abandoned because the other leasehold arrangements considered by the city were unacceptable to private industry.

The port asserts that its vacant land should be reserved for commercial water-dependent activities and port use, not for recreational boating facilities. The county parks system services recreational needs at sites both north and south of the port's holdings.

Air and water quality standards are also issues within the port area. In the valley and the harbor, air quality is degraded and in the outer harbor inadequate sewage facilities preclude significant new connections to the sewer line.

Wisconsin's coastal management program

Overview and implementing authority. Coastal management program development activities are currently being conducted by the Office of State Planning and Energy. Through

June 1976, program development funding totalled $1,197,315. The state planning office is coordinating studies of potential policies, procedures and implementing authorities to improve and enhance coastal management capabilities, and to suggest specific actions to bring state and local efforts into line with requirements of the federal Coastal Zone Management Act. A comprehensive coastal management program proposal was issued in March 1977, and is being reviewed.

The coastal management program will rely on programs of the State Departments of Natural Resources, Transportation, Local Affairs and Development, Business Development, and the Public Service Commission. A state-level Coastal Management Council is proposed to oversee the programs. Although the coastal council would assume none of the responsibilities of existing state agencies, it would coordinate the programs and provide funds to each to improve management capabilities.

At the regional level, the proposed coastal program would fund the efforts of the three regional planning commissions to support public participation, technical assistance, and governmental coordination related to coastal issues.

Local planning and management at the city, county, and special district levels will continue as it is currently done. The state will intervene only when local governments request technical and financial assistance to resolve a coastal problem. When the state is already involved--as in shoreland and flood plain management--the coastal program would work to improve state standards and help the local governments to meet them.

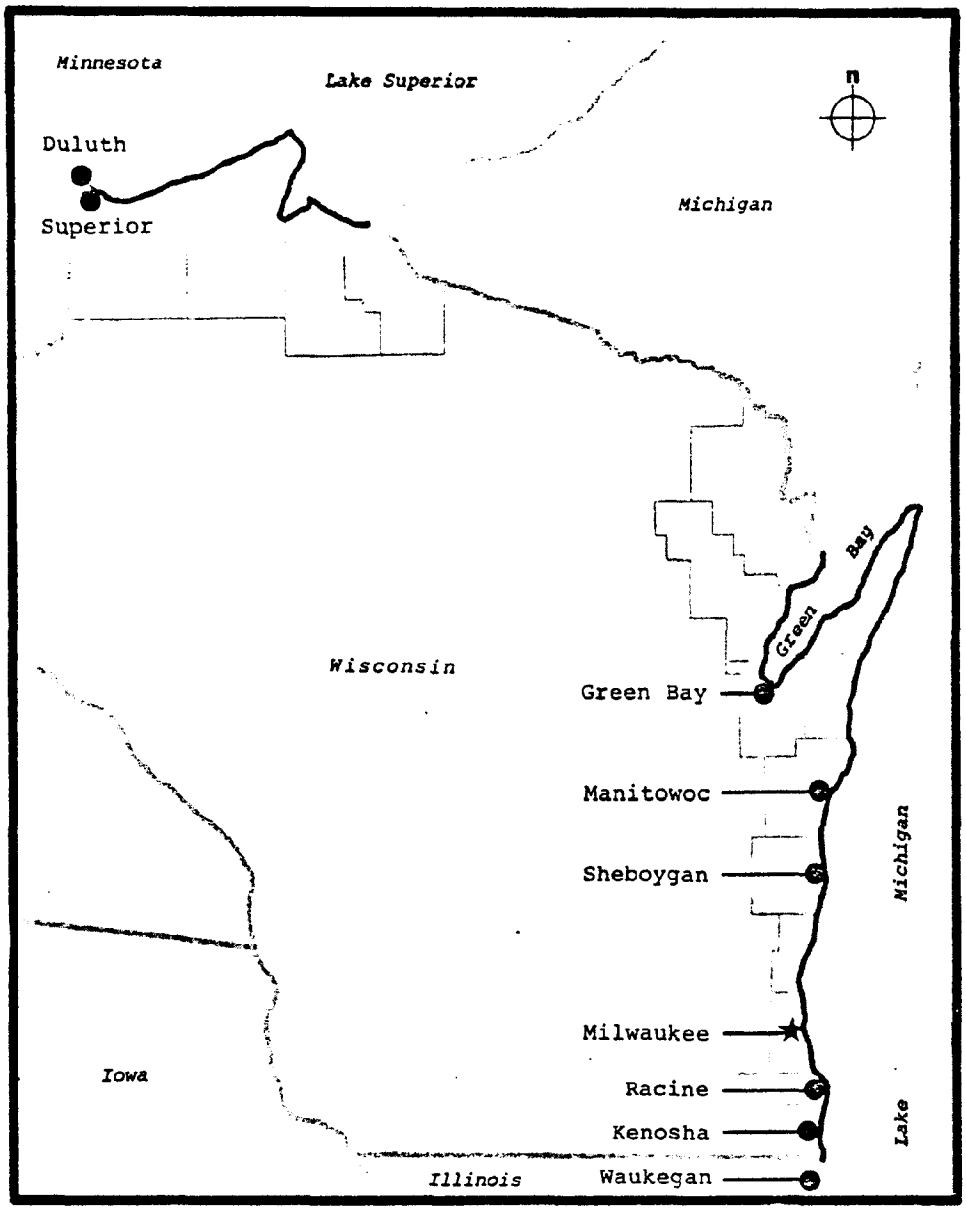
Land and water use. Sources of input for establishing permissible and priority uses of Wisconsin shorelines come from local responses solicited by the regional planning

commissions, policy papers prepared by the state, and a group of university faculty. Priority issues identified by the state include air and water quality, shore erosion, protection of natural areas, public recreational access, port development, lake level regulation, Great Lakes fisheries, urban shore uses, economic development, power plant siting, and shoreland blight. The objectives of the Wisconsin program are-

1. to advocate the wise and balanced use of the unique coastal environment,
2. to increase public awareness and participation in coastal resource decisions,
3. to coordinate existing coastal governmental policies and activities,
4. to improve the implementation and enforcement of existing programs and policies,
5. to strengthen local government management capabilities.

Coastal zone boundaries. The proposed jurisdiction for the coastal program includes the state waters of Michigan, Lake Superior, Green Bay and the total land area of the fifteen coastal counties (Figure 7.4). Within this broad area, specific areas will be identified for special management. The boundary would incorporate the 300-foot and 1,000-foot limits of the present Wisconsin Shorelands Act within the fifteen coastal counties.

Geographic areas of particular concern. In the proposed Wisconsin program, geographic areas of particular concern (GAPC) delineate areas of significant scientific, natural, recreational or historical value, areas especially suitable for water-related economic benefit, hazard areas, approved power plant sites, and areas requiring preservation or restoration. Designations will last between one and three years. At the end of the designated period these areas will be reassessed.



Water Area
State Line
Coastal County Line
Case Study Port
Other Port

Scale

0 10 20 30 40 50 miles

300 foot Shorelands Management Act boundary along the Great Lakes. Note that the Act applies along other shores of lakes and streams.

Fig. 7.4 STATE OF WISCONSIN

Before an area can be designated, geographic boundaries must be determined, management policies delineated, and implementation of policies authorized. Local governments, state agencies, interest groups, or private citizens can nominate an area to be a GAPC.

Public and governmental involvement. The proposed program was developed by the Coastal Zone Coordinating and Advisory Council. Council members represent state agencies, regional planning commissions, local governments, tribal governments, the University of Wisconsin, and public interest groups. Public viewpoints are expressed to the council through the Citizens' Advisory Committee, composed of citizens and public interest groups. Three regional planning commissions, which have jurisdiction on the Great Lakes, also participate in the coastal program. Each of these commissions is advised by a technical and a citizen advisory committee. Eleven public hearings were held in Wisconsin between May 10, 1977 and June 2, 1977 to solicit comments on the proposed management program.

The proposed program would establish an independently staffed, 27-member Citizens' Advisory Committee concerned primarily with monitoring the initial implementation of the program and with public education and participation.

State and local organizational arrangements. The plan submitted by the Coastal Zone Coordinating and Advisory Council calls for a strengthened state-local partnership and a state-level Coastal Management Council to make policy decisions and administer the program. The 29-member council would be composed of state legislators, local officials, citizens, tribal governments, and state agency representatives.

State-federal interaction and national interest. Wisconsin has a list of required contacts provided by the federal Office of Coastal Zone Management.

These sets of contacts, in conjunction with the Great Lakes Basin Commission, provide the vehicles for communication, coordination, and substantive input between the Wisconsin program and appropriate federal agencies.

The state has asked federal agencies that own land in the coastal area to identify their land holdings and the management plans for those lands.

Existing review procedures, corresponding state permits, coastal management certificates of consistency and memoranda of understanding will be used to ensure compatibility between the state coastal program and federal programs and activities.

DELAWARE RIVER AND BAY REGION

There are three ports in the Delaware River and Bay region--Philadelphia, South Jersey (at Camden, across the river from Philadelphia) and Wilmington, Delaware. This region was chosen for study primarily because it represents a multiport and multistate region connected by a common water body. It provided an opportunity to analyze regional coordination and interaction on coastal land and water issues. Only the ports of Philadephia and South Jersey were studied because it was believed that coordination and interaction problems of these two major ports would sufficiently illustrate regional problems.

There is only minimal coordination and interaction between the ports and the states on coastal land and water use issues, and no serious attempts at a regional approach. For this reason, two regional agencies--the Delaware River Basin Commission and the Delaware River Port Authority are only briefly discussed in this section. New Jersey and Pennsylvania ports and coastal management programs are presented in the following sections.

The Delaware River Basin Commission (DRBC), established by an interstate compact, involves Pennsylvania, New Jersey, Delaware, and New York. The commission works closely with federal and state agencies on many aspects of water resource and related land use management; it controls water flow in the Delaware River, and reviews shoreland uses which may affect water quality. However, the DRBC has only monitored the development of state coastal management programs in the region. It has not been actively involved, although it has produced water resource information and studies and made them available to coastal planners.

The Delaware River Port Authority (DRPA) was established as an intrastate compact between Pennsylvania and New Jersey primarily to build and operate bridges across the Delaware River and to develop a mass transit system between Philadelphia and New Jersey communities. The DRPA did attempt to own and operate port facilities in the past, but these efforts were frustrated by interests within each of the states. Its current port-related function is to assist individual port authorities promote the Delaware region in world trade circles.

The DRPA has been involved in coastal management program development three ways. First, it has participated in the development of the Pennsylvania coastal management program by actively participating on the Coastal Steering Committee. Second, it has monitored New Jersey's coastal management efforts and has initiated contacts and forwarded proposals to coastal management program officials in that state. Third, it has conducted special studies of the region's potential to accommodate onshore service facilities for outer continental shelf oil and gas development. It has advocated use of existing or new facilities in the region for that purpose.

The Delaware River Basin Commission and Delaware River Port Authority have played only minor roles in port development and coastal management programs in Pennsylvania

and New Jersey. Instead, these activities have been primarily carried out by individual ports and the states and their regional and local entities.

SOUTH JERSEY PORT CORPORATION/NEW JERSEY COASTAL MANAGEMENT PROGRAM

Summary

The South Jersey Port Corporation is a recently formed regional port authority of the State of New Jersey. Port facilities are located in Camden, across the Delaware River from Philadelphia (Figure 7.5). The major commodities shipped through the port's facilities are plywood and fresh fruit. Recent port authority operations have yielded a positive return on investments. Because of an extremely depressed local economy, the City of Camden is working with the port to obtain public works funding to improve port facilities. Only one new development, the extensic of a container terminal wharf, is presently planned.

Coastal planning in rural and recreation-oriented counties along the Atlantic Ocean is fairly well advanced because these areas are included in the jurisdiction of the state's Coastal Area Facility Review Act (CAFRA). It sets forth a timetable for developing policies and plans to control coastal development, and will constitute the heart of New Jersey's coastal management program. Since urban areas are not included under CAFRA's jurisdiction, the coastal management program is considering ways to expand CAFRA's scope or rely on other state authorities to control uses in urbanized areas.

Only recently, in the third year of coastal program development, have urban areas and their shoreline problems been addressed. Explicit port policies may emerge when an economic analysis of port development being conducted by the State Department

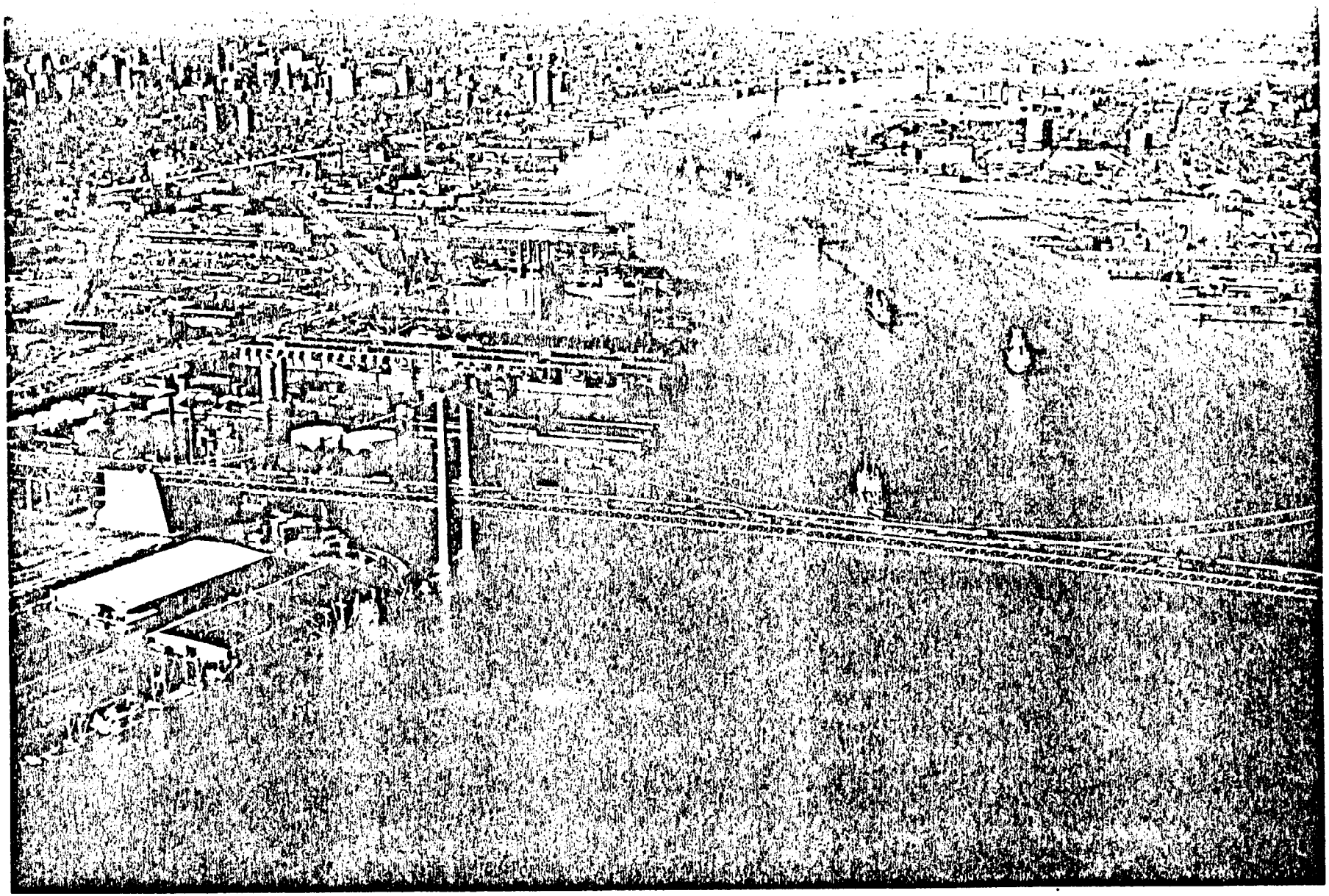


Fig. 7.5. Aerial photo of port facilities along the Delaware River, looking north from the Walt Whitman Bridge. Right: Facilities of the South Jersey Port Corporation at Camden, New Jersey. Left: Facilities of the Philadelphia Port Corporation and private industry line the Pennsylvania side of the river. (Photo by Carlton Read, courtesy of the Delaware River Port Authority)

of Labor and Industry is completed. There two proposed alternative strategies for implementing CAFRA that relate to port development:

1. Water access would be assured for water-dependent uses.
2. Industrial development would be preferred to other uses (such as residential or recreational uses) in the urbanized areas of North Jersey and the Delaware River.

As of early 1977, the coastal management program has had no contact with the South Jersey Port Corporation, but it has had limited contact with the Delaware River Port Authority concerning offshore oil development issues.

South Jersey Port Corporation, Camden, New Jersey

Cargo characteristics. In 1975, the South Jersey Port Corporation handled 1,136,464 tons of cargo (Figure 7.6), an increase of 13% over 1974. Cargo includes such diverse items as fresh fruit, plywood, coil steel, bone, zinc, sponge iron, cocoa, mushrooms, and a variety of metals. However, lumber shipments declined in 1975, because of reduced residential construction.

Port facilities. The port has ten berths; seven of these are located at Broadway Terminal, which has about 250,000 square feet of covered cargo storage, and 25 acres of open storage area. At the Beckett Street Terminal there are three ship berths, 123,000 square feet of covered cargo storage, and 30 acres of open storage area (Figure 7.7).

Location and physical characteristics. The port is located in Camden on the Delaware River, 125 miles from the ocean— an average voyage of about eight hours (Figure 7.8). The port's 279 acres account for all public port development on the eastern bank of

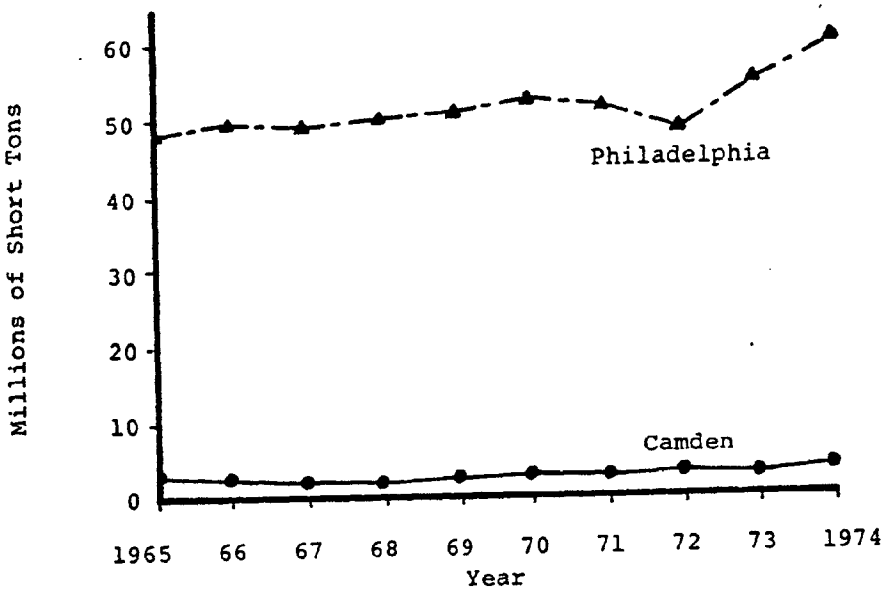


Fig. 7.6. Philadelphia Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, Vol. I, p. 7.15a. 1974.

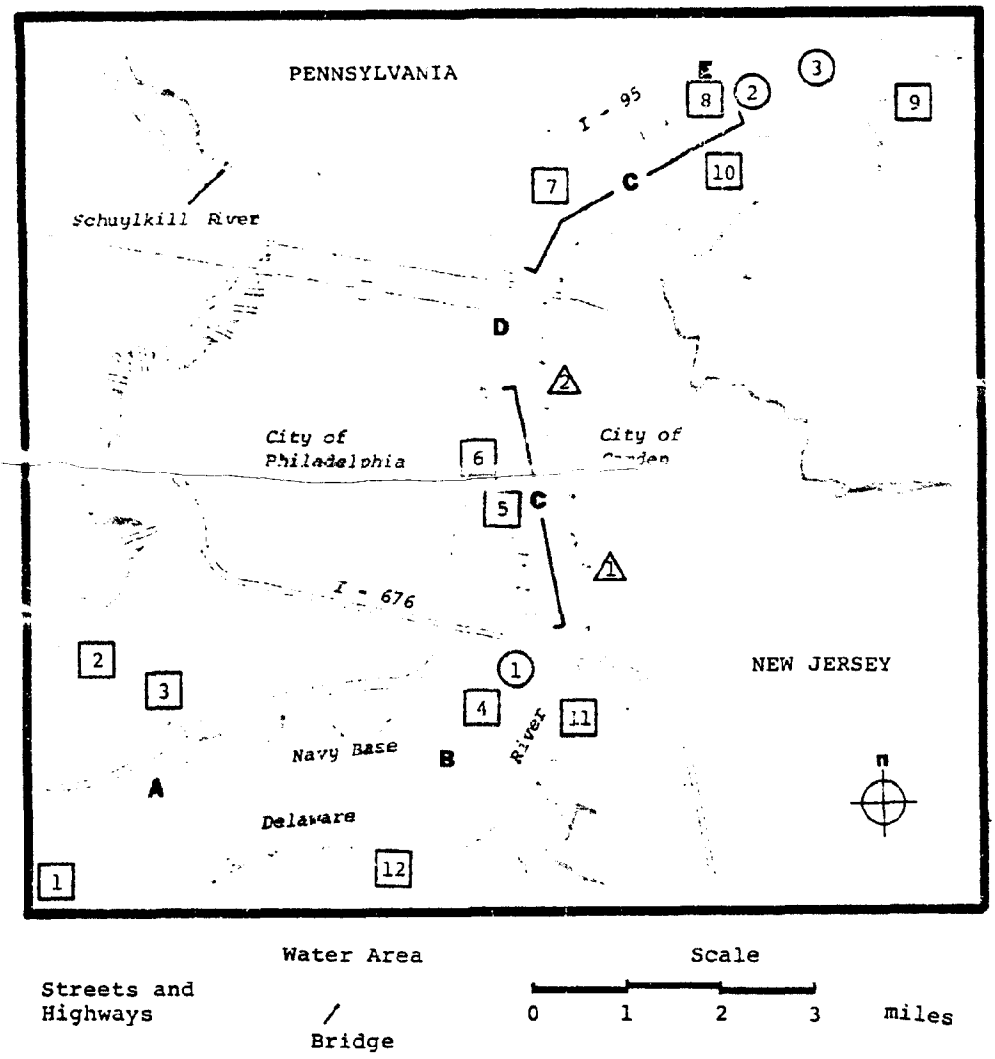


Fig. 7.7 PHILADELPHIA PORT CORPORATION AND SOUTH JERSEY PORT CORPORATION FACILITIES. Philadelphia Port Corporation facilities (operated by private lessees) ○ : (1) Packer Avenue Marine Terminal; (2) Tioga II Terminal; (3) Tioga Marine Terminal

South Jersey Port Corporation facilities △: (1) Broadway Terminal; (2) Beckett Street Terminal. Privately-owned facilities □ : (1) Atlantic Richfield Co., oil; (2) Gulf Oil; (3) Girard Point Terminal; (4) Greenwich Point, coal and ore piers; (5) Kerr-McGee Chemical; (6) Amstar Sugar; (7) National Sugar; (8) Port Richmond Terminals; (9) Hess Oil; (10) Cities Service, oil; (11) Phillips Petroleum; (12) Texaco

Issue areas: A. regional dredged material disposal site; B. waterfront housing on Philadelphia navy base; C. obsolete and underutilized finger piers; D. Penns Landing development (waterfront urban renewal); E. Port Richmond (obsolete railroad terminal)

Source: *Ports of Philadelphia.* Delaware River Port Authority publication.

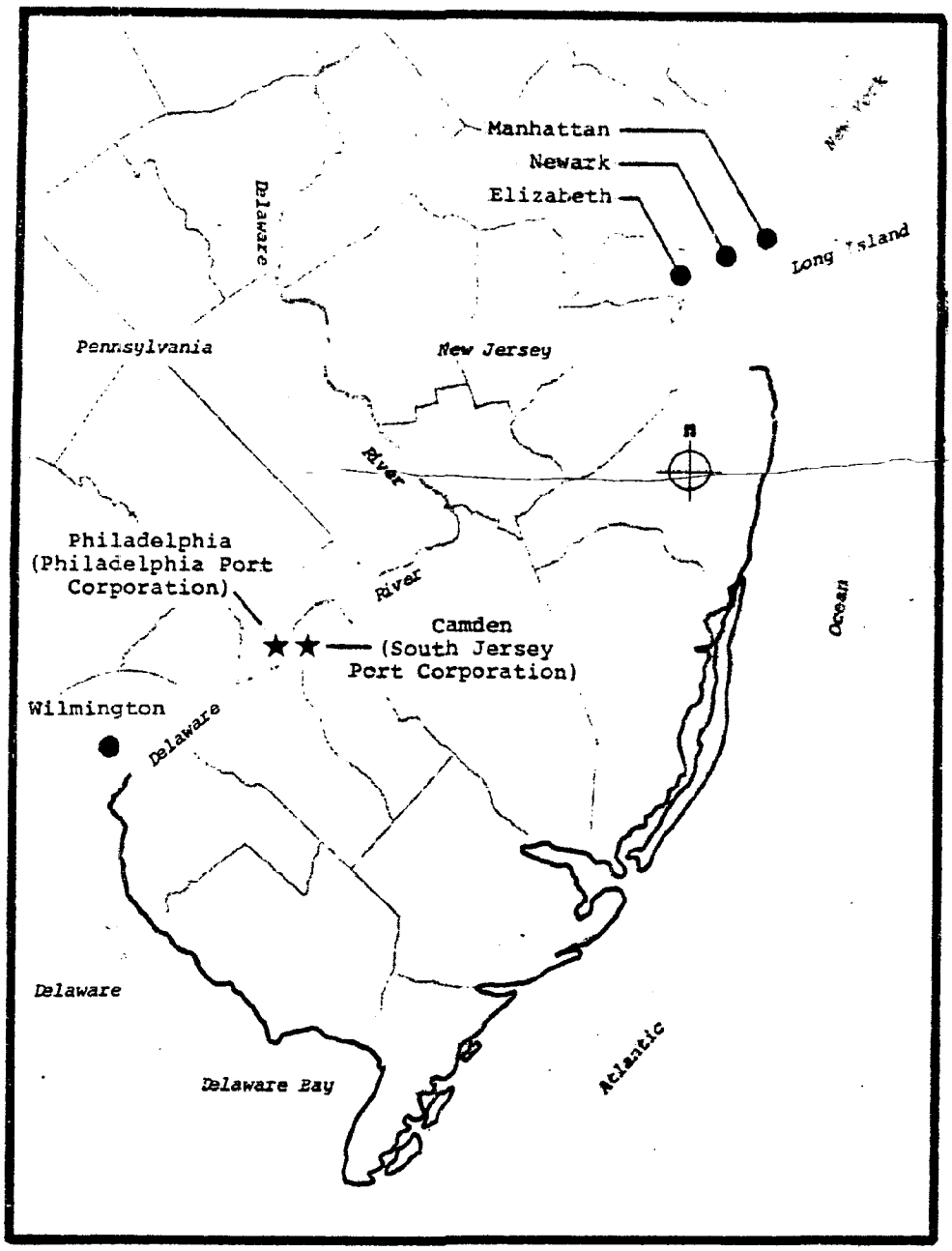


Fig. 7.8 PENNSYLVANIA AND NEW JERSEY COASTAL AREAS

the Delaware River below Trenton, N.J. The channel is sheltered from the effects of wind and sea conditions, and depth alongside docks ranges from 30 to 35 feet.

Port administration. The South Jersey Port Corporation, created in 1968, is authorized to establish, acquire, construct, rehabilitate, improve, operate, and maintain marine terminals in the seven countries within its jurisdiction. In addition, the corporation may enter into lease agreements, issue bonds, and exercise the right of eminent domain.

The corporation reports directly to the Governor and state legislature; for administrative purposes it is under the State Department of Conservation and Economic Development. Seven corporation directors, appointed by the Governor with the consent of the Senate, represent different geographic areas. Three counties--Cape May, Cumberland, and Salem--are represented by one member; Camden and Gloucester Counties have three members, two of which must represent Camden; Burlington and Mercer Counties have three members, each county having at least one representative.

Major Planning and Capital Expansion Programs. Seventeen acres adjacent to Beckett Street Terminal were acquired by the port in 1975, and a 740-foot wharf extension is planned for this site to increase the terminal's capacity. Channel deepening adjacent to the wharf is planned as well.

New Jersey Coastal Management Program

Overview and implementing authority. The coastal management program is housed in the state Department of Environmental Protection (DEP), which has spent $1,624,125 on its development as of June 1976. The DEP also administers the Coastal Area Facilities

Review Act (CAFRA), wetlands, and riparian status for the state. The combined jurisdiction of these various marine and shoreline related programs may well constitute sufficient state authority to implement the coastal management strategy and program. The state is currently preparing case studies to analyze the extent of its authority to manage designated land and water uses in the coastal area. These studies cover waterfront redevelopment on the Hudson, liquefied natural gas facilities on the Delaware, dredge spoil disposal, major housing construction and a chemicals port and tank farm in Jersey City.

Land and water uses. *Interim Land Use and Density Guidelines for the Coastal Area,* prepared by DEP (1976), provides interim policy guidance for administering CAFRA. Precedents established in administering CAFRA and the policies in the state's wetlands and riparian statutes are additional sources for identifying permissible and priority uses of the New Jersey coastal area. Further definition of statewide coastal land and water use policies are reflected in policy alternative papers, *Alternatives for the Coast,* compiled by DEP (1976), and in the environmental inventory mandated by CAFRA.

Uses considered priority issues by the state coastal program include large-scale residential and commercial development, high quality and readily accessible recreation areas, energy-related development, power plants, and waste disposal. Wetland and shellfishery preservation, beach erosion, and navigation channels are also priority issues.

Coastal zone boundaries. The state coastal management office is considering a multitiered approach to delineating the coastal boundary. Currently, all counties with shorelines and river banks subject to tidal influence are in the planning boundary, but the state plans to establish a more specific regulatory boundary, to

complement the broader planning boundary. The regulatory boundary would consist of the coastal water areas, the legislatively and judicially defined inland boundaries of CAFRA, and the inland boundaries of the riparian and wetland laws for those areas outside CAFRA's jurisdiction.

A second and more inclusive boundary alternative would be to define the area by a system of roads and rights-of-way, which extend inland from the jurisdictional limit of the riparian and wetlands laws. This boundary would be determined by criteria used by DEP to delineate the initial CAFRA boundary. The inland boundary could range from several thousand feet to a number of miles from coastal waters.

The state's third alternative would be to consider the entire geologic coastal plain--a very large region in the southeast portion of the state--as part of the coastal zone. This, however, would be a difficult alternative to justify and administer.

Geographic areas of particular concern. The state uses environmental and socio-economic factors to identify geographic areas of particular concern (GAPCs). The interim land use and density guidelines categorize 25 land and water features of the CAFRA area into preservation, conservation, and development areas. Some policy alternative papers also identify certain important geographic areas, such as aquifer recharge areas, historic districts, dunes, and depressed urban areas. Designating depressed urban areas as GAPCs could imply an active economic development program. A GAPC could also be the area around a nuclear power plant, which would indicate that low-density development would be advisable.

Public and governmental involvement. The Department of Environmental Protection (DEP) uses various methods of encouraging public and governmental involvement--largely

associated with the implementation of CAFRA. Proposed CAFRA procedural rules were widely circulated in May 1975 and March 1976. The state held two public meetings in 1975 to introduce the coastal management program, and public hearings are required during the CAFRA permit process. Since 1975, smaller meetings have been held with builders, county planning directors, environmental leaders and state agencies to seek other opinions about land use and density guidelines. Additional opportunity for involvement is possible for site-specific decisions.

State and local organization arrangements. The Office of Coastal Management, (under DEP's Division of Marine Resources) will likely remain responsible for the coastal program. They will have a coastal planning group and a coastal information system for the program. The organizational requirements of alternative levels of decision-making, with some delegation of state authority to local agencies, is being studied.

State-federal interaction and national interests. Various federal agencies are given the opportunity to comment on draft CAFRA regulations in informal meetings, and are included in public agency advisory conferences. Federal agencies have been asked about their interests in coastal areas and opinions on outer continental shelf-related development in the CAFRA area. Affected and interested federal agencies are notified of coastal permit applications.

PHILADEPHIA PORT CORPORATION/PENNSYLVANIA COASTAL MANAGEMENT PROGRAM

Summary

The Philadelphia Port Corporation was formed through the cooperative efforts of the City of Philadelphia, the Commonwealth of Pennsylvania, and the Chamber of Commerce of Greater Philadelphia. City officials play an active role in the

port corporation, which manages city-owned port facilities.

Port facilities are located on the Delaware River within the Philadelphia city limits, 125 miles inland from the Atlantic Ocean (Figure 7.5--included with the South Jersey Case Study). Although the distance from the ocean is considerable, the area is subject to tidal influence and is included in the planning area of the Pennsylvania coastal management program.

Petroleum and petroleum products--the major cargos, by tonnage, in the region--pass through many oil refineries' private docks. New public port growth is being spurred by container traffic; but although finger piers have been renovated for container traffic, there are still many piers unsuitable for container shipping that are currently underutilized. The city is studying the potential for a new major container facility. Another problem is the need for new dredge spoil disposal sites.

Pennsylvania divides its coastal management efforts between the Lake Erie coast and the Delaware River shoreline. This case study examines only the Delaware River shoreline. Its proposed coastal boundary extends upstream to a point north of Philadelphia, offshore to the middle of the Delaware River, and inland using census tracts to a maximum of three miles in rural areas and a minimum of one-half mile in urban areas.

Pennsylvania Department of Environmental Resources' Division of Outdoor Recreation is primarily responsible for the coastal management program. Research and planning for the Delaware River segment has been subcontracted to the Delaware Valley Regional Planning Commission, whose staff has expertise in urban coastal zone problems. The mechanisms for implementing a coastal management program are undecided

at this point, although the chief of the Division of Outdoor Recreation has indicated that new statutory authorities will probably not be necessary.

Draft policies for managing the Delaware River shoreline have been proposed. They were developed with input from the Delaware River Port Authority, a nonvoting member of the Pennsylvania Coastal Management Steering Committee, but the Philadelphia Port Corporation has not been directly involved. Nevertheless, there is informal information exchange between the port and coastal planning staff through the Philadelphia Planning Department.

The draft policies acknowledge the necessity of port expansion. Specifically, they support research and planning, encourage improvement of services, and note the need to rectify deficiencies in port infrastructures. They also reflect the need to revitalize obsolete finger piers. Locating dredge spoil disposal sites is addressed, but there are no criteria for establishing these sites.

Philadelphia Port Corporation

Cargo characteristics. Between 1965 and 1975, Philadelphia's international waterborne commerce increased by 23 million tons, to a total of 77 million tons. In the same decade, the port's domestic cargo increased more than 50 million tons. New container facilities are largely responsible for Philadelphia's resurgence. Containers handled by Philadelphia facilities totalled 86,148 20-foot equivalents in 1975; in 1970 they handled fewer than 14,000.

The port's share of the international commerce market rose two percent between 1974 and 1975, while the New York port share decreased by three percent, Baltimore remained unchanged, and Hampton Roads increased by one percent. In 1972, more than

72 percent of the import cargo, measured by bulk tonnage, represented crude oil and petroleum products bound for the region's refineries (Figure 7.6, South Jersey case study).

Port facilities. Figure 7.7 (in the South Jersey case study) shows the location of Philadelphia's port facilities. Since the formation of the Philadelphia Port Corporation in 1965, Tioga Marine Terminal has been built to handle a variety of general cargo, including unitized bulk, RORO ("roll on, roll off") containers, and breakbulk cargo. This terminal has five marginal berths and two slip berths (one for ROROs and one for barges).

Packer Avenue Terminal has been modernized and now has container and RORO facilities. Here there are five marginal berths and one slip with RORO facilities.

The remaining port terminals are conventional ones. Those advertised by the Delaware River Port Authority are the Tioga II at Pier 179N, which handles general cargo, lumber, steel products, chemicals and petroleum products; Pier 96, which handles general cargo, including steel and automobiles; Northern Terminal, which handles general cargo, containers, and unitized cargo, including RORO; four central waterfront piers south of Penn's Landing and two north of Penn's Landing; Greenwich Point Ore and Coal Piers; and Port Richmond Terminal Complex owned by the Reading Co.

Location and physical characteristics. The Port of Philadelphia is located in the geographic and marketing center of the North Atlantic Seaboard and competes with the aggressive and modern ports of New York/New Jersey and Baltimore (Figure 7.8, South Jersey case study). The main channel is constantly dredged to 40 feet up to Newbold Island, Bucks County; five deepwater areas are provided for the anchorage of four to five ships in the river.

Port administration. The Philadelphia Port Corporation was formed March 8, 1965, by the City of Philadelphia, the Commonwealth of Pennsylvania, and the Chamber of Commerce of Greater Philadelphia. An interesting proviso in its mandate calls for transferral of the corporation to the Delaware River Port Authority when and if it and Philadelphia's mayor and council, the governor, and the president of the Chamber of Commerce, believe that it is capable of assuming the corporation's functions and responsibilities.

The port corporation's mandate is to promote waterborne commerce; to acquire, maintain, and modernize existing facilities; and to design, construct, maintain, and modernize new facilities. Although the port manages the leasing of facilities, the lessees operate them. Longer-term planning is done by the city's planning department and commerce department. All public facilities are owned by the city, not the port corporation.

There is a 33-member Board of Directors who meet quarterly:

1. Nine city directors (department and committee heads)
2. Nine Chamber of Commerce members
3. Two representatives of the Commonwealth of Pennsylvania
4. Two Delaware River Port Authority representatives
5. Eleven public directors (business and financial leaders)

An executive committee of 13 meets more frequently and manages most of the port's affairs

Major planning and capital expansion programs. The city's Department of Commerce recently let a contract for a port facilities study, which is to be a cooperative effort among concerned groups. The call for proposals to do the study required a regional perspective for the analysis but required that Philadelphia be the site for any recommended port development.

Issues of current importance. Dredge spoil disposal sites are needed, but suitable sites are hard to find along the river because of intensive development. Container cargoes require modernized facilities and new facilities may be needed. Finger piers have become obsolete because of container cargo, and new uses are needed for them.

Pennsylvania Coastal Management Program (Delaware River segment)

Overview and implementing authority. The overall state coastal management program is in the Department of Environmental Resources, but the Delaware River segment is being developed by the Delaware Valley Regional Planning Commission under contract with the state. As of June 1976, total funding for coastal management activities in Pennsylvania was $1,000,500.

The roles of local and state agencies in the implementation of the coastal zone program have not been clarified. Present authority consists of a combination of state and local powers. The Office for the Delaware River, Department of Transportation, establishes bulkhead and pierhead lines along the river outside first class cities. Philadelphia, a first class city, regulates bulkhead and pierhead lines within city limits. Interstate authorities, such as the Delaware River Basin Commission and the Delaware River Port Authority have additional powers.

Existing statutes, administrative regulations, judicial decisions, executive orders and interagency agreements are being studied to determine if a legal framework and organizational structure to implement coastal management policies can be fashioned without new legislation, which would meet the requirements of the federal Coastal Zone Management Act. The Department of Environmental Resources will likely be the lead agency to implement the coastal management program. A strong local role is expected because of an historic home-rule preference in Pennsylvania government.

Land and water uses. Several multiple-use issues have been identified along the Delaware River. Many issues arise because the region is highly urbanized and industrialized. Issues of waste treatment, disposal of polluted dredge spoil, renewal of deteriorated waterfronts, and navigational conflicts have been given priority.

Draft policies address most of these issues, although standards and criteria for permissible uses and priorities have not yet been developed. Specific guidelines have been proposed for special interest recreational facilities and the siting of coastal-dependent uses.

Coastal zone boundaries. Offshore, the coastal zone boundary extends to the middle of the Delaware River. For planning purposes the upstream boundary extends to the extent of tidal influence--at the rapids near Morrisville, about 30 miles north of Philadephia. The inland boundary has not yet been adopted, but presently includes three or four census tracts near the Delaware River or tidal waters. In the more sparsely populated areas, it extends inland up to three miles; in the Philadelphia area, extends inland approximately one-half mile.

Geographic areas of particular concern. Both natural and development opportunity areas have been selected, presented at a series of public meetings, and finalized. Because this is an urban area, only a few sites are suitable for natural designations; these include Tinicum Marsh, Little Tinicum Island, Van Sciver Lake, and various creek inlets. Examples of development opportunity designations are the Philadelphia International Airport and Port Richmond, an 80-acre waterfront industrial site which is currently underutilized.

Public and governmental involvement. Local governments are involved through the coastal zone steering committee. Voting members of the committee are from the Delaware

County Planning Commission, Bucks County Planning Department, Philadelphia Planning Commission, and one representative from local government within Bucks County and Philadelphia County. Advisors to the committee are from the Delaware River Basin Commission, Delaware River Port Authority, Chamber of Commerce for Greater Philadelphia, Academy of Natural Science, Army Corps of Engineers, League of Women Voters (Philadelphia), and representatives from three coastal zone management advisory committees and Philadelphia Electric Company.

A coastal management newsletter, *Tidings*, is published quarterly and widely distributed.

State and local organizational arrangements. The State Department of Environmental Resources contracts program development activities with the Delaware Valley Regional Planning Commission. Since it is a contract, the work is done at a staff level without being reviewed by the commissioners, who represent local and regional political interests. More active local participation can be anticipated once an implementation scheme for the management program is proposed.

Coordination of relevant state agencies has been handled by the coastal management subcommittee of the state's Water Resources Coordinating Committee. Members are from the Departments of Commerce, Agriculture, Community Affairs, Environmental Resources, Planning and Development, and Transportation, the Fish and Game Commission, and Public Utility Commission.

State-federal interaction and national interests. Coordination with federal agencies occurs through the circulation of reports for review and comment. The Federal Regional Council has focused on intergovernmental aspects of coastal management, including methods for addressing regionwide implications of state coastal management programs.

The state is developing procedures to identify and assess federal interests in regional facility siting. Facilities of regional benefit that involve national interests are being defined, and procedures that will ensure that there are no unreasonable or arbitrary restrictions and exclusions placed on them are being studied

GEORGIA PORTS AUTHORITY/GEORGIA COASTAL MANAGEMENT PROGRAM

Summary

The Georgia Ports Authority is a state authority, whose major port facilities are located in Savannah 26 miles up the Savannah River from the Atlantic Ocean (Figure 7.9), within the planning boundary of the state's coastal management program. Because this port has undertaken extensive construction of container facilities in the past ten years, it is one of the major container ports on the South Atlantic coast. Although no major new developments are proposed at this time, acreage is already available for future development. The port owns 900 acres near the Garden City container terminal and can accommodate two additional container berths.

Georgia's coastal program is nearing final stages of development, although no coastal management policies have yet emerged. But important land and water use issues have been identified, background papers on each issue have been developed, and the various ecosystems along the Georgia coast have been analyzed. The Coastal Zone Advisory Council, appointed by the Governor, reviews and recommends coastal policies, procedures, and mechanisms. The lead agency for developing the program is the state's Office of Planning and Budget.

It has not yet been decided if new legislation will be enacted to regulate coastal uses or if existing legislation, such as the Marshlands Protection Act will be sufficient. A decision on this matter will help determine the inland coastal boundary, for regulatory purposes; for planning purposes the inland boundary includes Georgia's eight coastal counties.

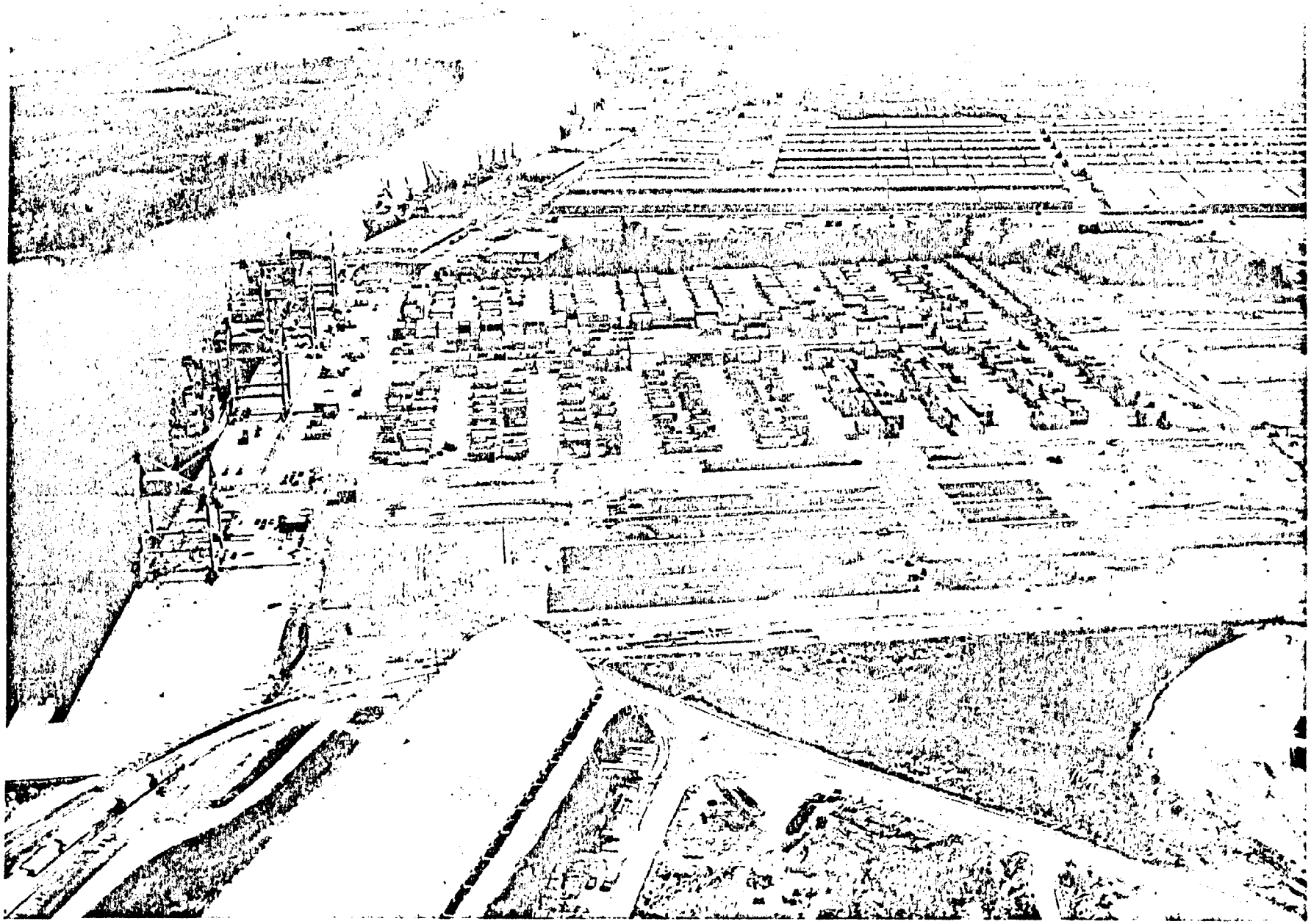


Fig. 7.9. Three major facilities of Georgia Ports Authority on the Savannah River, looking southeast down the river lower left: Part of the storage shed of the bulk-handling facility. Center: GPA Container Central. Upper center: Warehouses of the Garden City Terminal. (Photo courtesy of the Georgia Ports Authority)

The Georgia Ports Authority intends to play an active role in the development of coastal management policies. Its director is a member of the Coastal Zone Advisory Council, chairman of the council's subcommittee on ports and waterborne commerce, and a member of its subcommittee on industrial development. Because the port authority is a state authority, its director works on this council as an equal with other state agency heads.

Georgia Ports Authority, Savannah

Cargo characteristics. In 1976 the port at Savannah handled about 10 million tons of cargo (Figure 7.10). Petroleum and petroleum products are its principal commodities, however, the port also handles large tonnages of general cargo. Clay, pulp, and paperboard are the major general cargo import.

Port facilities. The Georgia Ports Authority has provided new facilities--such as its new $9 million bulk materials facility--at the port of Savannah to increase its traffic and improve its competitive position (Figure 7.11). One feature of this multi-product terminal is a huge storage warehouse which covers nearly five acres. Cargo received at the terminal can be stored in compartmented areas to be later reclaimed and shipped. Chemicals, natural ores, and other dry bulk cargos will be handled.

The port of Savannah has entered the container race on the South Atlantic coast with its new $4.5 million container terminal. It features a paved marshalling yard of 16 acres and an ultra-modern container crane.

Another important facility is a $1.1 million "Lighter Aboard Ship" (LASH) terminal, which has enabled Savannah to become the first South Atlantic coast port to begin LASH operations. The LASH vessels are large mother ships that can carry up to 83 barges, each measures approximately 62 feet by 31 feet, has a draft of 13 feet, and

Fig. 7.10. Savannah Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, Vol. 2, p. 7.28a. 1974.

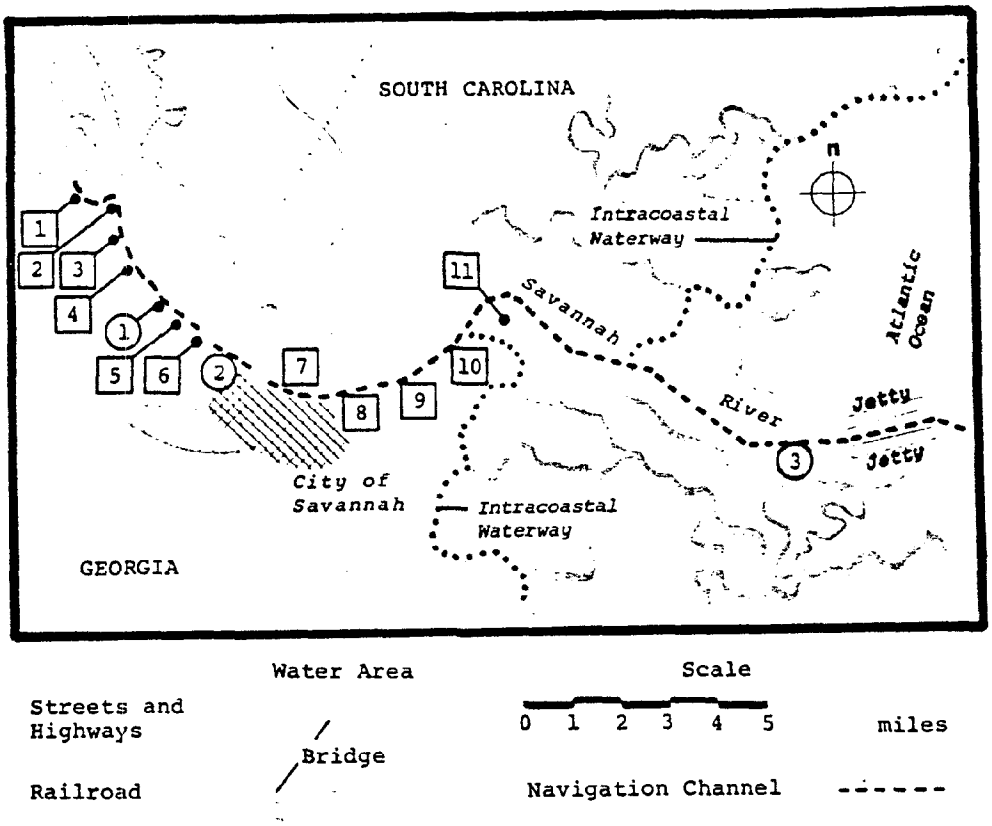


Fig. 7.11 PORT OF SAVANNAH. Georgia Ports Authority facilities ○ : (1) Garden City Terminal; (2) Ocean Terminal; (3) LASH Terminal

Privately-owned facilities □: (1) Continental Can Co.; (2) Atlantic Creosoting Co.; (3) Savannah Sugar Refining Company; (4) Chevron Asphalt Co.; (5) American Oil Co.; (6) Union-Camp Corp.; (7) Southeast Maritime Co., kaolin terminal; (8) Seaboard Coast Line, railroad terminal; (9) Flintkote Co.; (10) American Cyanimid Co.; (11) Liquified Natural Gas (LNG) transfer and storage facility

Source: Plate 1, Recommended Plan of Improvement, Savannah District, Corps of Engineers, October, 1974.

weighs 80 tons. Each barge has a capacity of 19,600 cubic feet and 370 tons.

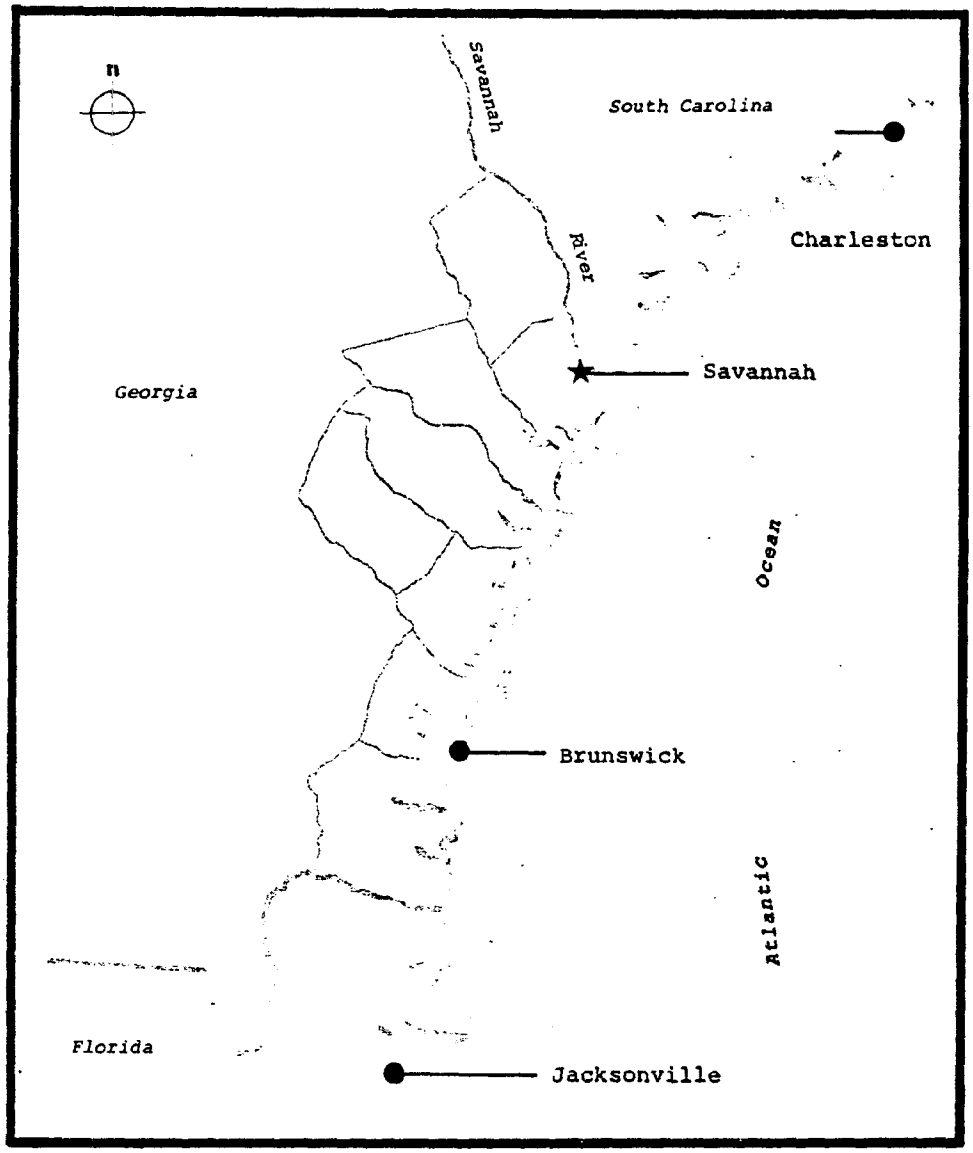
The Georgia Ports Authority at Savannah operates general cargo berths at its Ocean Terminal. These include liquid cargo berths, one container-general cargo berth, and two dry-bulk berths.

There are also private docking terminals in Savannah. The Seaboard Coast Line Railway currently operates four berths; three are shed berths and one is an open berth. The Georgia International Trading Corporation operates six general cargo berths. Additional docks and loading facilities are operated by private oil companies, and a new facility to handle bulk Kaolin is scheduled for construction by Southeastern Maritime Company.

The Georgia Ports Authority currently provides more than three million square feet of warehousing space at its two terminals. There is additional warehousing space at private terminals run by Seaboard Coast Line Railway and the Georgia International Trading Corporation.

Waterfront property is available for the expansion of port facilities in Savannah. Two hundred acre Ocean Terminal has limited space, but the Garden City Terminal has acquired approximately 900 acres for the port's future needs. The new container terminal and the new bulk-handling facility have enough open land between them to construct two additional container berths when the need arises.

Location and physical characteristics. The port of Savannah, 26 miles up the Savannah River, enjoys a geographic advantage in relation to other South Atlantic ports (Figure 7.12). It is well located in relation to industrial areas in north Georgia, Tennessee, and South Carolina, and the Savannah River Basin is an area of considerable industrial growth potential. The Savannah River provides inland waterway access into these areas.



Water Area
State Line
Coastal County Line
Case Study Port ★
Other Port ●

Scale
0 10 20 30 40 50 miles

Coastal counties shown comprise the Coastal Area Planning and Development Commission (CAPDC)

Fig. 7.12 GEORGIA COAST

Port administration. The Georgia Ports Authority is a public corporation with statewide jurisdiction. It is the exclusive public port authority in the state with the exception of the Brunswick Port Authority which operates in Glynn County, in the southern portion of the state. In the Brunswick area, both authorities have jurisdiction, though only the Brunswick Port Authority operates facilities in the region.

The Georgia Ports Authority may acquire, hold, and dispose of personal property but does not have the power to condemn land. State land can be conveyed to the port authority by other agencies of state government. The port can be financed by general obligation or revenue bonds.

The port authority maymake contracts for the lease and use of its facilities. Projects may include other facilities to aid commerce, including rail terminals, airports, seaplane bases, highways, and bridges. Moreover, they can contract with municipalities or counties to lease, operate, or manage property in or adjacent to any seaport.

Georgia Ports Authority has the authority to provide a wide range of industry-related facilities, such as those used "in the manufacturing, processing, assembling, storing or handling of any agricultural or manufactured produce or products or produce and products of mining or industry, if the use and operation thereof, in the judgement of the Authority, will result in the increased use of port facilities, the development of the system of State docks, or, in connection therewith, promote the agricultural, industrial and natural resources of the State." (Georgia Statutes, Chapter 98.2) These facilities must, however, be located on or near port property.

In 1966, Georgia Ports Authority membership increased from five to seven members. Although a clause was added in 1973 that the members should be appointed by the Governor from the state at large, in practice one director comes from each port

location and two from the state at large. Appointments are for four-year terms.

The Georgia Ports Authority has a close working relationship with the Savannah Port Authority (SPA). The SPA, founded in 1925, is a regional governmental entity distinct from the "Georgia Ports Authority at Savannah" despite the similarity in names. Although it has the authority to develop and operate facilities, it functions primarily as an industrial promotion authority, issuing revenue anticipation bonds to foster individual development, recommending harbor regulations to the city, and issuing wharf permits for developments between the shore and bulkhead line. The SPA also facilitates trade negotiations for the Georgia Ports Authority, promotes the port facilities, and lobbies at the national and local level for harbor improvements.

Major planning and capital expansion programs. Land acquisition for developments between 1986 and 1996 and a new bulk cargo terminal and associated canal dredging are currently being planned.

Georgia Coastal Management Program

Overview and implementing authority. Georgia's coastal management program is being developed by the state's Office of Planning and Budget. Funding through June 1976, totalled $944,895. Technical studies have been performed and an advisory council has met, but no formal proposal has been developed as yet.

Present marshlands management authority exists in the Coastal Marshlands Protection Act of 1970 which regulates dredging, draining, removal, or other alterations of coastal marshlands through a permit system administered by the Coastal Marshlands Protection Committee within the Department of Natural Resources. The type and extent of additional implementing authority needed for a coastal management program is still being addressed.

Two planning agencies, the Brunswick-Glynn County Joint Planning Commission (BGCJPC) and the Chatham County-Savannah Metropolitan Planning Commission (CCSMPC) and one coastwide regional planning agency, the Coastal Area Planning and Development Commission, have active planning programs. They address numerous coastal problems, including sand dune protection, flood plain zoning, marsh conservation, and storm drainage and protection.

Land and water uses. Permissible land and water uses have not been designated as yet. Background material has been prepared, however, on several coastal uses, on the value and vulnerability of key coastal resource ecosystems, and on ecosystem capability.

The coastal management program will address a number of concerns: the protection of fragile natural resources, comprehensive regional planning for coastal areas, inadequate water treatment facilities and saltwater intrusion in the aquifer, and a need for intergovernmental coordination and cooperation in decision making.

Coastal zone boundaries. For planning purposes, Georgia has established an inland boundary which includes the eight coastal counties. Six alternatives have been defined for the management boundary, based on natural characteristics such as topography, drainageways, and wetlands vegetation:

1. Coastal watershed--the area drained by the five major rivers running into the Atlantic Ocean
2. Geologic coastal Georgia--all lands and waters in the coastal watershed located between the coast and the 100-foot contour
3. Primary geologic division--all lands and waters in the coastal watershed located between the coast and the 50-foot contour
4. Coastal wetlands within the 50-foot contour--all waters and wetlands within the boundary of the primary geologic division
5. Tidal wetlands--all waters and wetlands influenced by tides
6. Tidal marsh--all waters and marshes

The final boundary determination--perhaps a combination of these alternatives--will be made when economic, political, and physical studies are completed.

Geographic areas of particular concern. Studies have identified the following types of areas as possible geographic areas of particular concern (GAPCs): unique physical features, important natural areas, developments dependent on coastal waters, conflict in use due to organization, areas of significant hazard if developed, coastal aquifers and watersheds, sand areas, and valuable natural habitats.

Public and governmental involvement. Georgia has both a technical committee and an advisory council to achieve formal public and governmental involvement in coastal management. The technical committee is comprised of representatives of nine state agencies, the attorney general's office, and three regional coastal agencies. The Governor's Coastal Zone Management Advisory Council has 26 members--local and state officials and citizens--who review and recommend coastal management policy, procedures, and mechanisms.

Three regional planning agencies are under contract to prepare general coastal planning and management principles, GAPC recommendations, future land use plans, and public participation activities.

State and local organizational arrangements. Which agency will implement a coastal management program and what methods will be used to control land and water uses have not yet been decided. A combination of direct state control and state standards to guide local implementation is anticipated.

State-federal interaction and national interest. The Office of Planning and Budget has had direct contact with the Federal Regional Council and with individual federal agencies. Specific strategies or policies for federal-state interaction have not yet been developed.

PORT OF BROWNSVILLE/TEXAS COASTAL MANAGEMENT PROGRAM

Summary

The Brownsville Navigation District (Figure 7.13) is a county authority that operates port facilities and promotes industrial development on its extensive land holdings. These holdings generally border a 17-mile navigation channel from the Gulf of Mexico to the port facilities at Brownsville.

Close proximity to Mexico has a significant impact on the port's commodity mix. As northern Mexico and the port itself have become industrialized, cotton exports have given way to bulk commodities, petroleum, and petroleum products. Fifty-five percent of the cargo shipped through the port originates in or is destined for Mexico.

One of the port's primary functions is to generate industrial development. The port has devised its own procedures for siting new development, guiding those that do not need waterfront property to upland areas. The port helps its lessees obtain requisite permits and is a leader in maintaining local air and water quality standards.

Hearings were held on the Texas draft coastal management program during the summer and fall of 1976, and in 1977 legislation was passed that enacted its salient features. Existing authorities are integrated through the Natural Resources Council an interagency policy level council. Regulations within the coastal zone will rely on an assessment of development impacts by a network of state agencies rather than on land and water use plans developed and implemented at the local level.

Coastal boundaries in the legislation explicitlydefine a variety of land and water areas. In general, these areas include the nearshore area of the Gulf of Mexico,

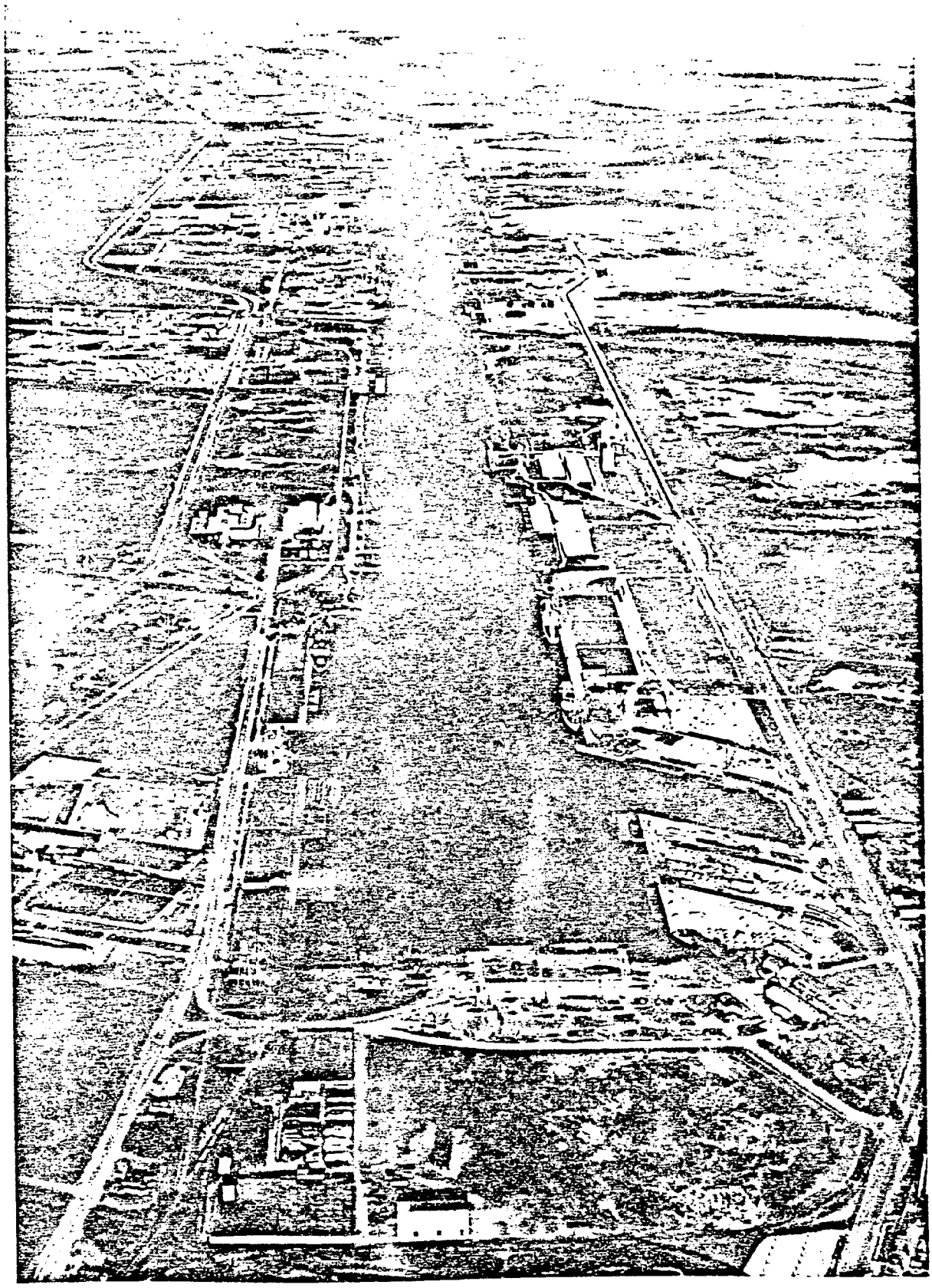


Fig. 7.13. Aerial photo of the Port of Brownsville from the end of the ship channel (in foreground) to the Gulf of Mexico 17 miles to the east. (Photo courtesy of the Brownsville Navigation District)

beaches, barrier islands, sand dune complexes, and areas which have measurable amounts of seawater. Certain areas to be designated geographic areas of particular concern, will be identified where statewide, rather than local interests will be promoted.

Interactions between Texas ports and the coastal program have been minimal. Although the lawyer for the Port of Corpus Christi sits on the Governor's Advisory Commission, the highly competitive nature of Texas ports makes it unlikely that any individual port district would represent port interests of the entire state. Contact between the Brownsville Navigation District and the coastal program has been infrequent and informal. The port did, however, offer testimony at the public hearing held in Brownsville on the Texas draft coastal management program.

Port of Brownsville

Cargo characteristics. Only a short time ago, industrial products--primarily cotton--were the principal commodities handled by this port. Rapid development of industry throughout the port area and northern Mexico has resulted in a shift from general cargo to bulk commodities, liquid petroleum, and petroleum products (Figure 7.14).

Principal products handled by the port include: shrimp, corn sorghum, soybeans, gasoline, diesel fuel, crude oil, butane, fluorspar, scrap iron, steel, machinery, various ores, and chemicals. Approximately 55 percent of the tonnage is import or export trade with Mexico.

Port facilities. Brownsville's main turning basin has dock facilities for eight general cargo ships, three tanker vessels, one bulk commodity ship, and berthing space

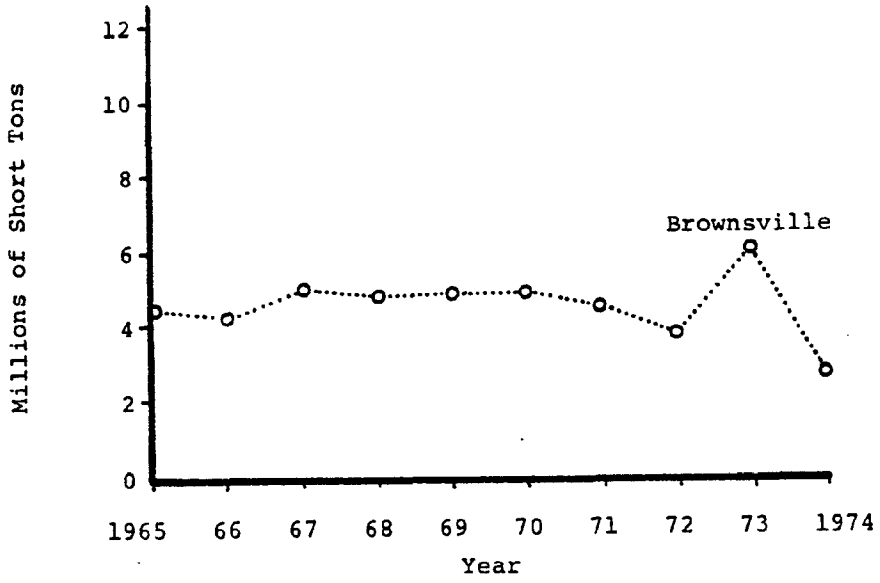


Fig. 7.14. Brownsville Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, p. 7.35a. 1974.

for twelve barges. Figure 7.15 shows the location of the major facilities at the port which include a public grain elevator with a storage capacity of 3,500,000 bushels and a loading rate of 1,000 tons per hour. A bulk materials handling facility adjacent to the elevator can receive, deliver, and store up to 30,000 tons at a rate of 300 tons per hour. The turning basin offers 7,000 linear feet of wharves, with 530,000 square feet of transit shed space. An additional 1,250,000 square feet of public warehouse space is located nearby. The Brownsville Navigation District also owns and operates about 60 acres of open area for storage of commodities that do not require protection from the weather. Cold storage facilities are available near the main turning basin and at the Fishing Harbor. The port's land holdings represent 42,000 acres of industrial land adjacent to the waterway.

Location and physical characteristics. The city of Brownsville is located on the Rio Grande River at the southermost tip of Texas (Figure 7.16). The port of Brownsville is about five miles northeast of the city proper and 17 miles from the Gulf of Mexico. It is reached through a cut channel that extends from the Gulf of Mexico through the Brazos Santiago Pass, across the Laguna Madre and then through the Brownsville Ship Channel. The entrance channel is 38 feet deep, 300 feet wide, and the 17-mile ship channel is 36 feet deep and 200 feet wide. Inland of the small boat basin the channel widens to 500, feet terminating in a running basin 1,000 feet wide and 3,500 feet long. In addition to the turning basin, there is a small boat basin 15 feet deep, with 10,800 feet of dock space which provides port facilities for up to 500 shrimp boats that operate in the Gulf of Mexico.

Geographically, the port's location serves the lower Rio Grande Valley and a large industrial and agricultural area of northeastern Mexico.

Port administration. Two provisions in the state constitution (Article II Section 52 and Article XVI Section 59) first established navigation districts in Texas. State statutes also provide an enabling act for the creation of subsequent navigation districts; Brownsville Navigation District operates under the codified general enabling act.

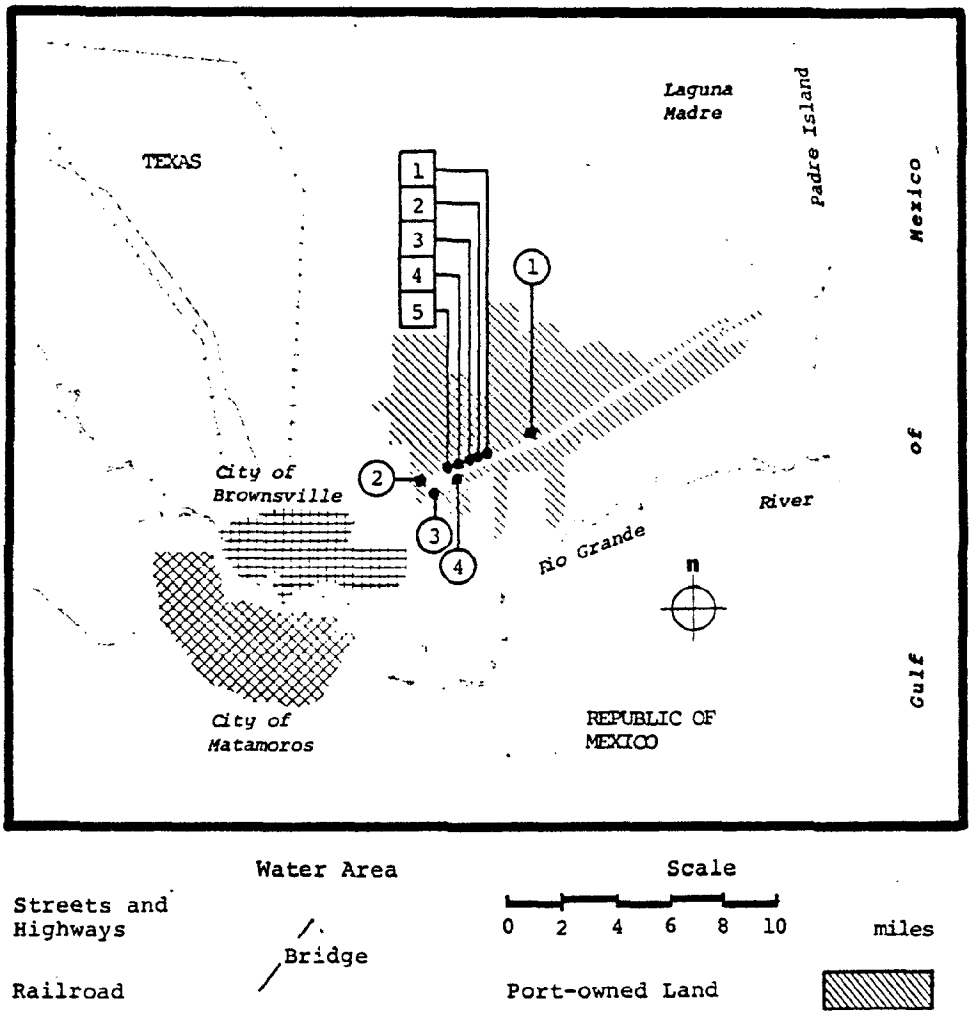
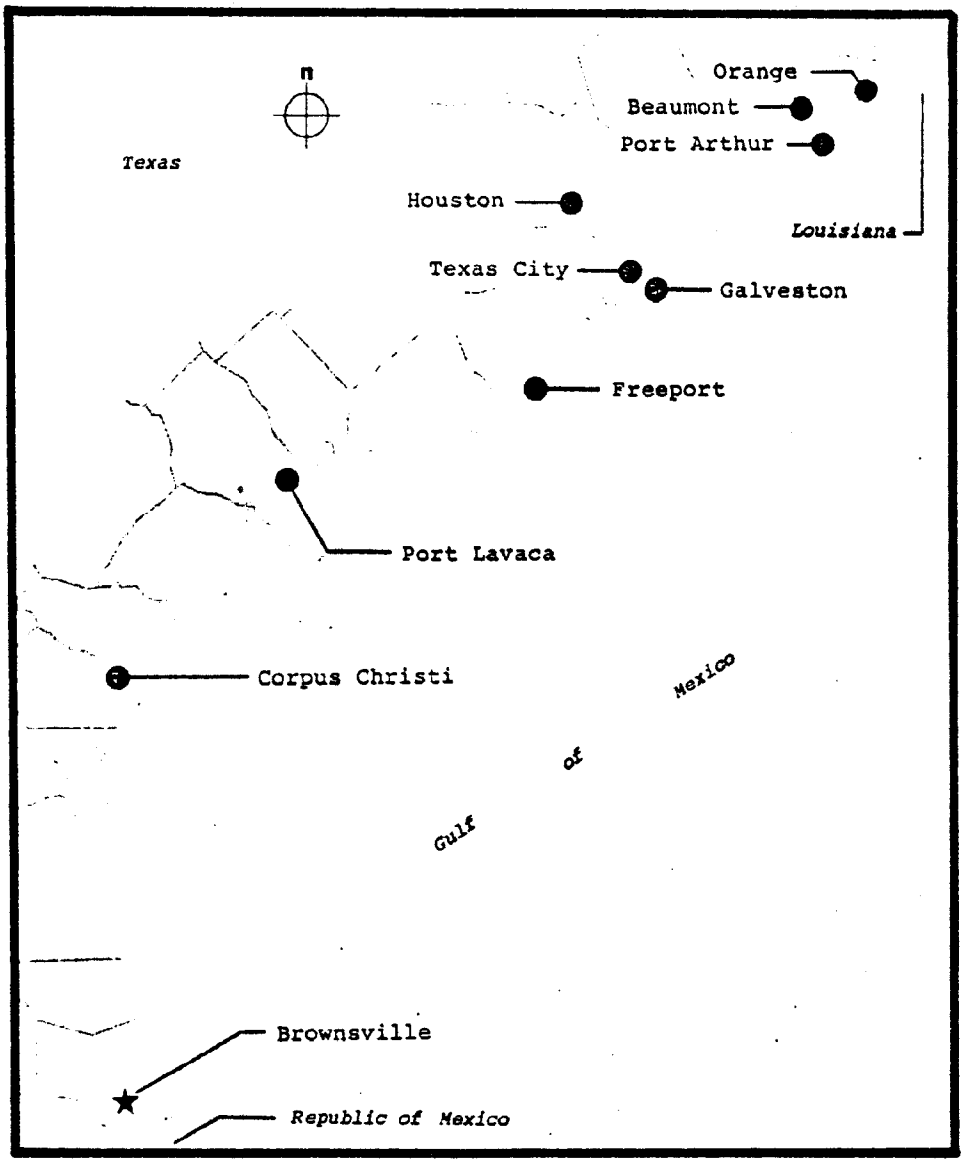


Fig. 7.15 PORT OF BROWNSVILLE. Port-owned facilities ○ : (1) fishing harbor; (2) transit sheds; (3) barge slips; (4) grain elevator

Privately-operated facilities □ : (1) Union Carbide; (2) Humble Oil; (3) Premier Oil; (4) Pemex Oil; (5) Texaco

Source: *The Port of Brownsville*, Brownsville Navigation District publication.



Water Area
State Line
Coastal County Line
Case Study Port ★
Other Port ●

Scale
0 10 20 30 40 50 60 miles

Fig. 7.16 TEXAS COASTAL AREA

A comprehensive review of constitutional and statutory law affecting the formation and administration of navigation districts in Texas appears in the *Texas Coastal Management Program 1975 Hearing Draft* (Texas General Land Office, 1976).

The Brownsville Navigation District is governed by a Board of Navigation and Canal Commissioners consisting of three elected representatives from Cameron County, where Brownsville is located. Each commissioner serves a six-year term; one term expires every two years. The board employs a port director/general manager; however, both financial and legal counsels are retained by the Board of Harbor Commissioners.

There are six key staff positions for the internal operation of the port: administration and finance, engineering and planning, operations/harbormaster, traffic and trade development, grain elevator, and special projects/public relations. All development planning and environmental regulation compliance is handled by the engineering and planning division.

The Port of Brownsville is empowered to maintain and develop waterways and ports within Cameron County. Specifically, the port has the power of eminent domain to acquire land on which to develop wharves, docks, and grain elevators and to develop and maintain other kinds of facilities for navigation and commerce in the port and on its waterways. Acquisition of land is permitted for industrial development as well. The port has certain police powers over navigation and operation of its facilities so long as these powers are not in conflict with municipal police powers operating within the port's jurisdiction. The port can set rates for the use of its facilities to defray costs of operating, maintenance, and facilities to other persons--thus enabling the port to function as an industrial developer.

In its role as an industrial developer, the port acquires and prepares land for its

industrial lessees, provides utility and infrastructure investments, and secures land use and environmental quality permits. These services are available only to lessees of port-owned land, since state law precludes port-sponsored improvements on land leased by the port. A clause in each lease requires that the lessee satisfy all state and federal environmental regulations. Thus, the port acts as an advocate for its lessees with respect to federal, state, and local regulations, subject to the contractually guaranteed good faith of the lessee in meeting those standards.

Fiscal powers of the port include a statutorily authorized maintenance and operation tax, not to exceed 20 mils, which needs only initial electoral approval; tax bonds, requiring voter approval and limited to 40 years maximum time to maturity; and, revenue bonds pledged by revenue from all or part of the district's facilities, again limited to not more than 40 years to maturity.

It is important to note that Texas' state courts have held that the "acquisition of land for industrial development by navigation district is for a public use" (Texas Law Institute, 567) and that a navigation district has broad administrative authority to condemn and acquire lands for industrial development.

Major planning and capital expansion programs. Continual upgrading of waterfront facilities and utility connections is planned, but there are no new major facilities currently being planned.

Issues of current importance. Processed waste from Union Carbide Corporation's chemical plant located on port-owned land north of the waterway has, until recently, been piped into a natural lagoon system (San Martin Lagoon). After small levels of discharge from the lagoon system were detected in the waterway, the port and Union Carbide negotiated with public and governmental interests to find an economical means

of meeting pollution control requirements. The Texas Water Quality Control Board (TWQB) required Union Carbide to construct evaporation/aeration ponds to achieve federal, 1985 zero-discharge requirements. On November 10, 1976, a $6 million wastewater processing facility was officially opened for operation. While opinion is still divided on the necessity of this investment, the port publically shares credit with Union Carbide for this unique, low-energy-consuming wastewater treatment system.

Shrimp processing waste treatment and disposal at the fisheries harbor is still an unresolved environmental issue.

Texas Coastal Management Program

Overview and implementing authority. The development of the Texas coastal management program is the responsibility of the General Land Office. A final program document, titled the *Texas Coastal Management Program* (General Land Office, 1976), has been in the process of public and governmental review for the past year. The Texas legislature passed key laws early in the summer of 1977 aimed toward establishing sufficient implementing authority to meet requirements of the federal Coastal Zone Management Act. As of June 1976, program development funding for Texas totalled $3,405,171.

The new laws are modelled after those proposed in the *Texas Coastal Management Program.* The Natural Resources Council Act (1977) establishes a 16-member Natural Resources Council (NRC) to be chaired by the Governor and composed of representatives of state agencies and offices. The council, which operates as a top-level advisory council to the Governor and legislature, must propose a state natural resource data management system. Under the Coastal Coordination Act (1977), the NRC must recommend procedures for permit application review to the Governor, in order to simplify and reduce permit requirements in the state. A specific systematic activity analysis,

discussed in detail in the coastal management program draft, must be part of the recommended permit application review procedures. The act urges (but does not require) other state agencies to incorporate the activity analysis procedures into their permit reviews. Finally, the Coastal Wetlands Acquisition Act (1977) was passed authorizing the identification and ultimate acquisition of ecologically ·rtant coastal wetlands.

In addition to the new legislation discussed above, Texas has existing resource management programs which add additional potential implementation devices. Two of these programs are notable. First, the state land office has broad authority over management of public submerged lands, up to the mean high-water mark, to ensure their use in the public interest. In addition, the public's historic right to Texas beaches are protected under legislation in existence since 1959.

Before Texas' coastal management program can be approved, it must be determined whether the laws discussed above are sufficient to allow the control of land and water uses in the coastal zone as prescribed in the federal Coastal Zone Management Act. Federal and state officials still have different opinions regarding the adequacy of the proposed coastal management program and the laws discussed above to meet the federal legal requirements.

Land and water uses. The Texas coastal management program's goal is to coordinate state natural resource program policies and activities to achieve a balance of environmental, economic, and social considerations. Proposed uses will be systematically reviewed to identify environmental, economic and social effects. Land and water use policies are found in existing state laws; permissible coastal land and water uses, however, will be determined on the basis of performance standards.

Those uses which have a "direct and significant impact," on coastal resources will be identified by an analysis of the capability of coastal resources to support various uses. This analytical system, once established, will provide the basis for reviewing new projects.

Coastal zone boundaries. For initial planning purposes, 28 Texas coastal counties are considered the state's coastal area. Within these counties are such major urban centers as Houston-Galveston, Beaumont-Port Arthur, Victoria, Corpus Christi, and Brownsville. The Coastal Coordination Act of 1977 (Sec. 4 [b]) redefines the coastal area as "nearshore areas in the Gulf of Mexico; tidal inlets and tidal deltas; bays; lagoons containing a measurable concentration of seawater; oyster reefs; grassflats; spoil deposits in or immediately adjacent to water containing a measurable amount of seawater; channels the waters of which contain a measurable amount of seawater; coastal lakes; tidal streams; beaches; barrier islands; wind tidal flats; tidal marshes; washover areas; sand dune complexes on the Gulf shoreline; and river mouths up to the farthest point of intrusion by a measurable amount of seawater."

Geographic areas of particular concern. Identifying geographic areas of particular concern (GAPCs) will let public and private interests know that there are important state interests in particular areas. Furthermore, stringent regulatory requirements imply that permits will be harder to get in those areas. The state currently has programs to regulate study, enhance, develop, and preserve those areas.

Public and governmental involvement. Many state agencies have assisted in the inventory of coastal resources and the preliminary identification of GAPCs. The Interagency Council on Natural Resources and the Environment, comprised of representatives from state agencies that have natural resource interests, reviews the technical studies. Regional councils of governments have conducted public information meetings and have provided data and comments on technical studies. Briefings have been held for local officials on the coastal management program, and a 41-member advisory committee held public hearings in various coastal locations to solicit input.

Extensive public hearings were held on the *Hearings Draft* of the program before it was submitted to the legislature. Additional public information and education efforts have included distribution of the film, *Faces of the Coast*, to civic groups and businesses publication of a newsletter, distribtion of technical reports, and distribution ofbrochure

State and local organizational arrangements. Texas proposes to use existing state-level controls to regulate coastal land and water uses. The numerous programs and requirements are to be streamlined and rationalized through a systematic activity analysis system to be developed by the new Natural Resources Council (discussed above). Regional and local responsibilities are reserved to existing regional organizations and local governments.

State-federal interaction and national interests. Texas has worked with a special coastal task force of the Federal Regional Council (FRC) and has worked directly with individual federal agencies to enable them to participate in developing the state's coastal management program. Federal agencies assisted the state in identifying federal lands within the coastal area, cataloging national interests, and identifying GAPCs.

PORT OF LOS ANGELES/CALIFORNIA COASTAL MANAGEMENT PROGRAM

Summary

The Port of Los Angeles (Figure 7.17) is physically removed from the main part of the City of Los Angeles, and is linked only by a narrow land corridor to the city. The port's facilities extend into San Pedro Bay, where dredge and fill activities of the past 100 years created the harbor. The Port of Los Angeles facilities abut those of the Port of Long Beach.

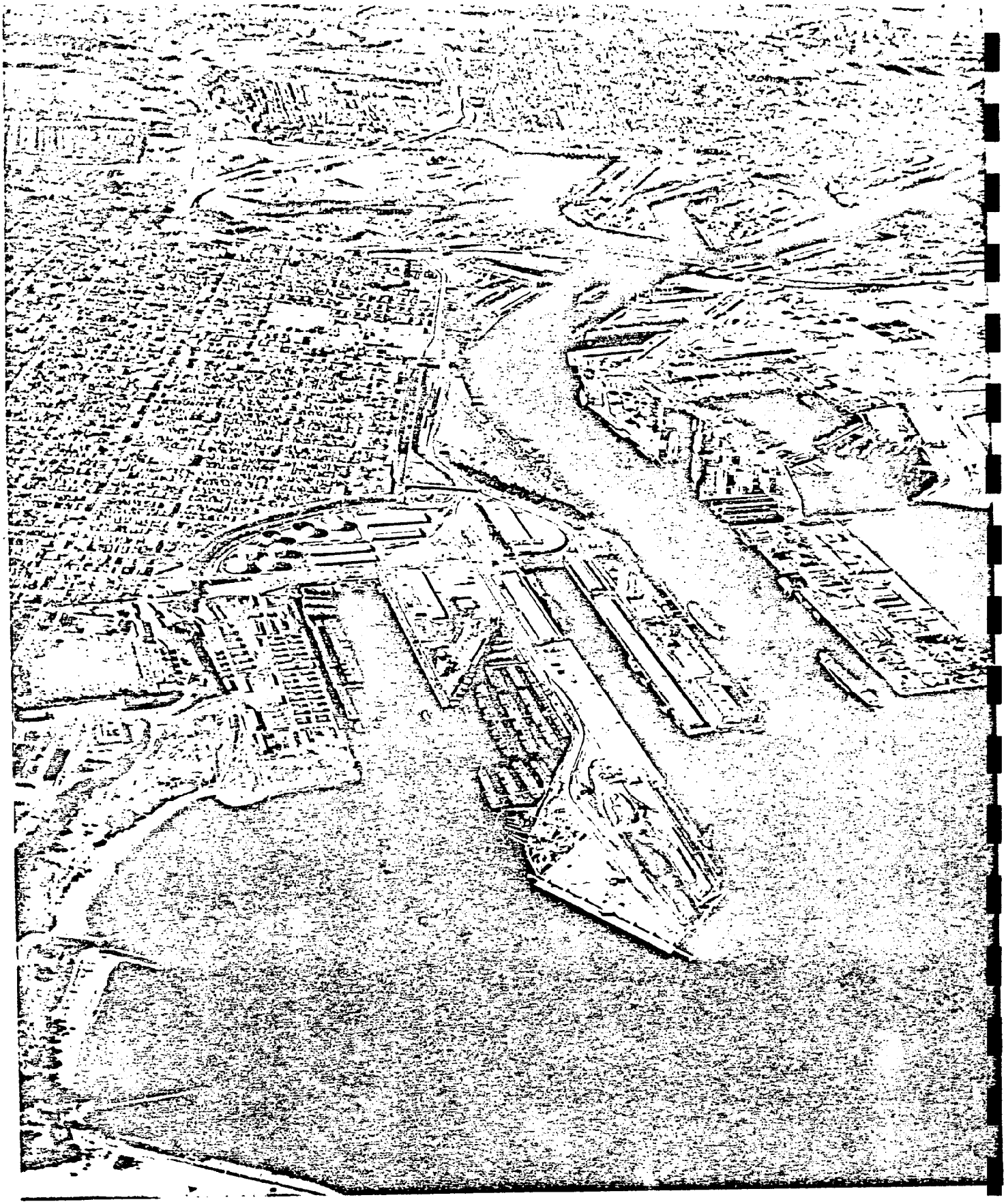


Fig. 7.17. Aerial photo of the Port of Los Angeles, looking northeast along the Main Channel. In foreground are West Channel/Cabrillo Beach areas and the Union Oil super-tanker terminal. At far right--center, across the Main Channel, is the commercial Fish Harbor, on Terminal Island. Just out of view on the right is the Port of Long Beach. (Photo courtesy of the Port of Los Angeles)

The port's major commodities include petroleum, petroleum products, and container cargo. Present plans anticipate siting a liquid natural gas (LNG) facility on part of a proposed 1,034-acre fill. Material for the fill will come from a proposed Corps of Engineers project to deepen the port's channel to 45 feet, which is now under consideration.

The California Coastal Act, adopted in August 1976, is based on the coastal plan developed by state and regional coastal commissions during an interim period between 1972 and 1976. This act, and companion laws enacted at the same time, established a comprehensive coastal management program in the state, which is implemented by a State Coastal Commission and local governments. The commission, which is part of the state's resources agency, has fifteen members representing state agencies, regional commissions, local government, and the public. Local governments have primary responsibility for developing detailed management plans that are consistent with the Coastal Act and issuing permits for activities in the coastal zone after the local program is certified by the State Coastal Commission. The commission can review selected local permit decisions as well.

Jurisdiction under the new Coastal Act extends, generally, three miles offshore to 1,000 yards inland. In specially designated resource areas, the boundary may be extended inland to the first parallel ridgeline or to five miles, whichever is less. The coastal boundary defined by the act excludes the San Francisco Bay area which is regulated under a separate coastal program (Figure 7.18).

A special chapter of the Coastal Act addresses port development problems that apply to the ports of San Diego, Hueneme, Long Beach, and Los Angeles. Except for certain resource areas within their jurisdictions - such as wetlands, estuaries, and

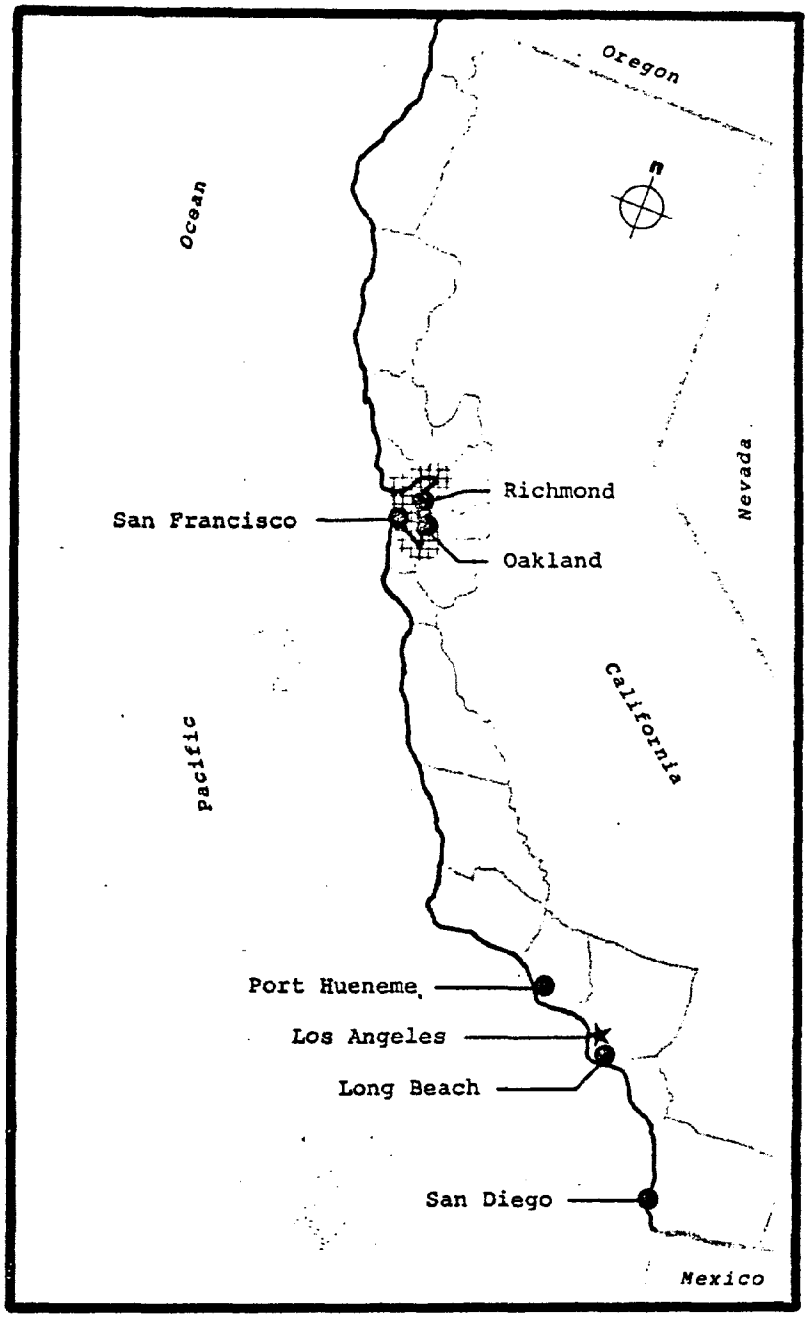


Fig. 7.18 STATE OF CALIFORNIA. See text for special provisions of the California Coastal Act (1976) pertaining to ports of San Diego, Long Beach, and Port Hueneme.

recreational areas--these four ports comply only with the special coastal regulations set forth in the chapter dealing with ports.

The four ports cited above must prepare and adopt a port master plan which is consistent with state port policies relating to--

1. the commercial fishing industry
2. diking, filling and dredging
3. tanker terminals
4. port-related developments

Ports must provide for public participation in the plan's preparation. Traditional port development plans are likely to be certified as consistent with state coastal policies. Special development problems--such as the siting of an LNG facility at the Port of Los Angeles--are reviewed under broader policies and will not be easily resolved.

Once a port's plan is certified by the state, the port is responsible for ensuring that all new developments within its jurisdiction comply with the master plan. Only selected activities or developments may be appealed to the Coastal Commission, such as those relating to energy, fisheries and recreation, and sensitive environments.

During the preparation of the coastal plan, and during the debate preceding the passage of the Coastal Act, port interests were represented by a special governmental coordination committee of the California Association of Port Authorities (CAPA), which the Port of Los Angeles belongs to. The port's officials actively participated with this committee, and presented testimony of the coastal plan at public hearings. Many of the port's suggestions were incorporated into regional recommendations for the coastal plan, but were not included in the final draft. Subsequent to the distribution of the plan, ports' lobbying efforts continued and

eventually resulted in coastal policies that recognized ports as special coastal users and tailored special provisions of the Coastal Act to their needs and problems.

Port of Los Angeles

Cargo characteristics. Although petroleum and petroleum products represent approximately two-thirds of the total tonnage that passes through the Port of Los Angeles, general cargo and containers are important commodities (Figure 7.19). The port's primary business is with the large metropolitan and regional markets of Southern California.

Port facilities. The Port of Los Angeles offers a wide variety of facilities to handle many types of cargo (Figure 7.20). General cargo facilities include 32 berths, with 17 transit sheds. Container facilities include seven berths at four terminals served by seven modern gantry cranes. The port is also equipped to handle RORO ships and LASH operations. Thirteen waterfront facilities are specially equipped to receive petroleum products, providing more than 13,000 linear feet of berthing space with a storage capacity in excess of 11 million barrels. The port also has specialized terminals to handle imported automobiles, lumber and wood products, dry bulk commodities and chemicals, as well as large facilities for commercial fishing boats and seafood processing.

Location and physical characteristics. The Port of Los Angeles is a manmade harbor: it is 40 to 51 feet deep in the outer harbor and 35 feet deep in most of the inner harbor, which includes the main channel. The port encompasses portions of the Terminal Island, Wilmington, and San Pedro districts of the City of Los Angeles, comprising about 6,752 acres of water and land area. It is connected to

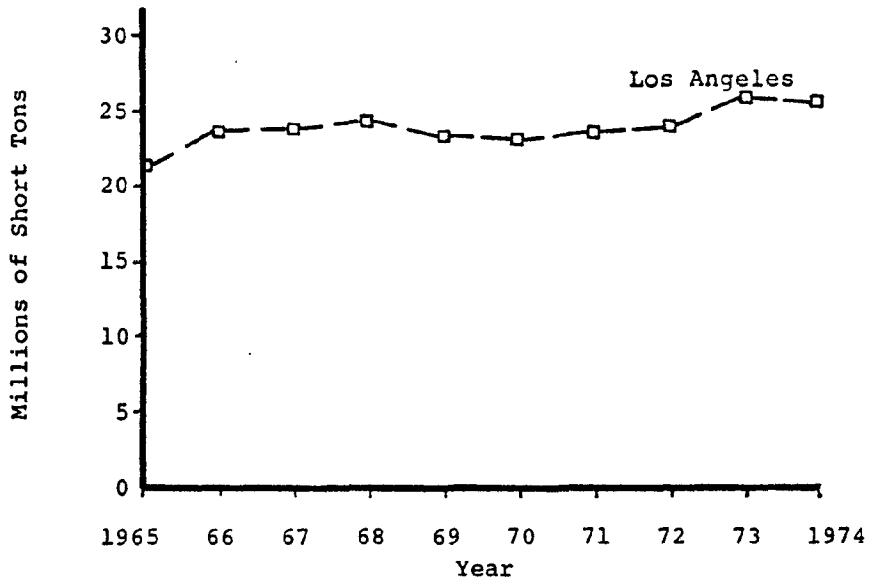
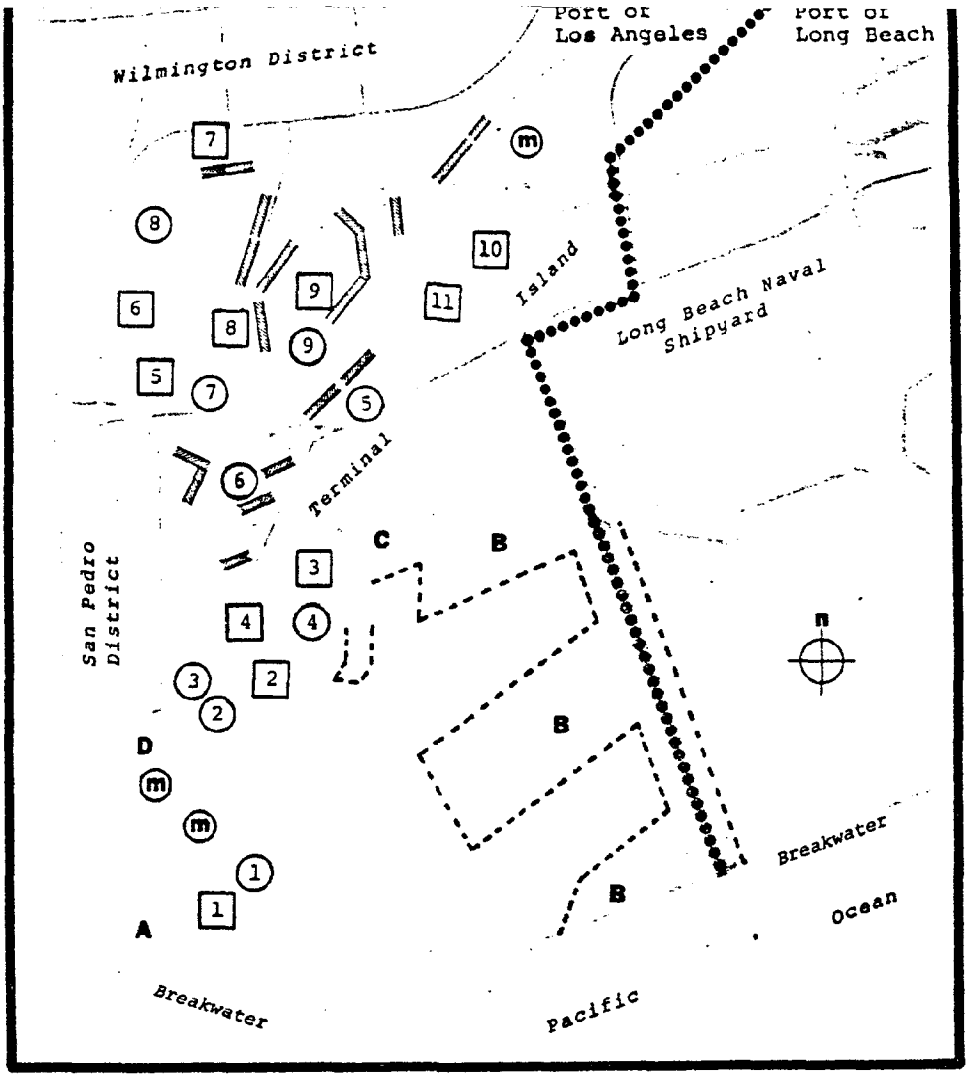


Fig. 7.19. Los Angeles Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, Vol. 4, p. 7.45a. 1974.



Water Area

Streets and Highways

Bridge

Port District Boundary

Scale

0 .2 .4 .6 .8 1.0 miles

Proposed Landfill Boundary

Marina

Fig. 7.20 PORT OF LOS ANGELES. Port-owned facilities ○: (1) Port-owned transit sheds bulk loader; (2) fishermen's slip; (3) municipal fish markets; (4) fish harbor; (5) Indies Terminal; (6) Terminal Island docks; (7) Catalina Terminal; (8) Los Angeles container terminal; (9) grain and tallow terminal

Privately-owned facilities □: (1) Union Oil supertanker terminal; (2) Bethlehem Steel shipyards; (3) canneries (4) Mobile Oil terminal; (5) Todd Shipyards; (6) Phillips Petroleum; (7) distribution and auto service; (8) Union Oil terminal; (9) Shell Oil; (10) Matson Container Terminal; (11) auto and ship graveyard

Issue areas: **A.** proposed Cabrillo Beach small boat harbor; **B.** proposed 1034-acre landfill on Terminal Island; **C.** proposed LNG terminal; **D.** Union Oil tank farm controversy

Source: Port of Los Angeles Comprehensive Master Plan, 1990.

Los Angeles by a nine-mile narrow strip of land extending through outer jurisdictions, and access to inland transportation networks, particularly to rail connections, is difficult.

Port administration. A tidelands grant from the State of California has enabled the city to foster port development, which is managed through the Harbor Department. A five-member Board of Harbor Commissioners, appointed by the mayor with city council approval, oversees port development and operations. The port operates on its own revenues and to date has not required any tax revenues.

Major planning and capital expansion programs. Port planning and development efforts are described in the port's comprehensive master plan. Major improvements are being considered: dredging the main channel and inner harbor to 45 feet; filling an additional 1,034 acres on Terminal Island; constructing a 45-acre container terminal at berths 127-129; siting an LNG terminal on new landfill; and building a tanker terminal in the outer harbor. The U.S. Army Corps of Engineers is conducting a feasibility study of the channel improvements project.

Issues of current importance. The port is confronted with two particularly pressing needs. First, a deeper harbor is needed to accommodate increasing ship drafts; most of the inner harbor, including the main channel, is only 35-feet deep--too shallow for container ships and bulk and oil carriers. The port is working with the Army Corps of Engineers on a proposal to deepen the channel to 45 feet. Second, land use analyses and cargo forecasts indicate a need for an additional 1,000 acres of land to serve port needs by 1990. This land could be created by a landfill on Terminal Island, using spoils from the harbor dredging project. Preliminary planning for this project is underway.

Overview and implementing authority. In August 1976, the California Legislature passed comprehensive coastal legislation based on a coastal plan submitted by an earlier, interim coastal commission. A new Coastal Commission, housed in the Resources Agency, is administering the program and state regulations are being finalized to guide local governments and port authorities in developing detailed local implementation programs. California's coastal management program has been submitted to the Federal Office of Coastal Zone Management for approval: program development funding through June 1976 totalled $4,241,946.

Local governments are responsible for developing local coastal management programs and port authorities must develop master plans for their jurisdictions. These programs or plans, once certified by the Coastal Commission, are implemented through a permit system. Local coastal management programs must include relevant portions of local general plans, zoning ordinances, zoning maps, and means of implementing the Coastal Act policies. In sensitive areas, local programs must include ordinances, regulations, or programs for protecting resources. A port master plan, for land and water use within its jurisdiction must comply with special policies in the Coastal Act concerning port expansion in urban areas, dredge and fill activities, pollution prevention, protection of commercial fishing facilities, and port-related developments.

The state Coastal Commission, with the assistance of temporary regional commissions, performs three major functions:

1. It assists, reviews, and approves the preparation of local coastal programs and port master plans to ensure that these programs will achieve the objectives and policies of the Coastal Act.

2. It reviews permit decisions made by local governments and ports. Before programs or plans are certified, this review is extensive; after certification, reviewers are limited to development--in key geographic areas--of energy-related development, waste treatment facilities, roads and buildings not related directly to port activities, and fisheries and recreation facilities.

3. It coordinates the comprehensive coastal management program with state agencies that perform related resource management functions--such as the Bay Conservation and Development Commission, fish and game, water resources, air resources, energy, and others.

Land and water uses. Three types of performance standards for judging all coastal developments are included in the California Coastal Act:

1. Those dealing with general developments in all coastal areas,
2. Those dealing with a specific use or impact,
3. Those dealing with the protection of a particular resource.

Coastal uses of greater than local importance will be defined administratively by the Coastal Commission and should be considered by local governments in preparation of their coastal programs.

Legislative priorities were also established in the Coastal Act, and because its ultimate goal is to preserve and protect natural resources, priority in environmentally sensitive areas is given to uses that are consonant with resource protection. Uses of these areas are limited to those that are dependent upon some natural attribute of the area. Maintaining prime agricultural land is another legislatively mandated priority.

Outside of agricultural and ecologically sensitive areas, priority is given to coastal-dependent uses and to public recreation. Even where coastal areas are suitable for private development, certain priorities exist. For example: visitor-serving commercial recreation development has priority over private residential,

general industrial, and general commercial development; development with public access to the coast has priority over other general developments; and visitor-serving commercial recreation and private residential developments that include low and moderately priced facilities can have priority over exclusive and expensive facilities.

Coastal zone boundaries. The California legislature authorized coastal boundaries "extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally, 1,000 yards from the mean high tide line of the sea" (Coastal Act 30103a). In eighteen significant coastal areas identified by the Coastal Commission, the inland boundary "extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide of the sea, whichever is less" (Coastal Act 30103a). In urban areas, the coastal zone is usually less than 1,000 yards. Landward boundaries may be adjusted up to 100 yards to avoid bisecting a single lot or to conform to physical features. The area under the jurisdiction of the San Francisco Bay Conservation and Development Commission is excluded from the Coastal Act.

Geographic areas of particular concern. California has several categories of geographic areas of particular concern (GAPCs). The first category subsumes all the others--it is the state's entire coast. (This designation indicates that the state recognizes the need for special regulatory powers throughout the coastal zone.) The second category consists of significant estuarine habitats, and recreational areas which have extended inland boundaries. The third category consists of sensitive coastal resource areas containing geographic settings and resources that may require specific management policies. These areas must be identified by the Coastal Commission by September 1, 1977 and action must be taken by the legislature within two years or

the designation is removed. Additional GAPCs include those under the Coastal Commission's permit jurisdiction: all coastal areas that do not have a certified local plan, areas where local decisions are subject to appeal--generally the offshore area to 300 feet inland, and areas immediately adjacent to bays and wetlands.

Public and governmental involvement. The California coastal management program derives from a citizen-initiated interim program, which voters approved in 1972. Between 1972 and 1976, the six regional coastal commissions and the state Coastal Commission established by the initiative worked with individuals, groups, and agencies to develop policies to submit to the legislature. (The final document was titled the *Coastal Plan.*) Nearly 20,000 individuals were included on the commissions' mailing lists to receive written information. Public meetings were held to inform the public about the coastal plan while it was being prepared. About 10,000 people actively participated in 259 public hearings held in each of the six coastal regions. Before the coastal plan draft was finalized and submitted to the legislature, additional formal hearings were held. Finally, the California Legislature held public hearings on the proposed Coastal Act.

The regional and state-level coastal commissions offered federal, state, and regional agencies the same opportunities they offered the public to participate in developing the coastal plan. Often, regional commissions solicited these agencies' technical expertise when preparing technical reports. The Coastal Act includes special provisions for coordination with other state agencies which are spelled out in some detail.

Regulatory actions also provide an avenue for public participation in coastal management. The legislation gives coastal commissions limited authority to issue coastal development permits, which must be issued during meetings open to the public. Decisions about proposed developments that are made by local governments (under certified plans) may be appealed to the state commission. Hearings on these appeals are also open to the public.

State and local organizational arrangements. Cooperation among all public agencies--state, regional, and local--and the Coastal Commission is mandated by the California Coastal Act. Three state bodies--the Resources Agency, Business and Transportation Agency, and the State Lands Commission--have ex officio representatives on the Coastal Commission. The roles of eight more state agencies are explicitly coordinated with the Coastal Commission in the statute. These agencies deal with fish and game, air and water quality, energy resources, forestry resources, state lands, planning and research, and the San Francisco Bay coastal program. With the exception of the last two agencies, the Coastal Commission is authorized to recommend changes in administrative regulations, rules, and statutes to these agencies. It can also recommend coordinating measures to those agencies dealing with parks and recreation, navigation and ocean development, mines and geology, and oil and gas.

State-local coordination is specified in the implementation procedures of the Coastal Act. Local governments will develop coastal programs which conform to Coastal Act policies and Coastal Commission guidelines. The Coastal Commission is expected to assist local governments in exercising their responsibilities.

Federal-state interaction and national interests. Federal agencies met with the Coastal Commission and participated in the public hearings on the California coastal plan. The Coastal Commission included many federal agency suggestions in its revisions of the preliminary coastal plan: a notable addition was a section entitled, "National Interest on the Coast." (Policies in the Coastal Act relating to agricultural lands, recreational uses, and energy development are based on national interest arguments.) In addition, two federal employees--one from the Department of Interior, the second from the Environmental Protection Agency--worked on the commission staff to help develop the coastal plan.

Specific state-federal interaction procedures are called for in California's coastal management program. The state will monitor federal activities in the coastal zone by using existing procedures--such as environmental impact statement review, Corps of Engineers public notices, and A-95 review (a formal process whereby local and state agencies review federally funded projects for consistency with existing projects and policies). Memoranda of understanding between the Coastal Commission or local coastal agency and federal agencies will be requested for federal actions that are consistent with the coastal management program and would otherwise require a coastal management permit. Federal agencies which do not use memoranda of understanding must adopt another procedure to notify the appropriate coastal management agency of a proposed federal policy.

PORT OF GRAYS HARBOR/WASHINGTON COASTAL MANAGEMENT PROGRAM

Summary

The Port of Grays Harbor is a state-established port authority with countywide jurisdiction. Its facilities (Figure 7.21) are located in the small cities of Aberdeen and Hoquiam, situated on a shallow estuary which opens directly into the Pacific Ocean. The estuary is relatively undeveloped and contains valuable habitats for fish and wildlife resources.

Lumber and wood products are the major commodities shipped through the port and reflect a local dependence on the timber industry. The port is a prime income generator for the area, which is in an economically depressed region of the state, and promotes both trade and industrial development. Current development plans include completion of a fill-site for a proposed fabrication plant for offshore oil rigs and promotion of a Corps of Engineers project to deepen the channel to 40 feet.

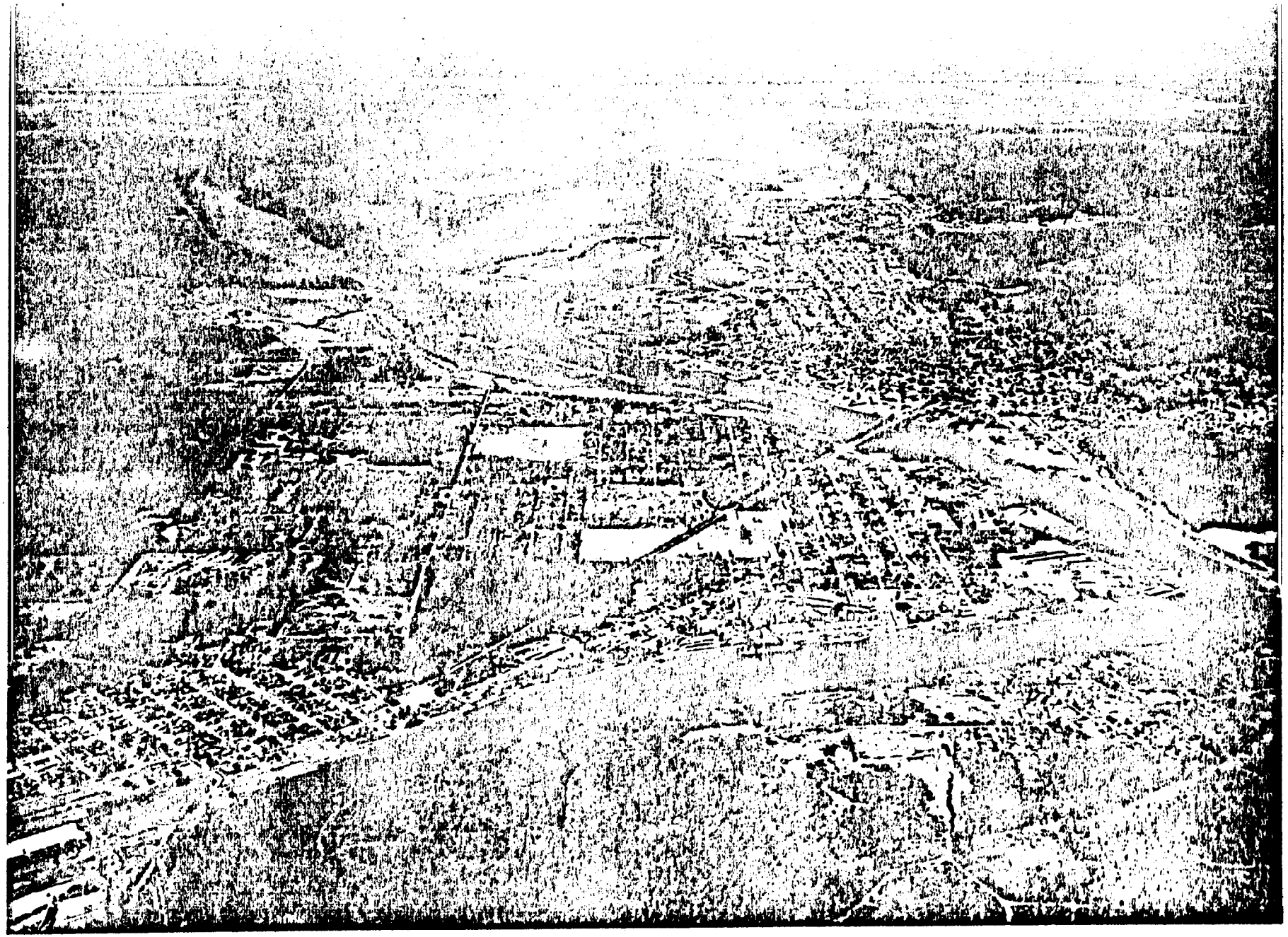


Fig. 7.21. Aerial photo of Grays Harbor looking west down the Chehalis River toward the Pacific Ocean. Port of Grays Harbor Terminals 1 and 4 are shown (indicated by arrows) adjacent to the urban areas of Aberdeen and Hoquiam. The bottom of the photo is approximately the upstream limit of navigation. (Photo by Jones Photo Co., courtesy of Port of Grays Harbor)

Washington's coastal management program is based on the Shoreline Management Act (SMA) enacted by the legislature in 1971 and confirmed by the voters in 1972; the program was approved by the federal Office of Coastal Zone Management in June 1976. The Shoreline Management Act places primary responsibility on local government for inventorying the shores, developing master programs, and issuing permits for activities in the coastal zone, according to guidelines developed by the State Department of Ecology (DOE). Local government permit decisions may be appealed to the Shorelines Hearings Board by the Department of Ecology, the state Attorney General's Office, or any aggrieved person.

The first tier boundary of the Washington coastal zone corresponds to those of the Shoreline Management Act. Generally, jurisdiction extends to 200 feet onshore and includes bays, swamps, flood plains, etc. A second tier, established for planning and coordination purposes, extends to coastal county lines.

The Shoreline Management Act gives high priority to port uses, although its final guidelines, prepared by the Department of Ecology, require that statewide needs be considered before shorelines are allocated for port uses. Further, the guidelines encourage planning among jurisdictions, to avoid unnecessary duplication of port facilities, and require that local governments assess the effect of structures on the scenic view before issuing permits, provided this requirement does not endanger the public or hamper port operations.

The Shoreline Management Act and guidelines prescribe policies for dredge and fill activities, which note ports as a priority use for which landfill in coastal areas is authorized. Dredging to provide landfill material is prohibited. When dredging is undertaken for navigational purposes, onland disposal is preferred to disposal in the estuary.

The Port of Grays Harbor was an early participant in coastal management. As a member of the Grays Harbor Regional Planning Commission, it was instrumental in developing shoreline management guidelines for the state, which were subsequently used to develop final guidelines for the Shoreline Management Act.

There are some conflicts over future development of the Port of Grays Harbor: the local shoreline master programs policies were found to be too general to resolve port development needs with the policies of federal and state fish and wildlife protection agencies. Because of these conflicts, the state designated Grays Habor as a geographic area of particular concern. Special coastal management funding was provided for 1976-77 to deal with these conflicts and to refine the general statement of the master programs so that more site-specific policies could be articulated. Port officials and representatives from all levels of government have participated in the Grays Harbor Estuary Task Force, which is guiding these refinements. As of September 1977, all participants on the task force had signed an agreement allocating phased development over the next 50 years of up to 500 acres of fill for port expansio in a specified area of the estuary. Reviewing agencies have agreed to relaxed water dependency criteria for port industrial development within this limited area.

Port of Grays Harbor, Washington

Cargo characteristics. Principal commodities of this port are forest products--logs, lumber, pulp, paper, shingles, shakes and plywood. Other commodities include petroleum products and general cargo. Waterborne commerce moving over the Grays Harbor estuary totalled 2,565,793 tons for the year 1975, a seven percent reduction from the 2,759,334 tons handled in 1974 (Figure 7.22). This reduction in waterborne commerce resulted from adverse economic conditions in both the United States and Japan that affected housing starts in both countries.

Fig. 7.22. Grays Harbor Net total cargo tonnages, 1965-1974. Source: *Waterborne Commerce of the United States*, U.S. Army Corps of Engineers, Vol. 4, p. 7.54a. 1974.

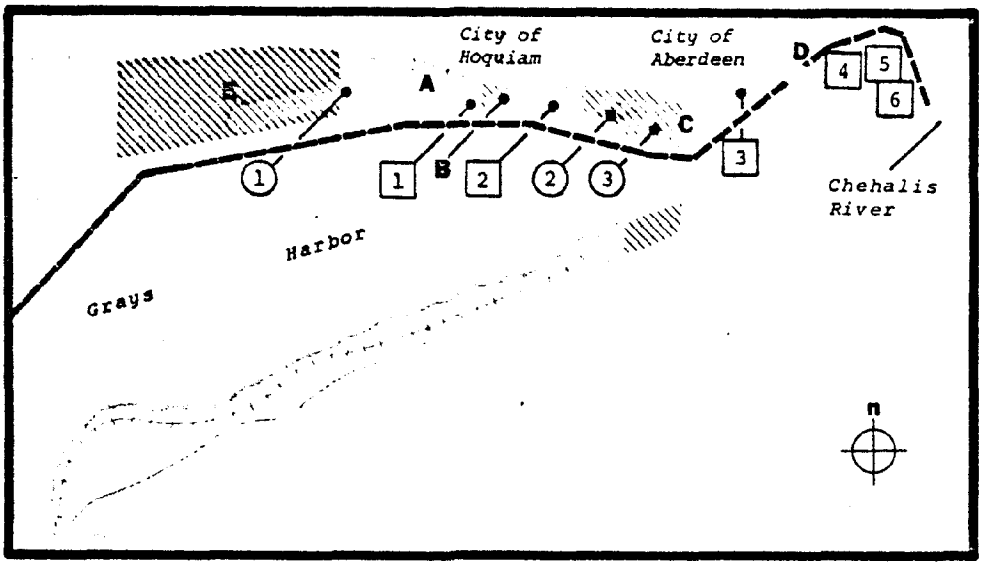
Port facilities. Two port owned terminals are used for general cargo--mostly lumber and liquid bulk transfer. (Figure 7.23 shows the location of facilities.) One of the terminals is equipped with two 25-gantry cranes and one 40-ton container crane adapted for logs. Large backup space (unpaved) for log sorting and storage is available.

Privately owned port facilities in the region include Anderson-Middleton log wharf and storage yard, with floating crane barge; ITT-Rayonier pulpmill, with wharf for pulp export; Anderson-Middleton sawmill, with wharf for sawn lumber export; and Weyerhauser log and chip transfer facilities and pulpmill.

The port also operates a regional airport, industrial development area, and a marina at Westport.

Location and physical characteristics. The port is located on the Pacific coast of Washington on the Grays Harbor estuary of the Chehalis River (Figure 7.24). Port facilities are located 14 miles from the Pacific Ocean in the cities of Aberdeen and Hoquiam. The port offers year-round harbor accessibility, through protective jetties, to a maintained channel that is 350 feet wide and 30 feet deep. The greatest advantages of the port's location are that it is close to timber-cutting regions and it saves about one-day's sailing to Japan compared with the Puget Sound ports of Seattle and Tacoma.

Port administration. The Port of Grays Harbor was formed by Grays Harbor County in 1911 to develop waterways, marine terminals, airports, and business and industrial development in the county. Policies are established by a three-man commission, elected by county voters, and administered by the port staff. The port area is under the taxing jurisdiction of two municipalities--Aberdeen and Hoquiam.



Water Area

Streets and Highways

Bridge

Railroad

Scale

0 1 2 3 miles

Port-owned Land

7.23 PORT OF GRAYS HARBOR. Port-owned facilities ○: (1) Bowerman Airfield; (2) terminal 1; (3) terminal 4 (logs)

Privately-owned facilities □: (1) Anderson & Middleton log wharf; (2) ITT Rayonier pulp mill; (3) Anderson & Middleton sawmill; (4) Weyerhaeuser Co. sawmill and wood chip exporting facility; (5) Weyerhaeuser Co. Bay City mill #1; (6) Weyerhaeuser Co. Bay City mill #2

Issue areas: A. new ITT Rayonier sawmill (environmental permit delays); B. Kaiser Steel site (national energy priorities supercede environmental protection); C. new Boise-Cascade sawmill (water dependency questions and environmental permit delays); D. proposed hotel site (conflict with city zoning); E. port-owned, future industrial land classified as conservancy by Grays Harbor County Shoreline Master Program

Source: Ports Systems Study, Washington Public Ports Association.

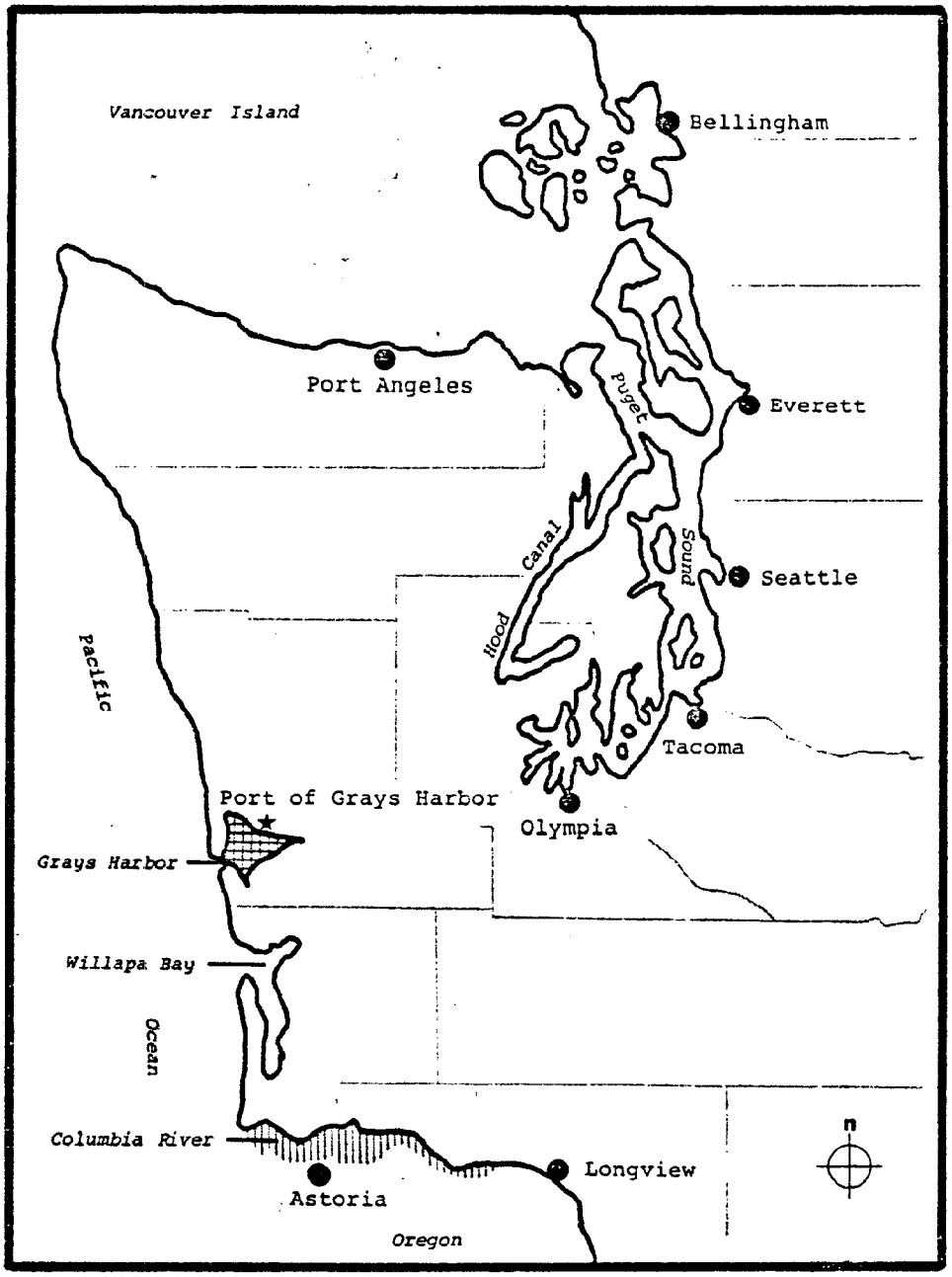


Fig. 7.24 WASHINGTON COASTAL AREA

Major planning and capital expansion programs. The Corps of Engineers, with the cooperation of the port authority, is planning the development of a 40-foot draft channel to allow larger ships into the harbor area. The port plans to build a jetty and modify the pier at one of its two main terminals.

A new 45-acre site has been prepared for a water-dependent use. Kaiser Steel Corporation holds an option on the land to develop an offshore oil rig assembly yard, although they have not yet exercised it.

Bowerman field, a regional airport adjacent to the main channel, is planned as an industrial development park. A recent agreement with fish and wildlife agencies may pave the way for active development of acreage surrounding the airstrip.

Issues of current importance. Future development depends on the port being able to resolve fundamental differences of view with fish and wildlife agencies and interest that have arisen over the Corps of Engineers channel project, the Bowerman field development, and other projects. Through the Grays Harbor Estuary Task Force, a general outline for staged industrial growth in the estuary--with stated limits on the growth allowed over the next 50 years--was agreed upon in August 1977, although the details for implementation mechanisms have yet to be worked out.

Washington coastal management program

Overview and implementing authority. The Washington coastal management program, administered by the State Department of Ecology, received federal approval in June 1976. The heart of the program is the Shoreline Management Act, augmented by the State Environmental Policy Act, Environmental Coordination Procedures Act, and other specific programs with which the state has established a coordinating network.

The state also conducts specialized studies to enhance program implementation--such as a coastal atlas, outer continental shelf impact studies, and guidelines for water uses. Further, the state coordinates program activities with state and federal agencies. Over the past four years, $4,745,730 have been allocated for program development and implementation.

The Shoreline Management Act focuses management responsibility at the local level. Master programs are prepared by local governments, pursuant to state guidelines, and are reviewed and approved by the state: they classify shoreline areas and identify uses or performance standards applicable to each classification. Local governments also administer a substantial development permit system, (permits are needed for most development activities). Permit decisions can be appealed to a Shorelines Hearing Board by the applicant, State Attorney General, Department of Ecology, or citizens' petition. Well over 300 appeals have been heard since the act was passed, providing an effective review of local government decisions regarding shoreline development.

Land and water uses. The Shoreline Management Act (SMA) establishes process, policies, and guidelines to define permissible land and water uses. It permits all "reasonable and appropriate uses" which do not adversely affect public health, the land and its vegetation and wildlife, state waters, and aquatic life.

Local governments were required to address 21 land and water activities in the development of master programs. These activities were placed within a framework of environments on the basis of existing development, biophysical capabilities and limitations, and local goals. Environments were usually classified as natural, conservancy, rural, and urban, as recommended in the state guidelines.

Shorelines designated in the legislation as "shorelines of statewide significance" are subject to additional constraints. Preference is given to projects which "(1) recognize and protect statewide interests over local interests; (2) preserve the natural character of the shoreline; (3) result in long-term over short-term benefits; (4) protect the resources and ecology of the shoreline; (5) increase public access to publicly owned areas of the shoreline; (6) increase recreational opportunities for the public in the shoreline; (7) . . . other elements . . . deemed appropriate or necessary." (RCW 90.58.020).

Coastal zone boundaries. Washington's coastal management area has two tiers. The primary tier, the "resource boundary," is that area included in the Shoreline Management Act. It encompasses the state's marine waters and their associated wetlands, and a minimum of 200 feet upland from the ordinary high-water mark. The second tier, the "planning and administrative boundary," extends inland to include all of the area within the 15 coastal counties.

Geographic areas of particular concern. The following criteria are used by the state to identify areas of particular concern: (1) areas with a resource whose environmental value is of greater than local concern or significance, (2) areas recognized as being of particular concern by state or federal legislation, administrative and regulatory programs, or land ownership, (3) areas with potential for more than one major land or water use or with a resource sought by ostensibly incompatible users.

With these criteria Washington identified ten major areas of particular concern:

1. The Nisqually River estuary
2. Hood Canal.
3. The Snohomish River estuary
4. Skagit and Padilla Bays
5. The northern Strait of Juan de Fuca and areas in Puget Sound under consideration as a terminal for new ports

6. The Durgeness estuary and spit complex
7. Grays Harbor
8. The Willapa Bay estuary
9. The Pacific coastal dune area
10. The continental shelf

Most of these areas were identified as "shorelines of statewide significance" in the Shoreline Management Act.

Public and governmental involvement. The state program originated from the involvement of concerned citizens. In response to an initiative proposed by the Washington Environmental Council, the legislature passed an alternative management program--the Shoreline Management Act of 1971--and enacted it effective June 4, 1971, as an emergency law: in November 1972, voters selected the legislative alternative over the initiative. The state Department of Ecology and other interested parties carried on an active campaign to inform the electorate of the issues involved in the two management proposals.

The Shoreline Management Act authorized the State Department of Ecology to develo guidelines for local governments to follow in preparing master programs. Public hearings were held before they were adopted and input from citizens to the preparatio of local master programs was employed in the final guidelines. Failure of local governments to encourage citizen participation was considered contrary to the act.

Local governments were required to appoint broadly based citizen advisory committees (with members representing both commercial and environmental interests), t define goals and draft policy statements, to encourage participation of governmental agencies, to describe results of the meetings, and to provide information to the public about policy statements and program developments. Program development often

extended over an 18-month period and required anywhere from 5 to 40 public meetings. In this lengthy process, more than 2,000 citizens have been directly involved in developing the shoreline program in Washington. Further, before local master programs could be adopted, a formal public hearing had to be held.

In some cases, public hearings are also held with respect to the issuance or denial of coastal development permits. Local governments must publish notices of proposed developments in a local newspaper within the county before they can issue permits.

State and local organizational arrangements. The Shoreline Management Act details the relationship between local governments and the state Department of Ecology (DOE). Although the DOE reviews local management programs and local decisions on shoreline permits, and provides local government with some financial and technical support for these shoreline management responsibilities, direct interaction is generally informal. In the case of Puget Sound, local governments, planners, and DOE representatives have more regular contact since they all meet periodically at workshop meetings.

State-level organizational arrangements are handled in two ways. Coordinating committees operate where regular ongoing contact between agencies is necessary. In addition, six coastal coordinator positions have been established in the state agencies that have most contact with the coastal and shoreline program. Staff members filling these positions review shoreline development permit applications and master program adoption and amendments, and ensure use of agency expertise in coastal management program development and refinement.

State-federal interaction and national interests. During the development of the shoreline management guidelines in 1971-72 (prior to passage of the federal Coastal Zone Management Act

federal agencies were invited to review and comment on the draft guidelines. A special state-federal task force was set up to review master programs in the early years of the Shoreline Management Act. Early in 1975, when the coastal management program was beginning to take shape, a questionnaire was sent to federal agencies to receive their input on coastal problems and management responsibilities. These responses were considered as the program was refined. There was also considerable consultation and discussion between state and federal officials during 1975 and 1976, when Washington's program was being considered for approval.

With approval of the program, primary attention has shifted to methods for implementing the federal consistency provisions. Washington has issued operational guidelines and general policies detailing the implementation of the four classes of federal activities which must be consistent with the state coastal management program. The state relies considerably on the A-95 review process and other existing permit mechanisms to achieve this review. Consistency determinations are made, for the most part, by evaluating the proposed federal action against the Shoreline Management Act, DOE's Final Guidelines, and local master programs.

APPENDIX A

Case study information was compiled by two researchers who visted each of the case study areas. Key documents were collected from port authorities and coastal management program offices, including statutes and regulations, plans and policy studies, annual reports, and other relevant studies and documents. These documents, the names of key officials, and the names of people interviewed are listed here by case study.

Milwaukee sources and interviews

General

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H.C. Brockel, University of Wisconsin-Milwaukee. Former Director of Port of Milwaukee.

Erving F. Heipel, County Landscape Architect, Parks Commission, County of Milwaukee.

Harlan E. Klinkenbeard, Director of Southeastern Regional Planning Commission.

Ronald C. Kysiak, Director of Economic Development, Department of City Development, City of Milwaukee.

Harold Mayer, Professor of Geography, University of Wisconsin-Milwaukee.

Al Miller, Program Administrator, WI CMP, Office of State Planning and Energy.

John Seefeldt, Director, Port of Milwaukee.

Eric Schenker, University of Wisconsin, Milwaukee.

Phil Winkel, Wisconsin Department of Transportation

Gene Wouk, Sea Grant Marine Advisory Program, University of Wisconsin, Madison, Wisconsin

South Jersey sources and interviews*

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Dept. of Environmental Protection
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Rod Mack, Division Head, Department of Ecology, State of Washington.

Henry E. Soike, General Manager, Port of Grays Harbor.

APPENDIX B

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The references in the bibliography are selected for several purposes. First, references include general information on coastal zone management. Second, references relate to the federal Coastal Zone Management Act, particularly general references and more detailed analysis of the different aspects discussed in the text of this volume. Third, selections are included which have implications for ports in the management of the coastal areas.

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