

WHO'S MINDING THE SHORE?

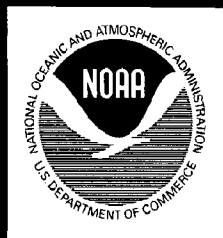
A Citizens' Guide to Coastal Management

Prepared by
Natural Resources Defense Council, Inc.

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



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NOTE TO READER

This publication, commissioned by the Office of Coastal Zone Management (OCZM), was produced by the Natural Resources Defense Council (NRDC) in an effort to provide environmentally concerned citizens with a guide to the public participation aspects of the coastal zone management process.

It is NRDC's view of the issues involved in the wise management and use of our coastal areas. Publications prepared by the American Association of Port Authorities and the Boating Industry Associations are also being distributed by OCZM. It is anticipated that future publications from other coastal user groups and citizens organizations will be developed and disseminated.

This publication does not represent the official position of the Office of Coastal Zone Management, the National Oceanic and Atmospheric Administration, or the Department of Commerce. The opinions expressed and interpretations rendered are strictly those of the authors.

Your comments on this publication are welcomed.

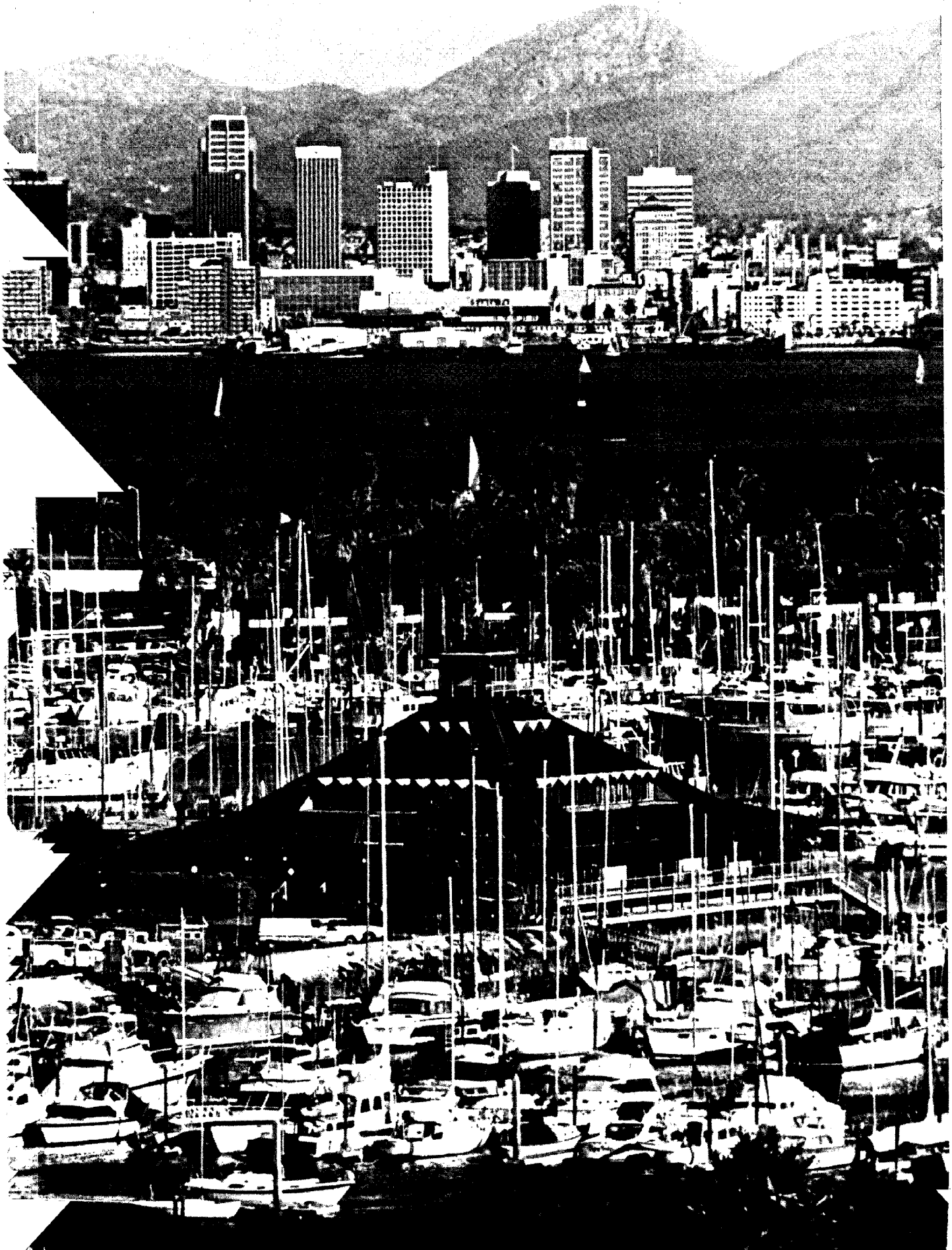
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Introduction

In the next few years, thirty states and four territories will make decisions that will determine the fate of America's coastline and the Great Lakes. These decisions will be made under a federal program established by Congress in the Coastal Zone Management Act of 1972 (CZMA).¹ The Act provides participating states with funds to develop comprehensive programs to protect and manage their coastal areas.

Congress acted because unplanned and uncontrolled development was destroying "important ecological, cultural, historic, and esthetic values in the coastal zone which are essential to the well-being of all citizens . . ."² In particular, Congress found that population growth and economic development in the coastal zone have caused "the loss of living marine resources, wildlife, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open space for public use, and shoreline erosion."³

No other area in this country is as vital or as desperately in need of attention as our coast. For example, coastal estuaries are, acre for acre, the most productive areas on earth. They can produce four times as much plant growth in a year as the most intensively fertilized and sprayed corn field. This plant material forms the bottom link of the food chain that supports ocean life. Yet, almost 75 percent of the nation's estuaries have already been damaged by dredging or pollution.

Coastal waters also serve as spawning and nursery areas for a tremendous variety of marine life. Roughly ninety commercial species of fish, including seven of the ten most valuable, depend on coastal waters at one or more stages in their life cycles. But, pollution alone killed over 56 million estuarine fish in 1971, and millions of acres of shellfish-producing waters bordering the United States are unusable because of pollution. In addition, 60 percent of America's endangered or threatened species of wildlife live in the coastal zone.

Of course, fish and wildlife are not the sole occupants of the coastal zone. Since the first colonies at Jamestown and Plymouth, much of the nation's population has been concentrated in the coastal zone. Today 50 percent of the population lives within 50 miles of the coast, and the growth rate in coastal areas is three times the national average.

Residential development along the coastline has consumed vast acreages of land needed for agricultural and open space uses. In addition, the large urban centers have immense waste disposal problems which have been "solved" by dumping wastes into the oceans. Along the California coastline, for example, 130 waste disposal outfalls annually dump 444 billion gallons of domestic sewage into bays, lagoons, and other inshore waters which reach the sea.

While ocean-oriented recreation-like sailing and swimming is up to an average of 10 days per year for every man, woman and child in the country, recreational opportunities are increasingly threatened. Only 2 percent of the coast is now in public ownership for recreational use, and our per capita share of public beaches is about one square inch. In many instances, second-home resorts and condominium developments threaten the access to even that small remaining share.

Finally, the competing demands for usage of the coastal zone have been intensified by the "energy crisis." The federal government has accelerated the leasing of tracts offshore for petroleum production. Numerous proposals exist to utilize the coastal zone as the site for deepwater ports and electric power plants. Yet, significant pollution of the marine environment is already occurring as a result of oil spills from offshore oil drilling and tanker traffic and the discharge of heated water used for cooling power plants.

The Coastal Zone Management Act is a response to these problems. It is designed to help the people of the coastal states prepare management programs to pre-

Photo by NOAA



serve and control use of their coastal land and water resources. The Act also recognizes the importance of drawing concerned citizens into the process of developing a coastal management program. Congress believed that "broad-based public participation in the planning for the coastal and estuarine zone is basic to this legislation."⁴ To guarantee this participation, it included specific requirements for public hearings and other forms of citizen participation in the Act.

This handbook is designed to help show you how to participate in your state's planning effort:

- Chapter 2 describes the CZMA and what it requires the states to do.
- Chapter 3 is a catalog of what people can do to become actively involved in the formulation of their state's program.
- Chapter 4 considers the requirements an effective management program must meet.
- Chapter 5 outlines the natural forces at work in coastal ecosystems and the areas which are vital to the preservation of these ecosystems.
- Chapter 6 describes the various recreational, commercial, and industrial activities which compete for use of the coastal zone, and some of the considerations which should be taken into account for their proper management.

- Chapter 7 takes two of the most acute development pressures in the coastal zone—offshore oil production and residential subdivisions—and points out the problems and special considerations they pose for the design of the management program.

- Chapter 8 is devoted to an analysis of the rights of public and private owners of property in the coastal zone and the extent of state authority to regulate their use of property in the management program.

The input of concerned citizens will be crucial in helping states make the decisions that will best serve the needs of us all. *You should get involved in this planning process, because it's your coastline.* It is a fragile resource. If you don't insist that it be wisely managed, who will? The management program will reflect a series of judgments about what should happen on your coast. Will beaches in your area be open or closed to the public? Will your coastline be consumed by subdivisions? Will open space be preserved? Will oil rigs and refineries and power plants have priority over other uses?

In a democracy, these questions are for all of us to decide. The planner's art can help us reach our goals in the most efficient way, but the choice of goals lies with citizens. Planning experts and elected officials need public input—particularly in a time when values are changing. Citizens should speak out and let it be known that it is no longer acceptable to compromise the public values in the coastline.

Provisions of the Coastal Zone Management Act

Thirty states, including those bordering the Great Lakes, and the four territories of Puerto Rico, the Virgin Islands, Guam, and American Samoa, are eligible for federal funds under the Coastal Zone Management Act. The grants may cover up to two-thirds of the cost of developing and then administering a coastal zone management program. Grants for development of a program are awarded under the criteria set forth in Section 305 of the Act, and grants for program administration, when approved, are awarded under Section 306. In order to ensure that states act quickly, the Act currently provides that these funds will be made available on an annual basis only through fiscal year 1977.

Congress assigned responsibility for the administration of the CZMA to the Secretary of Commerce. The Secretary in turn designated the National Oceanic and Atmospheric Administration (NOAA) as the agency in the Department of Commerce to manage the program. Within

NOAA, this responsibility resides in the Office of Coastal Zone Management. Employing authority granted in the Act, NOAA has issued regulations to implement the Act and help explain some of its provisions.⁵

The management program developed by a state under the CZMA must be a comprehensive statement, comprised of words, maps, and illustrations, that sets out the state's objectives for how coastal lands and waters should be used. It must also establish the organization and authority that the state will employ to achieve the objectives. The CZMA imposes certain requirements on the management program; but as discussed below, most of these relate to the process a state must use in developing its program.

It should be noted that the CZMA contemplates that various levels of government within a state, including local government, may be accorded a substantial role in the development or implementation of the management program. For convenience, all of these levels are referred to as "the state" in this handbook. But this reference should not obscure the fact that the division of responsibility between state and local governments in coastal planning may vary greatly from one state to the next. Indeed, in most states, local governments may be the most potent political forces in coastal planning, regardless of the formal role which they have.

THE DEVELOPMENT OF THE PROGRAM

By now all of the eligible jurisdictions except American Samoa have filed applications for Section 305 grants, have received funds, and are engaged in developing their programs. In these applications each state was required to designate a "lead agency" which would have responsibility for developing the coastal program. The Act does not require that one agency do all the work. The lead agency may allocate a portion of the grant to local governments or other state agencies.⁶ A single state agency must, however, have ultimate responsibility, and, as discussed in Chapter 4, there are dangers in fragmenting control of program development too much.

The state's decision on how to allocate funds is contained in the "management program design" which forms part of the initial application. This document outlines the state's plan of action. States were also required to submit an "annual work program" to NOAA, describing what they intended to accomplish during their first year of funding. After the first grant, states are required to submit updated work programs to demonstrate that they are making satisfactory progress in order to qualify for further Section 305 grants.

One of the first steps in the actual development of a management program will be to collect information

Zuma, CA.

Photo by Jack McDowell



about the state's coast. A state will inventory the natural areas, fisheries, historic sites, industrial development, residential housing, wildlife habitats, and other features of its coastal zone.

Once the state has gathered the basic data, it will be prepared to make decisions on what kind of objectives should be pursued in the coastal zone and how those goals can best be reached. It is clear that these vital decisions are not to be made by a small group of state planners alone. Too much is at stake. Throughout their planning process, states must actively involve local governments, regional bodies, federal agencies, private individuals, and all types of organizations.⁷ The decision-making process must provide adequate opportunities for anyone who is interested to offer comments or suggestions on what direction the management program should take. Public hearings are required,⁸ and Chapter 3 contains specific suggestions for citizen participation in the development of the program.

As it develops its program, a state may decide that certain geographical areas of its coast are in particularly urgent need of development controls. The Act authorizes a state to develop management programs for these areas in advance of the completion of the entire program.⁹ These "segments" may qualify for immediate Section 306 administrative grants upon the approval of the Secretary and a showing that the segments will be integrated into a comprehensive program as soon as practical.

CONTENT OF THE PROGRAM

NOAA's regulations provide that the federal role in evaluating a state's program will be to "concentrate primarily upon the adequacy of State processes in dealing with key coastal problems and issues. It will not, in general, deal with the wisdom of specific land and water use decisions . . ."¹⁰ But while it does not specify the outcome of the decisions, the CZMA does require that the states make certain types of decisions.

Boundaries. The first requirement, under Section 305(b) (1) of the Act, is that the program establish specific boundaries for the state's coastal zone. This is an important determination, because only the area within the boundaries will be subject to control by the state's program. The CZMA provides only limited guidance for the establishment of the boundaries; and as a result, states may differ in how broadly they define their coastal zone. The Act defines the coastal zone, in general terms, as "the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, and [it] includes transitional and intertidal areas, salt marshes, wetlands, and beaches."¹¹

On the seaward side, the boundary is fixed at three miles, presently the limit of the United States' jurisdiction. On the inland side, the boundary extends "to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters."¹² Coastal waters, including sounds, bays, bayous, estuaries, ponds, lagoons, and other bodies "which contain a measurable quantity or percentage of sea water,"¹³ are also to be made part of the coastal zone. Lands under exclusive federal jurisdiction such as national parks, military bases, and Indian reservations are excluded from the management area.¹⁴

Permissible Uses. Section 305(b) (2) of the Act directs that each management program shall include "a definition of what shall constitute permissible land and water uses within the coastal zone which have a direct and significant impact on the coastal waters." As interpreted by NOAA, this provision requires that a state identify the uses which will have a direct and significant impact on the coastal zone. The state must then identify, from among these uses, the ones which may be reasonably and safely supported by the affected resource and therefore may be permitted. Uses with little or no impact may be exempted from the program; but, the state must exercise authority over other types of uses, including authority to prohibit them or to restrict them to certain areas.

Priority of Uses. Section 305(b) (5) of the Act requires states to set "broad guidelines on priority of uses in particular areas, including specifically those uses of lowest priority." These guidelines, together with the definition of permissible uses, should be the basis for the regulation of land and water uses in the coastal zone. They will aid in determining whether specific proposals for development or use of particular areas should be accorded priority over competing permissible uses. Under NOAA's regulations, the states are expected to "utilize all available information relating to characteristics of the coastal zone when planning for specific uses."¹⁵

Areas of Particular Concern. Under Section 305(b) (3), the states are instructed to include "an inventory and designation of areas of particular concern within the coastal zone" in their management program. Examples include open spaces which are worthy of special protection, lands which are ecologically fragile or highly productive such as tidal wetlands, areas offering valuable recreational opportunities, areas where development would disrupt important natural processes, areas of high natural hazard, and lands which are important buffer zones between urban areas. Chapter 4 contains a more complete list of areas which should be considered by a state for this special status.

A related provision in the Act, Section 306(c) (9), requires that the management program include a

mechanism for setting aside specific areas for preservation or restoration. Areas so designated normally will also be designated areas of concern.

Federal-State Relations. Several provisions of the Act ensure that federal agencies will have an opportunity to offer input into the development of a state program, to review the final program, and to have their views adequately considered before the program is approved by the Secretary of Commerce.¹⁶ If a federal agency objects to some features of a state's management program, it may request that the Secretary of Commerce and the Executive Office of the President act as mediators between it and the state in order to resolve the differences.¹⁷ The CZMA also maintains federal authority in other ways: it provides that the state program must conform to the requirements of the Federal Clean Air Act and the Federal Water Pollution Control Act.¹⁸

The federal voice in the planning process is considered necessary because the CZMA provides that once a state program is approved, federal agencies must conform to it to the maximum extent practicable in all of their activities, including the issuance of federal permits and licenses.¹⁹ For example, after a state has an approved management program, a utility that wants to construct a nuclear power plant in the coastal zone cannot get a permit from the Nuclear Regulatory Commission (formerly the Atomic Energy Commission) until the state has certified that the plant will comply with the state's program. An order from the Secretary of Commerce is required before a federal agency can issue a permit contrary to the state program.

The National Interest. One of the most important provisions in the CZMA touching on federal-state relations is Section 306(c) (8). That provision requires that each management program provide "for adequate consideration of the national interest involved in the siting of facilities necessary to meet requirements which are other than local in nature." It has been suggested by some that this provision obligates states to locate facilities such as deepwater ports and nuclear power plants in their coastal zone because of their national value. However, NOAA's regulations make it clear that "the requirement should not be construed as compelling the States to propose a program which accommodates certain types of facilities, but to assure that such national concerns are included at an early stage in the State's planning activities and that such facilities not be arbitrarily excluded or unreasonably restricted in the management program without good and sufficient reasons."²⁰

NOAA has also pointed out that there is a national interest in wildlife refuges, large and outstanding beaches, prime agricultural land and other conservation-oriented uses, as well as in refineries, ports,

and interstate highways.²¹ Therefore, the national interest may require that a state consider a variety of potential uses for its coast, but it is not compelled to authorize any particular ones.

Regional Benefit. Section 306(e) (2) forms a regional parallel to the national interest provision. It requires that the management program provide "for a method of assuring that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude land and water uses of regional benefit." This provision is designed to prevent capricious exclusions by local governments of uses of regional importance from their areas.²² The interests of other areas within the state and of neighboring states must be taken into account. The considerations which apply here are similar to those raised by the national interest provision.

State Authority and Organization. The CZMA also contains several provisions that relate to the authority and organization that must be established for a management program. First, the Act specifies that the state itself must have a substantial role in the program. Under Section 306(e) (1), the program must contain "any one or a combination of the following general techniques for control of land and water uses within the coastal zone":

"(A) State establishment of criteria and standards for local implementation, subject to administrative review and enforcement of compliance;

(B) Direct state land and water use planning and regulation; or

(C) State administrative review for consistency with the management program of all development plans, projects, or land and water use regulations, including exceptions and variances thereto, proposed by any state or local authority or private developer, with power to approve or disapprove after public notice and an opportunity for hearings."

Regardless of the technique chosen, the program must contain authority—

"(1) to administer land and water use regulations, control development in order to ensure compliance with the management program, and to resolve conflicts among competing uses; and

(2) to acquire fee simple and less than fee simple interests in lands, waters, and other property through condemnation or other means when necessary to achieve conformance with the management program."²³

The organizational structure the state decides upon must be spelled out in the program, and the state must demonstrate that its legal authority—comprised of

statutes, judicial decisions, or executive regulations—is sufficient to implement the program proposed by the state.²⁴ In many states, the legislature may have to enact laws giving state or local agencies authority to carry out the program. The governor must approve the final program before it goes to NOAA.²⁵

FEDERAL REVIEW

The completed state program must be submitted to NOAA and the Secretary for evaluation and approval, in order for a state to qualify for Section 306 grants. When the program requires implementing legislation and the state legislature is hesitant to enact the legislation until it is known whether the program will be approved in that form, the program can first be submitted for preliminary approval.²⁶ This amounts to a determination that if the state government enacts the authority for the program, the Secretary will approve it.

When the program or segment of the program is submitted for either preliminary or final approval, it must be accompanied by an environmental assessment.²⁷ This

document will review what effects the program will have on the environment, what resources will be committed by it, and what alternatives are available to the state.

The National Environment Policy Act requires federal agencies to prepare environmental impact statements on major federal actions. Since approval of a management program may have important environmental consequences, NOAA will prepare an impact statement for each state program. The state's environmental assessment will assist the federal agency in preparing the impact statement, which will be circulated for public comments before the program is reviewed by the Secretary for approval.

If the Secretary finds that the management program complies with all the requirements of the Act, administrative grants under Section 306 will be awarded. If it does not meet the requirements, NOAA and the state will confer over what changes need to be made in order to win approval.

ESTUARINE AND MARINE SANCTUARIES

Section 312 of the CZMA establishes an estuarine sanctuary program and authorizes the Secretary of Commerce to make grants to defray up to half the costs of acquiring, developing, and operating an estuarine sanctuary, to a maximum of two million dollars for each. Estuaries are extraordinarily important natural areas, but are highly vulnerable to damage through filling and pollution.

The purpose of the sanctuary program is to set aside a few of the remaining undamaged estuaries so that scientists and others can study them. They will serve as natural field laboratories and educational centers over an extended period. There are plans to have each major coastal ecosystem represented. Oregon, Ohio, and Georgia have already applied for funding for sanctuary areas within their borders.

A related federal statute, the Marine Protection, Research and Sanctuaries Act of 1972,²⁸ establishes a similar program for kelpbeds and other areas of inshore, coastal, and ocean waters which have conservation, recreational, ecological, or esthetic value. Under the Act, which is also administered by the Office of Coastal Zone Management, the Secretary of Commerce can propose designations for areas and then issue regulations controlling their use.

As they develop their management programs, states should determine whether they have areas that would be appropriate for designation as marine or estuarine sanctuaries. If they qualify, areas identified in the program as places of particular concern might benefit from sanctuary status and the addition of federal funds to help study and preserve them.

Photo by NOAA



How Citizens Can Participate

Citizens can participate in their state's coastal planning in a variety of ways. Members of existing organizations may organize "task forces." Others may form new groups to focus exclusively on coastal concerns. However, the essential point is to participate. Individuals with special concerns—whether they are boating enthusiasts, coastal property owners, hikers, or commercial fishermen—should speak their minds. The following sections of this chapter contain suggestions for effective public participation.

GETTING INVOLVED

The planning effort in most coastal states is already underway, and is at varying stages of development. For example, a state may be inventorying resources now, or mapping out geographic areas of particular concern, or considering what legislative authority is necessary to implement the program. Chapter 4 describes some of the typical phases in a state's planning effort, and citizens should direct their initial attention to the subjects of current concern in their states.

One should not ignore, however, what has already happened or what lies ahead. The overall program design should be reviewed in order to ensure that the agency is making adequate progress and that all problems and potential solutions will be systematically and thoroughly reviewed by the agency. For example, if indi-

viduals are concerned that the planning appears too generalized, they should ask when it will be made specific. Or, if the inventory of coastal resources appears incomplete or superficial, they should insist that the inventory be supplemented before judgments are made on its basis.

Those who anticipate extensive involvement in the planning process should request copies of materials prepared by the state which explain that process or summarize progress to date. If the state has not prepared such materials for the public, it should be urged to do so. Another useful document is the state's annual work program, submitted to NOAA. (The addresses of the responsible agency in each state are contained in Appendix 1.)

If a review of these documents leaves questions unanswered, telephone or meet with one of the agency's planners for further explanation. If, after all this, doubts still remain over where certain matters will be addressed or how the process will operate, don't automatically assume that it's your fault. The agency has the responsibility to make the process understandable to laypersons. It is possible that it has failed in that task, and public participation will be handicapped. It is also possible that the agency has poorly designed the process or neglected some considerations.

Photo by Michelle Tetley



Public Hearings. The CZMA requires states to hold public hearings in the development of the management program. Hearings may be held to consider specific proposals for the coastal program or merely to elicit general views about what should be done in particular areas. In any event, they afford citizens an opportunity to voice their concerns directly to those who are responsible for developing the coastal program.

Of course, in some instances public hearings may be only "window dressing." The members of the agency may have already become committed to particular viewpoints or may be more influenced by informal contacts than statements made in the hearing. Therefore, while the hearings are important, it is imperative that citizens make their views known to the agency as early as possible in the planning process.

The regulations warn that "the Secretary will not approve any plan unless there has been a full and effective opportunity for public involvement in every portion of the plan."²⁹ Since it is doubtful that a single hearing can provide the public with this opportunity, a series of hearings will probably be necessary.³⁰

The agency must give the public at least 30 days advance notice of each hearing and must use news releases and other media likely to inform the public of the hearing.³¹ In addition, the public must be given the opportunity 30 days before the hearing to examine all agency documents, studies, and other data pertinent to the issues to be considered in the hearing.³²

The hearings must be held in the area to be affected, if only a portion of the management program is under consideration; or in several places, so all citizens of the state will have an opportunity to comment, if the entire program is under review.³³ In areas where the population varies seasonally as it does in many resort communities, the state must time the hearings so most persons likely to be affected by the program can be present.³⁴ If the agency's scheduling of hearings fails to maximize the opportunity for public input, as required, the state should be urged to modify its procedures or NOAA should be notified.

Citizens should learn what is expected of them and what rights they will have in the hearing. Will they, for example, be allowed to ask questions of the agency's planners or others who testify?

Since activists are sometimes stereotyped by government officials as overly emotional, vague, or poorly informed, it is important that the presentation itself be well organized and backed by facts, where appropriate. However, no one should be deterred from testifying merely because of a lack of experience as a public speaker. Reading a prepared statement is an acceptable alternative to extemporaneous oration and may reduce

the anxiety some people feel when speaking in a public meeting. In fact, most testimony before Congressional committees is read.

On the other hand, an organization may have members who have experience in expressing points of view clearly and persuasively. For example, lawyers or school teachers may be good choices for a spokesperson. If a group is allowed to present more than one speaker, they should be selected to complement—not echo—each other. Organizations may have a variety of potential witnesses—people with personal knowledge of a geographic area; scientists with special expertise on water quality, wildlife, or other aspects of the coastal environment; or concerned citizens with strong personal views.

If time permits, it may be best to prepare a type-written version of your comments, for submission to the agency, in addition to your presentation in the public hearing. The state agency is required to prepare a report of the hearing and make it available to the public and the federal officials who will review the program.³⁵ By submitting a written statement, citizens can ensure that their views will receive more thorough consideration and will be represented accurately in the report. These written comments could also be circulated to other citizens and groups and the media, in order to give greater visibility and influence to your views.

Contact With Planners, State and Federal Officials.

It is also useful to establish working relationships with the agency's planners and with the personnel of other state and federal agencies which have an interest in particular aspects of the coastal management program. They may have expertise on certain issues and be willing to provide assistance. Indeed, you may find that the official or agency shares your views on matters of mutual concern—or can be convinced—and will take public positions similar to yours.

Numerous agencies may be affected by the management program. As previously noted, the CZMA requires that states coordinate their planning with concerned federal agencies. A partial list of federal agencies which should be contacted concerning various matters is included in Appendix 3. Under NOAA's regulations, the state coastal agency must prepare a list of state and local agencies which will be affected by the coastal program and must describe their specific interests.³⁶

Contacts with planning officials at the local level may be particularly valuable. They may have a substantial role in the planning effort, and will be able to provide you with valuable information on the current uses and developments in their area. Local government, in addition, will undoubtedly be a potent force in determining the political acceptability of the coastal planning effort and its ultimate product.

Citizens' Advisory Committee. NOAA's regulations suggest citizens' advisory committees as an additional means of eliciting public participation.³⁷ Over half of the states qualifying for CZMA funding have established advisory groups, and the remainder should be urged to do so. If there are vacancies on an existing committee, you should try to get appointed or win the appointment of someone who represents your views. Communications directed to the governor's office or channeled through a powerful state legislator or coastal agency official can be effective in influencing who is appointed.

Ideally, a broad spectrum of interests should be represented—including environmentalists, minority groups, the poor, local government, the business community, etc. If the present panel is not representative of all viewpoints, then citizens should insist that new members be added or that its composition be restructured.

Citizens should also be alert to the possibility that an advisory panel may in practice be denied a meaningful role in the program's development. If this happens, they should urge that the panel be accorded greater access and responsibility in the planning process. At the same time, the panel should be considered a useful resource for information about coastal planning and a potential ally for shared concerns.

Data Gathering. One of the most important phases in the program's development is the inventorying of coastal resources, described more fully in Chapter IV. The regulations suggest that the states may use existing data and already available analyses wherever appropriate in compiling their inventories.³⁸ However, if citizens are particularly concerned about a particular resource or area, they may want to review the data upon which the state is relying in order to ensure that it is not out of date or incomplete.

People with personal interests or hobbies involving coastal resources will have particularly good vantage points for contributing to the inventory. For example, they may be familiar with patterns of recreational use or have special knowledge about wildlife habitats in particular coastal areas.

Commenting on the State's Annual Work Program. As previously noted, NOAA requires that each state submit an annual work program. The work program must include a statement of what the state intends to accomplish during the year; the state's approach to these tasks; and the manpower, time, and money required to accomplish them.³⁹ It also must include an evaluation of the state's progress during the past year.

Citizens should obtain a copy of the annual work program from their state agency or NOAA and evaluate its contents. If the state's planning is deficient in some

respect, they may be able to influence NOAA to require that the problem be remedied as a condition to further grants.

Commenting on Environmental Impact Statements. As noted in Chapter 2 NOAA has decided to prepare an environmental impact statement (EIS) under the National Environmental Policy Act as part of the federal review of each completed state coastal zone management program.

The EIS will be prepared primarily on the basis of an environmental impact assessment and other data submitted to NOAA by the state agency and must include a thorough discussion of the impact of the program on the coast and its resources and a description of alternatives to the coastal management strategy chosen by the state.⁴⁰

NOAA will prepare a draft statement first and circulate it for comments. A period of at least 45 days will be specified for the receipt of written comments from citizens and state and federal agencies. In addition, NOAA will hold at least one public hearing in the state to receive testimony from the public concerning the draft impact statement and the state's proposed program. Thereafter, NOAA will revise the draft in light of the written and oral comments and will publish a final EIS. This document will then be considered by NOAA in determining whether the state has qualified for federal funds to administer its coastal management program.

The EIS may be the only occasion when an independent, overall assessment will be conducted of the state's management program. Comments from the public may go far to ensure that NOAA conducts a comprehensive, thorough review of the program. Bolstered by citizen input, NOAA's impact statement may point out shortcomings in the state's program and prompt changes in it, or it could provide valuable support for a state's effort which comes under political attack.

Those who are concerned about particular features of the completed state coastal zone plan could make suggestions to the state agency on what should be included in the environmental assessment submitted to NOAA. They could then obtain copies of this assessment and other data submitted to NOAA and evaluate this material for completeness. When the draft EIS is issued, they should review it and prepare written comments, or testify at the public hearing on the draft, or both. They could also review the final EIS to see how adequately NOAA responded to their earlier comments and to the requirements of the National Environmental Policy Act.

State and federal agencies with a direct concern will also have an opportunity to comment on the draft EIS, and their potential influence should not be ignored. These other agencies may be convinced to submit comments in

support of a particular viewpoint on the program.

Public Education. The development of the management program will be influenced greatly by public opinion of the agency's work. Land developers, utilities and oil companies will undoubtedly receive wide publicity for their opinions. They have the resources to advertise and secure news coverage for their views on the management program.

Citizens' groups should work to create the proper climate of public opinion that will encourage the agency to prepare an effective management program. News stories will be helpful which dramatize the destruction of coastal resources from uncontrolled development and the need to regulate the use of the coastline.

The local press and broadcasters should be kept well informed of a group's activities and its views of the basic issues in coastal planning. Press releases should always include the name and telephone number of a person the journalist can contact for more information or a further explanation of the story.

Speeches are another educational tool. Youth groups, civic organizations, and church groups are often receptive to requests for an opportunity to speak before them. Teachers' workshops have also been used with success by some citizens' groups. A conference could be arranged to help teachers understand and eventually involve their classes in coastal-related topics. There are direct tie-ins to science classes as well as social studies areas.

Maximizing Citizen Participation. Citizens should not only participate personally in the planning process, they should also see that their states do an adequate job in getting others to participate. States should be urged to consider educational campaigns to inform the public of the coastal planning effort, the appointment of public information officers, and surveys to determine public preferences. Where viewpoints remain unrepresented, staff members of the agency could be appointed to discern and speak out for these viewpoints.

In addition to trying to secure broad public involvement in the coastal planning effort, states must also develop an effective means for *utilizing* public input. If doubts exist, citizens should inquire how the opinions expressed in public hearings and other forums will actually be cranked into the planning process.

Lobbying. The governor must review and approve the management program before it can be submitted for federal approval,⁴¹ and the legislature may have to enact legislation to establish the authority necessary to implement the program.⁴² Rarely will these approvals be mere formalities. Substantial changes may be made before a program is approved, or it may die for lack of political support. For this reason, state political leaders may also

be quite influential in the development of the coastal program.

Citizens should not neglect this political dimension and should actively work to inform legislators of their views. They should determine what legislative committees exist with jurisdiction over coastal matters. Several committees may be involved. Learn their membership and approach the legislators or their staff to win support for your views.

GETTING ORGANIZED

People who develop a concern over coastal issues should try to find others who share that concern and are willing to work to do something about it. One person alone, no matter how dedicated and hard-working, can seldom achieve as much as a well-organized group. A letter written on the letterhead of a group is more apt to be read by officials. The activities of a group are more likely to get news coverage. A group, too, allows individuals to combine their skills and resources.

A number of national organizations, including the National Audubon Society and the League of Women Voters, have an interest in the CZMA program. These organizations have local chapters in most coastal states, and they may be involved already in the planning process in your state. Your state's coastal agency will no doubt know of other groups which are active in coastal planning in your area. Finally, the National Wildlife Federation, 1412 16th Street, N.W., Washington, D.C. 20036, publishes an annual Conservation Directory (available for \$2.50) which lists citizens' groups in each state (together with state and national government agencies which have jurisdiction over environmental matters).

If no suitable groups exist, one should consider spearheading a coastal project within an existing group that has an inherent stake in shoreline planning, or forming a new group. If you are a member of a summer home owners' association, a beach club, or a sailing or conservation group, for example, you should urge your organization to participate in the planning process.

GETTING INFORMATION

Effectively contributing to the coastal planning effort often requires that the citizen be well informed on the issues and the facts that underlie them. You may need particular information about the present use of an area of the coast in order to comment on its proposed treatment in the program. Or you may need technical information in order to evaluate general policies for the siting of power plants, for example. If the issues become highly technical, citizens may want to get assistance from experts in understanding the material.

The state coastal agency should be a good source

for a variety of materials pertinent to coastal planning. NOAA's regulations require the state agency to make these documents available to the public.⁴³ Some other potential sources of information are discussed below.

Federal Agencies. Agencies of the federal government are often repositories for a large number of technical publications and other information of interest to citizens participating in coastal planning. Some of these agencies are listed in Appendix 3.

Particularly valuable sources of information are the environmental impact statements prepared by federal agencies. EIS's have been prepared on thousands of projects funded or approved by federal agencies since 1969. If the state program contemplates a certain type of flood control project, for example, citizens should contact the U. S. Army Corps of Engineers or Soil Conservation Service to see if they have prepared an impact statement for a similar project. A review of that EIS will provide information on the anticipated environmental consequences of the local project, and its findings can be compared to the report of the state agency.

In addition, an EIS may have been prepared on an entirely unrelated project but one which was proposed for a particular geographic area of interest to a citizen. Such EIS's usually contain detailed descriptions of the natural features of the area, environmental problems, and socio-economic conditions.

Indices of federal environmental impact statements are contained in the Federal Register (available in many libraries) and the "102 Monitor," published by the federal Council on Environmental Quality, 722 Jackson Place, N.W., Washington, D.C. 20006.

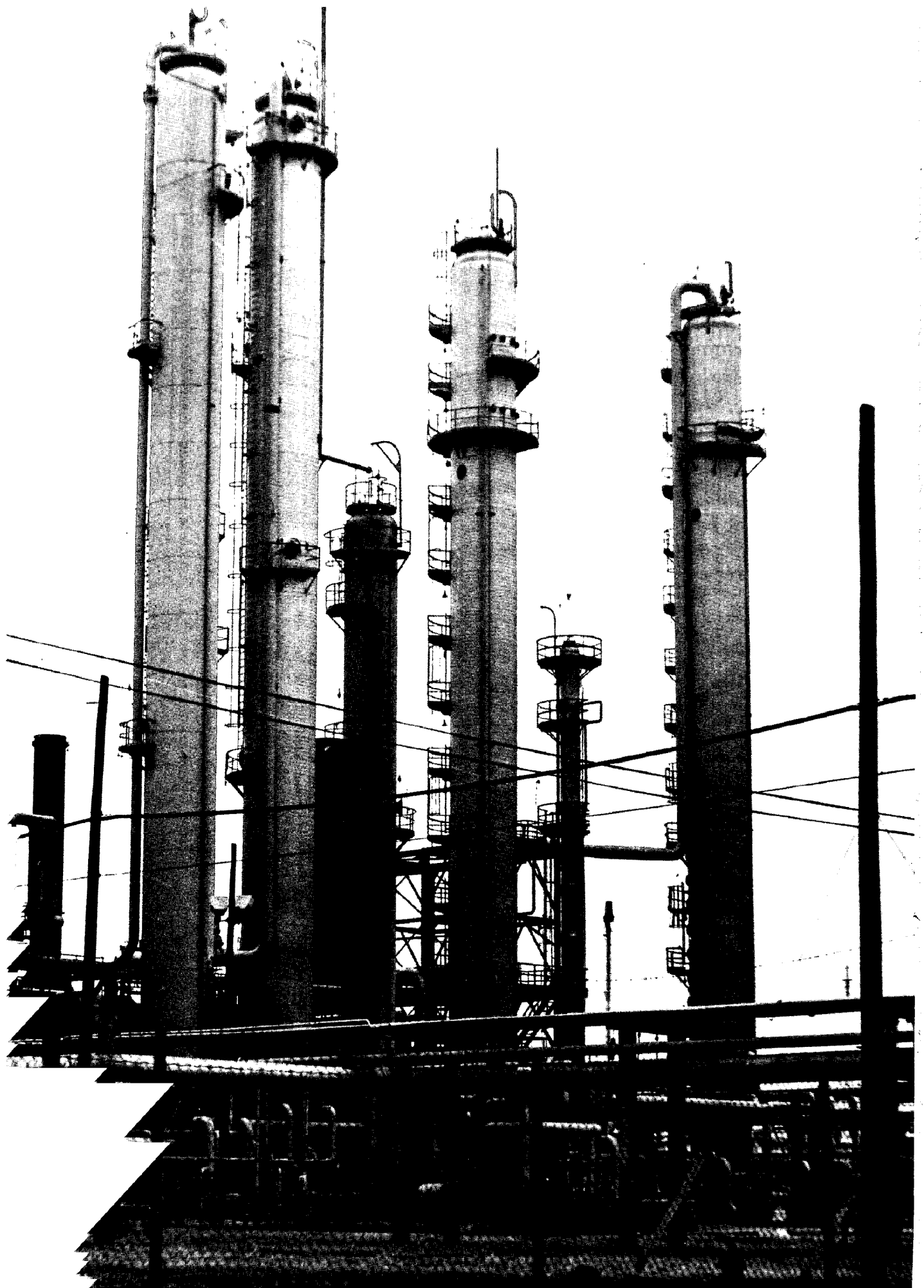
State and Local Government Sources. State and local agencies which currently have jurisdiction over matters which may be affected by the program are also likely to have information of value to citizens. The coastal agen-

cy's list of these agencies can be employed as a basic guide for tracking down facts and data on specific local conditions or projects. Some states also require environmental impact reports for state and private projects. An index of these reports should be reviewed if the particular state prepares them.

The offices of the local planning agency and local government can provide a citizen who is willing to dig with information on existing land uses and controls, the availability of public parks and recreational opportunities, the number of subdivided lots, the level of construction activity, the amount and type of planned development, and a myriad of other facts and figures which may be relevant to what kind of program the state should adopt for that area.

Private Sources. A number of journals and other publications devoted to coastal planning are identified in Appendix 4. Two of the most notable are *Coastal Zone Management*, a national weekly newsletter, and *Coastal Zone Management Journal*, a quarterly which publishes scholarly articles on coastal planning and scientific research. Some states have similar newsletters or publications devoted to coastal planning activities.

Aside from publications, the most significant private sources of coastal information are individuals, particularly those with professional expertise. Citizens should strive to interest experts in their views and win their assistance in contributing to the formulation of particular aspects of the management program's development. Various local, state, and federal agencies are sources for the names of local experts. Local colleges are another. Finally, public interest law organizations, such as the Natural Resources Defense Council, the Environmental Defense Fund, or the Sierra Club Legal Defense Fund, are often willing to offer professional assistance or advice.



Key Issues in Coastal Planning

Developing a coastal zone management program is a difficult and demanding task. There should be nothing mysterious about it, however. While planners—like lawyers—have their own jargon, much of their work is based simply on common sense. That is not to say that decisions about what should happen to the coast are easy. They are often extraordinarily difficult. But the decisions should be made by all since everyone must live with the consequences.

In what follows, we have identified some of the key issues that a state must address in its program. First, however, attention should be directed to whether the agency is doing an effective job of developing a program.

IS THE PLANNING PROCESS WORKING?

While a state's coastal planning effort ultimately must be judged by its product—the management program submitted for NOAA's approval—citizens should scrutinize closely the *process* by which the program is to be developed. While the planning approach will vary from state to state, we have described below the essential steps in the process and possible areas of public concern and input.

By now, all states engaged in coastal planning have appointed a "lead" agency to take charge of the effort. If this agency is not doing a sufficient job, it may not

be too late to get its responsibilities restructured or re-assigned. Moreover, while the preparation of the coastal program will require the cooperation of a number of state and local agencies, citizens should ensure that the lead agency has in fact assumed primary responsibility for the planning process. It is not sufficient, as some states have done, simply to funnel all money and planning responsibilities to local governments. Nor would it suffice simply to "glue" a series of local plans together to create the management program, or to allow it to be implemented exclusively at the local level.

Local governments may lack the capability and perspective to develop single-handedly a comprehensive program for management of a state's coastal zone. The vital natural areas of the coast (described in Chapter 5) may overlap several jurisdictions, and traditionally it has not been the responsibility of local governments to assess the cumulative effects of developments from one jurisdiction to another. Similarly, other problems like intraregional transportation transcend city or county lines. If localities and other state agencies are given substantial responsibilities, the lead agency must at least direct and monitor these efforts, and provide specific guidelines for their work.

As one of the first steps in coastal planning, the Act requires that states conduct an inventory of coastal re-



Beach Access. Asilomar, California.

Photo by Michelle Tetley

Energy. Texas City, Exxon refinery.

Photo by Michelle Tetley

sources. In many states, coastal wetland studies were underway prior to the CZMA program. Citizens should be sure that state inventories cover all the aspects of a coastal zone and are not restricted to more limited inventories undertaken pursuant to existing programs.

The inventory must not be restricted to ecologically-based data. Data on population centers and growth trends, existing industrial, commercial, residential, and recreational uses of the coastal zone must be obtained. This information will be essential in establishing what areas need special protection and how other areas should be used.

The states should conduct further studies to determine what levels and types of development can be accommodated in various areas without degrading the coastal environment. These studies of "carrying capacity" should be made not only for natural features—for example, how much recreational use can fragile bluffs sustain—but also for man-made aspects of the environment—for example, how much traffic can a coastal highway accommodate. These use limitations should be depicted for particular areas on maps.

These studies will enable the state to designate geographic "areas of particular concern" and to spell out special protective measures for such areas. Beyond this, states must conduct a detailed analysis of future needs and uses in other areas of the coastal zone and determine which uses shall be permissible there, too. Local residents, industry, recreationists and others may have differing views on these questions. Except for very fragile areas and ones already highly developed, few areas will have a single, definite use upon which all can agree. In many instances, it will be necessary to establish a set of priorities for the uses of an area.

A state may find that legislation is required to formalize certain features of the management program, to set up an administering body, and otherwise to implement the program. The product should be a cohesive program for the management of the coastal zone, accompanied by authority for effective implementation.

Finally, it should be noted that many states—particularly the Atlantic, Gulf, and Great Lakes states—will have problems or resources in common with neighboring states. As each state develops its program, the programs of neighboring states must be considered and coordinated where necessary. In many instances, an interstate committee will be required to develop a plan for a shared resource, such as Long Island Sound.

IS THE COASTAL MANAGEMENT PROGRAM ADEQUATE?

The checklist which follows pinpoints some of the major issues which should be of concern in reviewing the

coastal zone management program, as developed by a state. Many of these issues will probably arise early in the planning process. Citizens should not wait for the final product to be completed to give their input.

1. Are the Boundaries of the "Coastal Zone" Adequate?

States are required to establish the boundaries of the "coastal zone," in order to define the area of water and land which will be covered by the management program. The CZMA standards for this determination are discussed in Chapter 2. Of primary concern is that entire coastal ecosystems (discussed in Chapter 5) be included within the boundaries.

The inland extent of coastal waters may be determined by appropriate standards for measuring the concentration of salt in sea water or the shift to fresh water forms of life.⁴⁴ In addition, an effective management program may require some authority over activities further upstream, such as the construction and operation of dams, which may have an impact on the coastal zone.

It may be tempting for states to place the boundary of lands within the "coastal zone" to coincide with the boundaries of coastal counties or a coastal highway, or simply to include all land within a specified number of yards of the high tide line. These types of boundary lines are convenient to establish and administer since there will be little question of what land is included.

But citizens should make certain that the boundaries are adequate to include all of the "existing, projected or potential" land uses which have a "direct and significant impact" on coastal waters. NOAA has instructed states to develop operational measures for this determination.⁴⁵ For example, shorelands can be conceived as the terrain of the coastal watershed or drainage basin immediately adjacent to coastal waters. These areas should be included to protect coastal waters from present and future pollution by sediment, nutrients, or toxic pollutants and to stabilize the volume and rate of fresh water flow.

States should also be alerted to the problem of a boundary boom. Often extensive development will occur just beyond the area regulated. The boundary must be set liberally enough—or transitional areas established—so that this development will not interfere with management of the coastal zone.

2. Does the Program Cover All Uses and Activities Affecting the Coast?

The agency's determination of the boundaries of the coastal zone will map the territorial limits of its jurisdiction. It is perhaps equally important, however, to consider whether the agency will have authority over all significant uses of the land and water within these boundaries.

For example, if the management program places

no control over the siting or operation of power plants, then the coastline may become occupied by a series of such plants which unnecessarily damage sensitive or valuable natural areas. Or, if agricultural lands within the coastal zone are not included within the program's coverage, then the conversion of this precious resource to residential development may continue unabated. Or, if the agency has no authority over major public works projects, such as highways or sewage treatment facilities, it may lack sufficient authority to control the growth which they induce, the increased air pollution from traffic, or the degradation of water quality from inadequate sewage treatment. Citizens should examine the program closely, as it is prepared, in order to ensure that land and water uses like these have not been exempted from regulation.

In addition, so-called "grandfather clauses" should be scrutinized closely. These provisions exempt certain uses or developments which are already under construction or have received some previous governmental approval. A common example is an exemption for land which has been previously subdivided—even though no construction may actually have taken place. While the doctrine of "vested rights" (discussed in Chapter 8) may require that exemptions be granted to certain developments already approved or under construction, proposed grandfather clauses may go further than is constitutionally required.

Would a serious problem be created if all such uses or developments were allowed to proceed uncontrolled? If so, the state should be urged to eliminate or narrow the scope of the exemption. Even if a type of development has not been expressly exempted from the program, one should nevertheless examine other provisions in the program to make sure that it is in fact addressed therein.

3. Are All Geographic "Areas of Particular Concern" Designated and Protected?

Under the Act, the program must include "an inventory and designation of areas of particular concern." These areas must be accorded special protection in the coastal zone management program. NOAA's regulations include a list of areas which should be considered for this status:

- (1) Areas of unique, scarce, fragile or vulnerable natural habitat, physical feature, historical significance, cultural value and scenic importance;
- (2) Areas of high natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well-being;
- (3) Areas of substantial recreational value and/or opportunity;

(4) Areas where developments and facilities are dependent upon the utilization of, or access to, coastal waters;

(5) Areas of unique geologic or topographic significance to industrial or commercial development;

(6) Areas of urban concentration where shoreline utilization and water uses are highly competitive;

(7) Areas of significant hazard if developed, due to storms, slides, floods, erosion, settlement, etc.; and

(8) Areas needed to protect, maintain, or replenish coastal lands or resources, including coastal flood plains, aquifer recharge areas, sand dunes, coral and other reefs, beaches, offshore sand deposits, and mangrove stands."⁴⁶

If there are areas near you which fall into any of these categories and deserve special protection, you should urge the coastal agency to designate them. It is also useful to scrutinize the list of such areas prepared by the agency in order to determine whether there are categories of areas which should be included and have not been. In addition, one should insist that such areas are broadly enough defined—or buffer zones are created—so that the development of surrounding lands will not make their protection more difficult. Finally, the special management controls, which have been developed for these areas should be examined to ensure that adequate protection is provided.

4. Has the State Adequately Planned the Uses of Water and Land in the Coastal Zone for the Future?

In a larger sense, the entire coastal zone is "an area of particular concern." Accordingly, citizens should work to ensure that areas which are not specifically designated for special protection are still planned for orderly, balanced use and development. In this regard, special attention should be paid to your state's decision as to which land uses shall be permitted in particular areas and, from among those uses, which ones will be discouraged or encouraged. These decisions are required by CZMA, which calls for coastal management programs to define "permissible land and water uses" within the coastal zone and to contain "broad guidelines on priority of uses in particular areas."⁴⁷

In the definition of "permissible uses," citizens should work to ensure that their state's program prohibits users which have an undue adverse effect upon a particular coastal environment. Under the federal regulations, the uses which may be identified as permissible are "those which can be reasonably and safely supported by the resource, which are compatible with surrounding

resource utilization and which will have a tolerable impact upon the environment."⁴⁸

In order to find out which uses meet this test, the state must first determine the "carrying capacity" of each coastal resource—that is, its capability to support various types of uses. With the locations of each resource known through the resource inventory and map, the permissibility of particular uses in specific areas may then be determined. Note that no use or development should be allowed which cannot comply with federal or statewide standards, such as air or water quality standards. In particular, the CZMA specifically provides that the program must incorporate the requirements of the Federal Water Pollution Control Act and the Federal Clean Air Act.⁴⁹

In certain areas, including those of particular concern, the uses which are permissible may be limited in number because of the nature of the affected resource. A marshland, for example, cannot withstand intensive forms of development which require dredging or filling. In many coastal areas, however, a broad variety of uses may be permissible. The questions then becomes which of these possible uses are more desirable and therefore to be encouraged, in light of not only the need to preserve environmental quality but also to respond to social and economic needs. Conversely, there is the question of which uses are less desirable and therefore to be discouraged by restraints.

In order to set these priorities of use or development in particular areas, public needs must be analyzed, along with the suitability of meeting particular needs in specific locations. Consideration must be given by the state to whether a particular use or development is "dependent" on a location on the coast, and whether available inland locations would be preferable. For example, a California coastal plan found that marinas were clearly "coastal-dependent" while residential developments were not. Your state should be urged to conduct these sorts of studies in order to determine how the land and water in particular areas within the coastal zone should be used.

Finally, when a particular priority of uses has been designated for an area, the program should contain specific "performance standards" for these uses. If a power plant is allowed, then guidelines should specify, for example, whether closed or recirculated cooling systems will be required in order to protect marine life. If residential development is allowed in a particular area, then controls should be placed on grading, the placement of impervious surfaces, and the sewage treatment methods that will be allowed, as examples. Only in this way can an adverse impact of particular developments be mitigated to the extent necessary.

5. Is the Management Program Specific Enough?

It is often tempting for planners to develop only general policies and standards. They may lack the information required to be more specific. General guidelines also allow for greater flexibility in administering the program. Finally, a program which does not draw hard and fast lines may achieve greater political consensus.

These are genuine concerns, but carried too far, they may make the program virtually worthless. For example, the "permissible uses" may only be vaguely defined, leaving major questions about the program's coverage. Areas of particular concern may have been listed in broad categories but not specifically identified for protection on any maps. The guidelines for priority uses in particular areas may be so general that "anything goes."

If standards or policies are too general, it will be left for those who administer the program to make the significant decisions about where and how development should be controlled. These decisions may take place *ad hoc* in the resolution of individual development controversies where the perspective is necessarily more limited and the agency is more subject to potentially undue influence from special interests. If coastal planning means anything, then the important decisions must occur in the preparation of the coastal management program itself.

Citizens should insist that the program be as specific in all respects as is practicable. Of course, where specific guidelines must await further study, a substantial measure of flexibility may be required. Moreover, the program for the coastal zone should not be fixed for all time, but should be capable of revision through a continuing planning process as more information is acquired or society's needs change. But, unless the agency is urged to be definitive in its planning, the product may be a series of lofty declarations which do little to resolve the basic conflicts which motivated the planning in the first place.

Therefore, citizens should ask their coastal planning agency whether maps will be prepared which reflect specifically what uses will be permitted in particularly defined areas of the coast. If maps will not be prepared now, when will they be? Do the "performance standards" specifically define what standards developments in particular areas must meet? If policies of general application are qualified by phrases such as "where appropriate" or "unless the public interest otherwise requires," then citizens should inquire whether the agency has made an effort to determine what circumstances would be embraced by these expressions. If so, can these be specified in the management program without unduly restricting the flexibility that may be required?

6. Is There Sufficient Authority to Implement the Program?

Merely specifying what uses are to be made of the land and the water within the coastal zone doesn't mean that it will happen that way. Far too many land use plans have been relegated to planners' bookshelves, while the actual development of land remains "business as usual." Accordingly, the Act requires not only that a state develop a program but also full legal authority necessary to implement it.

If an area on the coast has been designated for preservation as open space, for example, one should inquire how this will be accomplished. Will the land be purchased by the state and maintained for that purpose? Or, will the land be zoned for only open space uses, such as farming? Or, will a system of incentives, through changes in the tax laws, for example, be created in order to encourage such uses? Or, if particular areas are determined to be in need of restoration—such as an estuary, for example—will affirmative programs be established to accomplish this purpose? If these types of questions are not answered at some stage in the planning process, the agency has failed in its task.

In what follows, we will analyze some of the basic approaches to controlling the use of water and land within the coastal zone, after it has been determined through the planning process what uses are preferable in each instance.

Acquisition. An effective coastal zone management program for a state will undoubtedly require that it be given the authority to purchase land for public use and that sufficient funds be made available to the program for this purpose. For example, if public parks in a coastal area are scarce, then it may be necessary for government to purchase privately-owned land for this use. However, very substantial amounts of money will be required for such acquisitions, and the funds available may be quite limited.

State or local governments will also be required to incur substantial expenses to maintain property acquired, and local governments will lose tax revenues when these properties go off the tax rolls. Therefore, as in the past, the use of land and water within the coastal zone will have to be controlled largely through public regulation of its private use.

Accordingly, citizens should urge their states to give particular consideration to the design of a realistic program for acquisitions. In particular:

- States should make a careful selection of those areas or categories of property that are to be acquired, and priorities for these acquisitions should be established;

- Property should not be purchased where regulation, fairly employed, would as easily solve the problem;
- The full cost of the acquisition program should be estimated and sources of funding fully explored;
- The acquisition program should include the power of eminent domain, so that the choices of property are not limited to those currently for sale; and
- The state should have authority to purchase limited interests in property—such as conservation or scenic easements or rights of way—where savings would be achieved and the purpose of acquisition fulfilled.

Shoreline Zoning. If a state has specifically designated certain areas of particular concern for protection and has mapped the specific uses to be permitted and preferred in these and other coastal areas, the program could then be implemented by the zoning of those areas for those uses. Citizens should examine the zoning to ensure that it meets the following criteria:

- It should specifically designate the proper uses for particular areas according to standards discussed above;
- The standards and procedures for reclassification of the zoning or for variances should be carefully drawn to avoid traditional abuses of these procedures; and
- Zoning devices which provide for planned unit developments, clustered housing, and development rights transfer should be available to encourage creative developments, under appropriate safeguards.

Performance Standards. It may be preferable for states to combine shoreline zoning with performance standards. Under the latter mechanism, property owners would be required to obtain a permit from an agency to develop their property, and their proposals would be reviewed for conformity with standards relating to such matters as the control of run-off or siltation, the handling of waste water to minimize pollution, or structural requirements. Permit systems could also be created to control uses of coastal waters, such as commercial fishing, activities relating to oil drilling, and marine traffic, to name only a few.

An example of this mixed approach is that adopted by the County of Kauai, Hawaii. Under this plan, development is prohibited from certain lands, such as highly productive agricultural lands. In areas where development is permitted, constraint districts have been established to reflect areas with high slopes, unstable soils, flood plains, or other special topographic features or areas of historical, ecological, or scenic importance. Within these constraint districts, special substantive and procedural requirements must be met before any particu-

lar development is permitted. The substantive requirements consist of performance standards, such as grading and construction standards. The procedural requirements consist of special types of environmental impact and other analyses to be conducted.

Citizens should review these performance standards to ensure that they will actually accomplish the objectives for which they are proposed:

- All of the factors necessary to mitigate environmental damage should be made subject to the agency's review in considering a particular development proposal;
- The standards should be sufficiently specific;
- The agency should have the authority to impose conditions on developments to ensure that mitigating measures will be employed; and
- It should have the authority to require that developers dedicate property for public access to beaches or for parks in large-scale developments.

Interim Moratoria on Development. In most states, no interim controls have been placed on development while the coastal zone management program is under preparation. In other states, the agency may be nearly ready to implement a statewide management program, although certain areas will require further study in order to determine whether development should be allowed, or how much and what type. Development in these areas may foreclose planning options or significantly impair the quality of that particular environment in the absence of planned controls. Indeed, the prospect of restrictions on development in the eventual management program may intensify development pressures in the interim.

In these instances, a limited moratorium on development may be appropriate. The courts have generally upheld such interim measures if there are sound reasons for restricting development pending further planning and the period of the moratorium is reasonable.⁵⁰

Control of the Placement of Key Public Facilities. A number of recent studies indicate that the construction of new public facilities probably has the most direct and immediate impact on the use of specific land and water areas.⁵¹ The construction of highways and mass transit facilities, for example, may open up new areas for residential and commercial development and accelerate property values and pressures for development. Newly constructed sewage treatment plants and water supply projects have similar effects.

It seems imperative, therefore, that the management program contain a thorough review of the need for such facilities in particular areas, their likely impact, location, and appropriate conditions to mitigate impact. In addition, since such facilities often have a regional im-

pact, it may be important to vest control over their placement in a state or regional agency, rather than leaving the matter exclusively to local government.

Tax Incentives. Tax incentives represent another form of land use control. The most popular form is the preferential assessment—a device in effect in at least 33 states. Under this concept, the property tax burden is reduced on property which the community desires to preserve in its present form—e.g., farmlands, open space, forests, or historic districts. The property may be taxed at a rate based on its current use rather than on its most profitable potential use. The present use is encouraged since any development which takes the property out of the classification results in a sizeable tax increase. Citizens should urge states to investigate these devices as a means of reducing the pressure for undesirable development in the coastal zone.⁵²

Capital Improvement Programs. In certain circumstances, a state may need to go beyond merely acquiring or regulating property; it may be necessary to undertake construction or improvement programs. For example, public recreation facilities may have to be developed. Or, an improvement program may be needed to restore a valuable estuary or to undertake soil erosion control measures in an area. The CZMA requires that states develop a process to preserve or restore certain areas. States should be urged to review the need for such programs.

However, the powers of the agency should be specifically and narrowly drawn, to avoid any bias toward grandiose development schemes. Moreover, the agency sponsoring these projects should not be the same as the agency charged with ensuring that performance standards, for example, are met by the projects. Otherwise, a conflict of interest will be built into the agency.

7. Has the Proper Agency Been Chosen to Administer the Program?

Section 306(e) of the Act requires that states adopt one or a combination of approaches to the administration of the coastal zone program. It requires either (1) that the entire management program be developed and administered by the state, or (2) if planning or regulation is delegated to local governments, that the state set standards for their use or else review local coastal plans or individual decisions on proposed development.

While innumerable variations on these themes exist, several issues emerge which are among the most important for careful scrutiny by citizens. For the reasons previously noted, citizens should urge that the state have a strong role in the planning and administration of the program. Direct planning and regulation would provide state government with the strongest role, but may be the most politically difficult alternative.

If local government is given responsibility to develop more specific local plans, these should be subject to state review for conformity with state standards. Similarly, if developments are initially reviewed by local government in the administration of the program, a right of appeal to the state or other means of state review should be established. It may be necessary to require also that the protection of certain resources or control of the placement of key facilities receive exclusive state responsibility.

One should also examine closely the make-up of particular agencies chosen to administer the program. If existing agencies are to receive this authority, a thorough study should be conducted of how well these agencies have performed their responsibilities in the past. Apparent deficiencies in the agencies' procedures or built-in biases toward particular results should be spotted and eliminated. Finally, citizens should ensure that provisions have been made in the coastal programs and accompanying legislation which will ensure that the coastal agencies are adequately funded and staffed with a sufficient number of qualified people.

8. Have Proper Procedures Been Established to Ensure Responsible Decision-Making in the Future?

The procedures which are established for decision-making by the agency chosen to administer the program may be critical in determining whether the program will be effectively implemented and enforced. Too often, strong legislation has atrophied because the agency's decisions are made out of public view and scrutiny, because special interests have an undue influence upon the agency, because the agency's procedures are ill-adapted to obtaining the information it needs to make a decision, or because the agency is not compelled to explain the reasons for its decisions. Citizens should carefully scrutinize the procedures proposed for the coastal agency to ensure that these problems will be adequately resolved. At a minimum, this requires at least the following:

- All meetings of the agency, or a quorum of its members, should be open to the public with advance public notice;
- Public hearings should be required for all significant decisions of the agency;
- Strict conflict of interest provisions should be im-

posed upon the agency's members, in order to ensure that those appointed to the agency or voting on particular matters do not have personal interests that conflict with their public responsibilities;

- Environmental impact statements or their equivalent should be required for any major decision of the agency which has not previously been the subject of a complete and thorough analysis in the planning process itself; and
- The agency should be required to prepare a written decision which reflects what determinations were made about the evidence presented to it and what reasoning was employed in reaching its decision.

9. Is Sufficient Provision Made for Participation By Citizens in the Agency's Decision-Making?

The agency will also be made more accountable if citizens have a strong voice in agency decision-making. It is important that citizens have the right to express their views on issues before the agency and to seek judicial review of the agency's decision if it improperly ignores those views. Accordingly, broad standing provisions should be enacted. Under California's coastal law, "any person" is allowed to appear and present testimony in a public hearing concerning an application for a development permit.⁵³ These people then may file administrative appeals and in turn seek judicial review. Citizens should urge that their states adopt strong provisions for citizen participation similar to these.

In addition, hearing procedures should be established which encourage citizen participation. If hearings are overly formal or employ complicated procedures capable of being understood only by lawyers, then citizen input may well be stifled. States should also be urged to consider the establishment of an ombudsman or public advisor's office to assist citizens in understanding the agency's procedures and presenting their case.

Finally, citizens' groups often lack the resources to participate effectively before agencies and in seeking judicial review. Parties who can afford to hire attorneys and experts to present their case too often hold a decided advantage—that bears no relationship to the public interest. Accordingly, states should consider the enactment of provisions which establish the right of citizens to obtain reimbursement of the fees of attorneys and expert witnesses, if they prevail in administrative proceedings or in litigation brought to enforce the program.



Coastal Ecosystems

One of the primary purposes of the CZMA is to protect the valuable natural resources of the coastal zone, in addition to encouraging balanced, orderly development. This chapter will briefly introduce some of the features of coastal ecosystems that must be considered by states as they develop their management programs. It and the next chapter rely heavily on John Clark's book, *Coastal Ecosystems*.⁵⁴

PRINCIPLES OF ECOSYSTEM MANAGEMENT

A coastal ecosystem is a geographical unit comprised of all of the various forms of life and their physical environments in the coastal waters and adjacent shoreland—each component interacting with the others. It includes the coastal water basin or basins and the coastal watershed or drainage basin adjacent to coastal waters.

It is a basic principle of ecology that the forms of life and physical components in an ecosystem are interdependent; what happens to one affects the others. For example, a decline in the number of fish in an estuary will force the birds that feed on them to move elsewhere. The coastal management program must recognize this interdependence and strive to preserve the natural balance. Otherwise, important resources (which have tremendous economic value) will be lost.

Certain physical processes are extremely important to coastal ecosystems. If one of them is altered, a chain reaction can occur that will disrupt all the species living there. The pattern of water circulation within the basin, together with the volume, pattern, and seasonal rate of fresh water flowing into the sea, are key factors. Also, in coastal waters, the presence of nutrients, the penetration of sunlight, and the temperature of the water are important factors.

The natural circulation of water serves to disperse and dilute pollutants, transport nutrients, and maintain the level of salt concentration in the water to which various species have adjusted. Tides, wind, and rainfall all affect the circulation, but are beyond the control of the management program.

Human activity can disrupt the circulation pattern. For example, if a highway is constructed on a solid causeway in a wetland area, the flow of water between the inland marsh and other coastal waters will be cut off, and the inland side can become a stagnant breeding ground for mosquitos while the other coastal waters lose their main source of nutrients. Plant life may decline, and the fish and birds that depend on the plants may dwindle. What was an attractive, productive resource would become an unproductive nuisance.

Great Lakes, Indiana Dunes

Photo by National Park Service

Any change in fresh water run-off directly affects circulation. Accordingly, human activities which involve short-cutting the natural drainage pattern—such as dredging, digging channels, flood control projects, paving, or the removal of vegetation—will disrupt circulation. After a rain, if fresh water run-off travels, via a canal, for example, into coastal waters too rapidly and is undiluted, the sudden drop in the salt concentration in the water can kill shellfish and other types of coastal life. Water quality will also be adversely affected, as the pollutants and sediment loads are not absorbed or otherwise filtered. Flood control projects, such as levees that keep river waters from spreading into natural flood plains, can also speed run-off and damage coastal environments.

Nutrients are another basic element of every coastal ecosystem. Substances like nitrogen, phosphates, sulfates, carbonates, calcium, sodium, and potassium aid the growth of marine plants and other coastal species. Normally, these are supplied by decayed plant matter and minerals washed down streams into coastal waters. If the inflow of streams is altered, the nutrient level can decline and entire ecosystems can be injured.

It is also possible to have an excess of nutrients. In particular, an excess of nitrogen, contained in sewage and fertilizers, can stimulate too much plant growth in coastal waters. Aquatic plants like algae flourish, and a process called eutrophication soon occurs. Thick growths of algae cut off light to other water plants; as the algae and other plants die, they sink to the bottom where microorganisms decompose them into a layer of silt. The decomposition process requires large amounts of oxygen which the micro-organisms draw out of the water. The level of dissolved oxygen soon drops below the level required by fish and other types of aquatic life, and the waters can become dead and stagnant.

Sunlight is another essential factor in the operation of the ecosystem. Through photosynthesis, plants capture and store solar energy. Activities such as dredging stir up silt and increase the turbidity of the waters. The decline in light penetration results in a decline in plant growth.

Temperature is also a factor in maintaining an ecosystem. A reduction in water circulation can raise or lower the water temperature, depending on the season. The discharge of heated water from power plants and industries raises the water temperature. Some species of coastal life are extremely sensitive to temperature changes.

Temperatures greater than 90°F will deplete the populations of most key estuarine animals. Subtropical and tropical waters approach this level during the summer, and even slight additions of heat from man-made sources may push the temperature past the tolerance of

marine life. Changes in temperature may also affect aquatic life in other ways. For example, salmon will not spawn if water temperatures are over 55°F.

VITAL NATURAL AREAS

A state's coastal zone management program must take into account the physical processes at work in coastal ecosystems to ensure that they are not disrupted. When a state designates geographic areas of particular concern as part of its program, it may identify prime recreational and development areas, but it should also include critical or vital natural areas and ensure that they are adequately protected. These areas include estuaries, wetlands, sand beaches and dunes, coral reefs, shellfish beds, drainage ways, kelp and sea grass beds, tidal flats, barrier islands, and the breeding, nursery, wintering, and migratory areas of wildlife. Below we discuss the functions performed by certain of these vital areas.

Estuaries. One of the most important areas in the coastal zone is the estuary—defined in the Act as “that part of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage.”⁵⁵ Basically, estuaries are the waters at the mouths of coastal streams and rivers.

Estuarine environments are rich because of the abundant mineral and organic nutrients contributed by both the coastal sea waters and fresh water run-off. This richness is aided by tidal and wind mixing that brings nutrients to estuarine habitats. These processes combine with the shallow, sun-bathed nature of the waters and reduced tidal and wave stress to provide ideal conditions for growth of marine plants and animals. The young of many species of fish develop in these waters.

For many of the same reasons that estuaries are productive, they are also vulnerable: because they already have a high level of natural nutrients, they are vulnerable to excess nutrients and the associated problem of eutrophication; because of their shallowness and semi-confined character, pollutants can be trapped in their waters. Indeed, almost 75 percent of the nation's estuaries have already been damaged by dredging or pollution.⁵⁶

Wetlands. Wetlands may be generally defined as those areas between the mean low tide mark and the yearly high storm mark.⁵⁷ Because upper wetlands are

occasionally flooded, they are naturally vegetated with wet-soil, salt-tolerant plants. They usually take the form of grass meadows or marshes. Lower wetlands—found in areas between the mean low and high tide marks—are similar in character. Salt marshes and mangrove forests are examples.

These areas serve many critical functions: they cleanse run-off; they regulate the flow of run-off and silt; they reduce flooding and maintain the navigability of waterways; they take up and store basic nutrients; and they provide essential food and shelter for coastal fish and wildlife.⁵⁸ The vitality of these areas depends upon the quantity and quality of the fresh water flowing into them. To function optimally, they must not be overloaded with contaminants, nor have their drainage patterns disrupted by dredging or development.

Sandy Beaches and Dune Systems. These constitute a buffer between the open ocean and the shorelands. The drifting waves of sand, anchored in place only by a fragile plant community of rapid-growing grasses, protect inland areas from storms and provide a source of sand to replace that lost in erosion. Dunes are important because they are able to shift and thereby absorb storm waves. Construction on beaches or dunes interferes with and often destroys the delicate pattern that maintains the dune system. It destroys the grasses and allows winds to blow dune sands away, or it interrupts currents that bring more sand. The inevitable result is erosion, flooding, and destruction. Dunes should not be altered in any way. They should be designated for complete preservation.

Barrier Islands. Similar considerations apply to barrier islands such as those off the Atlantic and Gulf coasts. These islands serve as important buffers against the open ocean, providing the shoreland's frontal defense against storms. They also have important tidelands on their inland side. The preservation of barrier islands depends on protection of their dune systems.

Each of the critical or vital areas mentioned above plays a crucial role in the shoreline system. It is, therefore, essential that they be identified during the development of the management program and that they receive adequate protection in the final program. Properly identifying them will be a major aspect of the inventory that each state must perform. Not only must boundaries be located, but the natural dynamics of the ecosystem must be understood so that they can be maintained.

Land and Water Uses in the Coastal Zone

The coastal management programs must resolve the often competing demands placed on coastal resources by a wide variety of uses, activities, and developments. This chapter will discuss some of the most common uses of the coastal zone and identify the ecological and other considerations that citizens should urge their states to take into account in setting priorities of uses and establishing controls on coastal development. A more extensive discussion of these can be found in John Clark's book, *Coastal Ecosystems*.⁵⁹

Recreation. Recreation is the most direct use that most of us make of the coastal zone. The average time spent per capita in recreation on the coast is 10 days per year. Much of this time is spent vacationing on the sandy beaches of Florida or southern California, or the coastal headlands of Oregon, as examples. Sport fishing, another major form of coastal recreation, attracts over 9.5 million salt water anglers annually, and amounts to a billion-dollar-a-year business.⁶⁰ Hunting, surfing, boating, skin diving, and nature studies are other popular coastal activities.

But the alarming fact is that while the demand for public recreation has been increasing, the opportunities have been declining. Only two per cent of the coastline is now available for public recreation, and many of the finest and most accessible areas are rapidly being walled off by private development. Recreational uses should be a high priority of concern in the planning process. States should be urged to consider the acquisition of property, developer exactions, and other techniques for protecting and enhancing public recreational opportunities.

At the same time, management programs should recognize that excessive recreational use may damage certain fragile coastal resources. The organisms in tidepools may be depleted by collectors, or fish and wildlife populations may suffer from excessive fishing and hunting. Marshes and dunes may be damaged by too much foot traffic. The management program should tailor recreational use to the carrying capacity of the area.

Finally, certain types of recreational uses may unduly limit the variety of recreational experiences or the people who can enjoy them. Large-scale beach front

Photo by NOAA



hotel or condominium developments may limit access to a privileged few in an area which should be available to all and for a variety of uses.

Agriculture. Many coastal regions are prime agricultural areas. This is due in part to the fact that rivers and streams have left rich soil deposits along their deltas. In addition, along the Pacific coast, the climate is particularly well suited for certain crops such as artichokes. However, due to competition from subdivisions, industry and other uses, substantial amounts of agricultural land have been lost. This acreage is not replaceable, and the coastal programs should take care to conserve it.

Besides being an important economic use, agriculture, if properly controlled, is a desirable use of the coastal zone from an environmental perspective. It preserves open space and does not present the danger of property damage and loss of life from flooding that more intensive types of development do.

Uncontrolled agricultural use can have serious adverse effects on the coastal zone, however. Run-off can contaminate coastal waters. Indeed, crop lands account for almost two billion tons of the sediment washed into public waters each year, four times as much as the next major source.⁶¹ Farm run-off also frequently contains pesticides, fertilizers, and animal wastes, causing eutrophication and pollution.

To prevent damage to coastal ecosystems, shoreline farms—

- should not alter the natural drainage system that cleans run-off of contaminants;
- should contain buffer areas to allow natural treatment of run-off;
- should use short-lived biodegradable pesticides instead of "hard" chemicals like heptachlor and chlordane;
- should use methods of cultivation that minimize erosion; and
- should collect and treat large concentrations of animal wastes.

Commercial Fisheries. Commercial fishing is a billion-dollar-a-year business.⁶² The harvesting, processing, and marketing of coastal fish is a major economic activity, particularly in certain regions of the country. The shrimp industry is a major component of the coastal economies of the South Atlantic and Gulf states; oysters and clams are important to the Chesapeake Bay region; and salmon is of critical importance to the Pacific Coast. The harvest of menhaden, a fish used extensively for animal feed and industrial purposes, has made major contributions to the Chesapeake Bay, Atlantic, and Gulf

regions. All of these fish species are in some way linked to coastal waters.

Disruption of the natural ecosystems by the filling of wetlands or pollution of coastal waters can directly threaten fisheries. For example, clams and oysters feed by filtering water through their bodies. Bacteria, pesticides, and toxic metals present in coastal waters are trapped and concentrated in their tissues; and people or animals who eat them can be exposed to dangerous concentrations of harmful substances. Because of pollution, millions of acres of estuarine shellfish beds have been closed to harvesting. If management programs adequately control pollution discharges, protect vital areas like breeding and nursery grounds, and prevent over-fishing, this acreage can be returned to production, and many species now dwindling in numbers can rebound to their former abundance.

Shipping. Always a major use of the coastal zone because of the location of ports and vessel traffic through coastal waters, shipping today is experiencing several transformations that have major implications for coastal areas. Foreign and domestic shipping moves well over a billion tons of material a year.

An increasing share of this tonnage is petroleum. Oil spills, which appear to be an inevitable by-product of petroleum transport, have major deleterious effects on coastal ecosystems. In addition to their direct toxic effects on birds and fish, they can disrupt physiological and reproduction processes in a variety of species. At present, there are no adequate means to prevent, police, or clean up oil spills. Nonetheless, management programs should strive to reduce spills and their impacts to a minimum.

An associated trend in the shipping industry is the increased size of tankers. Their average size is expected to double between 1970 and 1980; at the same time, their maximum draft will increase from 70 to 100 feet.⁶³ Few ports will be able to handle these supertankers unless harbors are dredged. Dredging channels and filling wetlands with the spoils have already caused significant damage to estuaries. Between 1950 and 1969, over 500,000 acres of estuarine habitat were lost through dredging and filling.⁶⁴ According to Clark, "dredging activity is the greatest single threat to coastal waters."⁶⁵

Dredge and fill activities can create short- and long-term changes in circulation and salinity by altering water flows. Sediments from the operations add to turbidity. Dredging can also stir up deposits of pollutants from the bottom and decrease the oxygen in coastal waters. In addition, plant and animal life such as shellfish are directly destroyed by dredging and spoil disposal operations.

To avoid destruction of critical habitat, navigation



Hauling in Menhaden Seine, Southport, N. C.

Photo by Bob Williams, NOAA

channels through coastal waters should be located so as to avoid vital areas—wetlands, shellfish beds, grass beds, etc. The channels should also be dredged no deeper than is necessary for safe passage of ships. Dredged spoil should not be disposed of in areas of environmental concern. Rather, the spoil should be hauled inland or to an ocean site far from inlets and vital areas.

Another trend in water-borne commerce is toward "containerization"—where cargo is shipped together in enormous crates rather than by individual item. Unlike supertankers, containerization has comparatively little impact on existing depths of channels and docking areas. The major impacts are likely to be felt onshore over a wide area, including the Great Lakes region, through an increased demand for expanded shoreline storage and handling areas. Expansion should be directed away from critical environmental areas. The filling of wetlands for such purposes should be particularly discouraged. To the greatest extent possible, the creation of impervious surfaces, in the construction of storage areas, should be limited and the natural drainage maintained.

Industrial Use. Fifty percent of the manufacturing facilities in the United States are located in the coastal zone. Some industries are sited on waterfronts of necessity, because of a need for access to water transportation or cooling water. Most, however, do not require waterfront locations. They are there because of the low cost of coastal lowlands, easy access to markets, or the inexpensive site for waste disposal afforded by coastal waters. Wet-

lands are frequently filled to provide waterside locations for industry, thus cutting into estuarine and coastal productivity. In addition, the continued siting of industry in the coastal zone results in impacts from extensive secondary development, the generation of pollution, and waste water and heat.

The pollutants and waste water from industry frequently endanger aquatic organisms and water quality. The threat varies from industry to industry. For example, the pollutants associated with paper and allied industries include nitrogen, phosphorous, oil, grease, and other chemical effluents. Petroleum refining results in the significant discharge of phosphorus, heated water, heavy metals, cyanide, sulfides, oil, and grease.

The effects of these pollutants can be curbed by the application of effluent control technology. The Federal Water Pollution Control Act Amendments of 1972, which are to be implemented in each state management program, set as a national goal the elimination of all industrial discharges by 1985. Management programs should contain standards to meet the strict requirements of that Act.

In addition, all new industrial development should be directed away from vital natural areas or other areas of environmental concern on the coast. Industries which are not "coastal-dependent" should be required to site their facilities inland.

Mining. Extractive industries mine an array of ocean resources, including oil, natural gas, phosphate, sand, metals, and biological resources, such as oyster

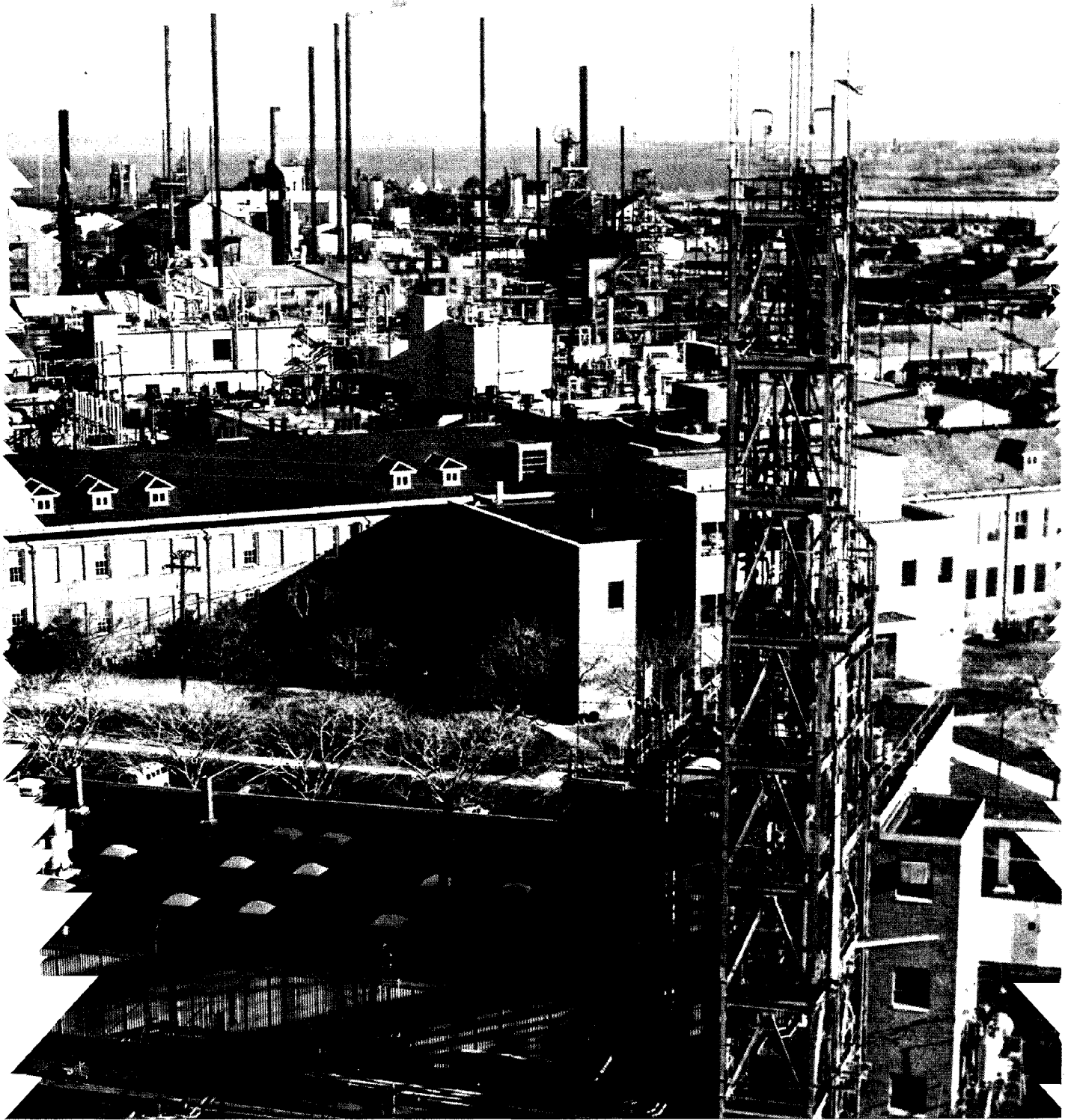


Photo by NOAA

shell. Many of these activities take place within shallow coastal waters; others operate in deeper waters on the outer continental shelf. Offshore petroleum and natural gas production has the greatest impact on the coastal zone among these activities. This topic is discussed in the next chapter.

Of the other extractive operations, the most significant are sand and shell dredging, salt evaporation, and phosphate strip mining, all of which take place in shallow, near-shore waters. About 100 million tons of

sand and gravel, 10 percent of the national total, are mined annually from submerged coastal beds. Oyster shell, used for cement, poultry grit, and other products, is one of the principal minerals mined in estuaries. Its production from beds in San Francisco Bay and along the South Atlantic and Gulf coasts is valued at \$50 million annually. Close to \$400 million worth of chemicals or chemically-related materials such as salt or magnesium compounds are processed from sea water each year. Significant quantities of phosphate are mined for fertilizer.

The problems produced in the coastal zone by these latter industries vary. Removal of sand, gravel, and shells from coastal waters damages valuable spawning, nursery and feeding sites for fish, increases turbidity and destroys essential bottom life. Shoreline mining can undercut beaches and cause erosion. Some extraction facilities discharge brines containing concentrations of copper, zinc, and other materials harmful to aquatic life.

Because of these problems, other sources for minerals should be explored before mining takes place in the coastal zone. It should be prohibited in particularly sensitive or fragile areas. Where mining occurs, it should be carefully regulated. The preferred course would be to require reclamation of mining areas and to set standards to control discharges and spoils disposal.

Power Plants. Coastal sites are often chosen for power plants because marshland prices are low, water for cooling is abundant, and no large population centers are nearby. However, during both their construction and operation phases, these facilities pose significant problems for coastal ecosystems. Construction of the plant itself may destroy important estuarine habitat and generate run-off and sedimentation in adjoining waters.

Graver problems, however, are associated with open cooling systems. Plants fitted with this type of system draw water through the plant and discharge it 10° to 34°F hotter than it was when it came in.⁶⁶ The thermal discharge can disrupt an ecosystem for a distance of 35 miles. Grass beds may be damaged, and the behavior patterns of those marine species that are keyed to specific temperature levels can be disrupted. In addition, the dredging necessary for the intake and discharge pipelines increases turbidity and produces the other en-

vironmental impacts associated with channel dredging or mining in coastal waters.

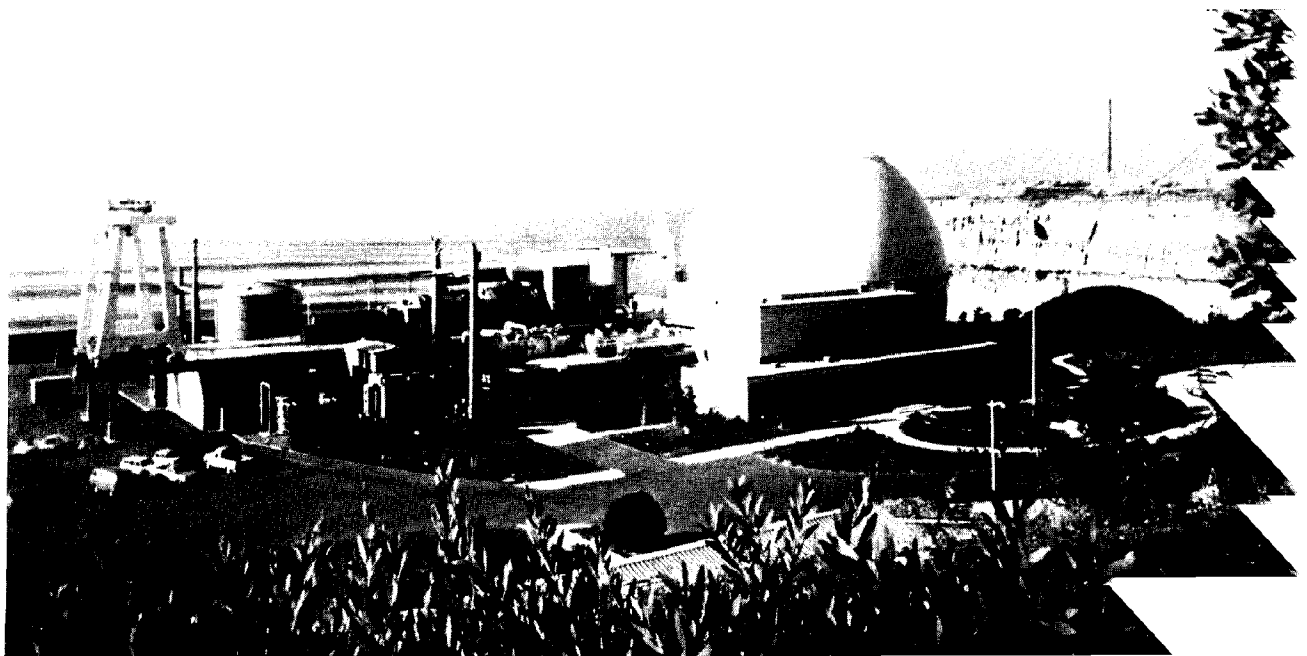
The greatest problem from open cooling system is the impingement and entrainment of fish. Multitudes of aquatic forms are drawn in with the cooling water and either killed against the screens that protect the intake pump (impingement), or, for those organisms too small to be screened out, exposed to extremes of heat, turbulence, and abrasion on passage through the plant (entrainment). Up to 30 percent or more of an annual brood of estuarine-spawning fish can be killed by the operation of a 1,000 megawatt plant located in a semi-enclosed ecosystem or breeding area, like the Indian Point plant on the Hudson River. A million fish are killed on the screens of this plant each winter.

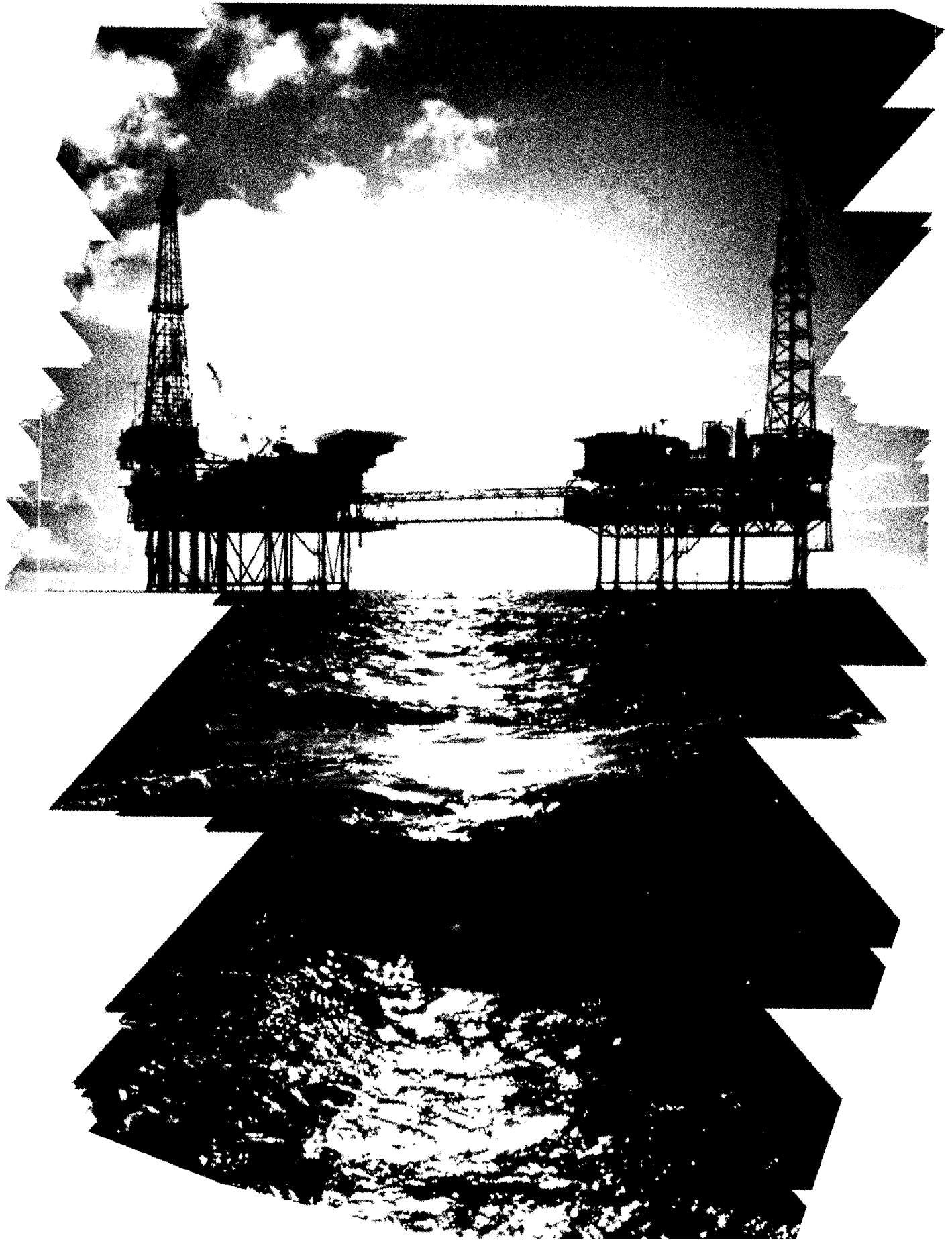
To prevent serious damage to coastal ecosystems, the following considerations should be applied to power plant sitings:

- Plants should not be located in vital natural areas of the coast;
- Closed cooling systems which recycle water through a cooling tower or spray canal should be required, particularly for all plants sited on estuaries; and
- Safeguards should be employed in the design and location of any open cycle cooling systems already in existence to minimize their impacts on coastal species.

The uses and developments discussed above and in the next chapter do not constitute an exhaustive list. Citizens should work to ensure that coastal zone management programs are based upon a thorough evaluation of every use which deserves protection or is likely to have a significant impact on the coastal zone.

Photo by NOAA





Offshore Oil and Suburban Sprawl

While the emphasis given to any particular issue will vary greatly from state to state, two broad topics in particular will require comprehensive, thorough treatment in almost every state's coastal zone management program—industrial and energy developments and suburban sprawl.

A complete analysis of these issues is beyond the scope of this handbook. Energy and industrial developments will have a tendency to be located in the coastal zone, because of required access to water transport, or for cooling water. To exemplify the potential impacts from these kinds of developments, we have chosen the offshore oil drilling program on the Outer Continental Shelf. This program will have a broad range of impacts in the coastal zone, many of which are typical of industrial and energy development activities. By including it in the handbook, we hope to make the public conscious of what kind of impacts must be planned for, and what the planning should include.

The "energy crisis" has also greatly increased pressures for deepwater ports in the coastal zone to handle supertankers transporting imported oil and for nuclear and fossil fuel electric power plants on the coast, among other things. Citizens should urge their states to survey projections of the need and likely locations of all such facilities and to provide a basis for thoughtful decisions whenever specific developments are proposed.

In a similar vein, the causes and potential solutions of suburban sprawl are too complex to be dealt with extensively in this handbook. We discuss only the immediate outcropping of the problem in proposals for new subdivisions and the build-out of existing lots. One cannot ignore, however, the impetus to such development created by the deterioration of inner cities, the construction of highways and other public facilities, energy developments, and our tax laws. In many instances, the changes required may be too far-reaching to be dealt with handily in the management program, but the recognition of the magnitude of the problem should begin there.

COASTAL IMPACTS OF OFFSHORE OIL DRILLING

In 1974, the President proposed that an additional 10 million acres per year of the Outer Continental Shelf be leased to oil companies for the discovery and production of oil.⁶⁷ Under this accelerated leasing program, the United States Department of the Interior plans to lease vast tracts, not only in regions where offshore oil production already exists, but also in so-called "frontier" areas off the Atlantic and Alaskan coasts.

Many coastal states have urged the federal government to defer these lease sales until the states have an

opportunity to consider and plan for the impact of offshore oil production in their coastal zone programs. Nevertheless, the leasing program is proceeding. Congress has authorized \$3,000,000 for fiscal years 1975 and 1976 in addition to that provided in the original CZMA, to be used specifically for planning for the impacts resulting from the leasing program.⁶⁸

Whatever happens on these fronts, it is clear that the impact of offshore oil developments should be a prime concern of the coastal zone planning in all affected states. Moreover, the impacts of the OCS program will cross state boundaries—particularly in the Atlantic states—and the states must jointly plan for the areas which may be significantly affected by the program.

The impacts from OCS development are both environmental and socio-economic. Oil pollution is, of course, a major issue raised by offshore oil drilling. Massive oil spills are clearly the most dramatic incidents associated with offshore drilling in the public mind. But little noticed leaks from pipelines and platforms are more constant and may have a more devastating effect on the marine environment in the coastal zone. Therefore, some contamination of coastal waters appears inevitable—even if no large spills occur.

Too little is known about the effect of oil contamination on aquatic life. It varies with the marine environment and the species affected. Shellfish have been repeatedly proven to be the most susceptible of marine organisms to oil contamination. In coastal areas which support substantial commercial and sport fisheries, particular attention should be devoted to the potential impact of oil contamination, and efforts should be made to prevent leasing of tracts if fisheries would be unduly threatened.

Transporting the oil to shore requires facilities which also impact the environment. Pipelines are one of the proposed means to bring oil and gas onshore from the offshore rigs. The construction of pipelines disrupts the habitat of ocean bottom organisms. If pipelines are laid across wetlands, they may disturb grass flats and marshes and disrupt water circulation patterns. In addition, their presence may impair the desirability of heavily used recreation beaches or residential areas. The management program should contain specific recommendations concerning the routing of pipelines and the siting of pipeline terminals and their construction, maintenance, and design in order to mitigate environmental damage.

Additional tanker terminals may be required in conjunction with increased offshore drilling in order to transport crude oil from areas not served by pipelines. In addition to the impact of the terminal itself, channels may have to be dredged to accommodate the tankers. This activity has a significant adverse impact on the fisheries and benthic organisms of estuaries. Dredging also requires

Exxon platform, 75 miles off the Louisiana coast.

Photo by Exxon Corp.

substantial spoil disposal sites. A state's management program should identify areas which would suffer the least impact from dredging and from the siting of tanker terminals. The subsequent program should contain the necessary teeth to restrict tanker terminals to the identified locations.

Citizens should urge that their states develop policies which require that oil companies and all energy and industrial developers employ the best available technologies and construction and operational practices—to the extent the state has authority over the matter. Concrete platforms, a new technique, are one example of developing technology. They must be fabricated in sites of deep water with accompanying onshore acreage. If the water at the fabrication site is not naturally quite deep, a large amount of dredging will occur. In addition, if platforms are constructed of concrete (as opposed to steel), as much as 100,000 tons of sand and gravel may be required for one platform; and in turn, large surface mining operations may be necessary to obtain the necessary sand and gravel.⁶⁹ If this is planned, companies should be required to undertake accompanying reclamation programs.

Of equal or perhaps greater significance are the onshore growth and development which will result from the OCS leasing program. In rural areas, in particular, the growth may be enormous and may severely strain services and facilities which are not prepared for it. A substantial work force may be required for the construction and operation of the necessary facilities, including the drilling rigs, tank farms, harbors, pipelines, and supply bases. Additional development and population growth will occur in order to provide food, housing, transportation, and entertainment for this work force.⁷⁰

As a first step, citizens should insist that states devote considerable attention to the potential impact of the OCS program in inventorying coastal resources and collecting other data. In areas where the sites for leasing have yet to be selected or the lease sales have not been scheduled, this information may help in identifying areas which should not be leased because of their vulnerability to the impact of the program. Even where commitments have already been made, planning to avoid or mitigate environmental damage is essential. In particular, states should compile information on fishery and other marine resources, areas which are hazardous or have a high potential for erosion, and current and projected patterns of land use, growth and employment. This information will allow the states to select areas most appropriate for industrial development over the long run.

The state coastal programs should include in their identification of geographic areas of particular concern those areas which should be protected from the effects of

OCS drilling. These areas include wetlands, estuaries, fishery and wildfowl breeding grounds, and other vital areas discussed in Chapter 5, as well as recreational areas.

Where lease sales have already occurred or appear likely, states should be urged to plan and implement immediate interim controls for the onshore impact of the drilling and associated activities. To assist in this goal, states should require the submission by the oil companies of detailed development plans. These will provide the opportunity to comment on and perhaps direct the location of development. In evaluating the development plans, considerations should be given to whether affected localities have sufficient available housing, sewage and water systems, schools, highways, fire, police, health, and other public services to cope with the demands which may be placed on them. Management programs should contain specific recommendations and procedures for local citizens to work with in planning for the impacts on their communities. States may also choose to establish a state permit procedure for facility siting, as part of the program or as an interim measure prior to its adoption, in order to control the location of major onshore facilities.

It is apparent that in many areas, development associated with offshore drilling will be of such a size as to require regional or statewide supervision, since the local planning bodies will often have difficulty in supervising and processing development applications. Where this development is expected to occur before the state can complete its coastal zone program, it should consider expediting preparation of "segments" of the program to deal with affected areas. If segmentation is impractical, then localities should be urged to adopt interim zoning measures to address the problems contemplated.

To conclude, OCS development is one example of industrial development located in the coastal zone. The coastal zone management programs must evaluate the potential impacts from these developments, and include procedures to mitigate the impacts resulting from the industrial facilities themselves, as well as the secondary impacts of those facilities.

RESIDENTIAL SUBDIVISIONS IN THE COASTAL ZONE

Unlike offshore oil production, residential development is not water-dependent. It may frequently be enhanced by a coastal location, at least in the short term. Coastal subdivisions offer natural amenities, recreational opportunities, and access to urban centers. But the adverse impact of such development along the coast often outweighs its benefits in the long term.

The pressure for residential development is par-



Photo by NOAA

ticularly acute in the coastal zone. Over half of the population lives within fifty miles of the coast, and the growth rate in coastal areas is three times the national average. Citizens should, therefore, be aware of the problems that uncontrolled subdivision development can pose, and they should make sure that their state's management program addresses these problems.

At a time when energy consumption and the costs of government are leading popular concerns, the traditional subdivision makes a poor showing. A federal study reveals that the total investment costs, borne ultimately by occupants and taxpayers, are 44 percent less for a high-density planned community than for low density sprawl.⁷¹ Sprawling subdivisions impose higher municipal costs for roads and utility services, and they consume more energy for heating and transportation—up to 44 percent more than high-density developments.⁷²

In turn, coastal subdivisions may induce additional development. Stores move in to be close to their customers. Roads get widened, extra utility services are provided, and further development becomes easier. Once the momentum for suburbanization has begun, it is difficult to stop.

Coastal residential development creates other problems as well. It may obstruct scenic vistas or wall off access to publicly-owned beaches. Heavy use of local roads by coastal residents can also jam traffic and make it more difficult for non-residents to enjoy the coastal environment.

The grading, paving, and removal of vegetation that accompany development are in themselves cause for concern. They may decrease the capacity of the land to absorb rain water. The result may be faster and larger run-off, increased sedimentation and turbidity, and higher flood peaks in streams; erosion along stream channels and on bluffs; and a lowering of the ground water table. Sedimentation can choke stream beds and estuaries and may contain toxic chemicals. Construction of housing and the facilities that accompany it, such as roads, bridges, piers, and jetties, can have adverse effects on dunes and beaches by increasing or exacerbating beach and shore erosion. They can also displace wildlife and destroy important breeding areas of fish and waterfowl.

If subdivisions are sited in rural coastal areas—particularly "second-home" developments—the provision of adequate sewage disposal and water supplies may prove difficult. Septic tank systems, for example, have a limited life expectancy, even if installed under optimal circumstances and regularly maintained. Often neither condition is met, and there are dangers of wastes being leached through the soil, contaminating ground water or coastal waters. In addition, if a coastal subdivision uses individual wells for its water supply, it may overdraw the supply of ground water and draw salt water into the underground aquifer or change local stream flow to the detriment of fish and vegetation.

As a first step toward meeting these problems,

citizens should urge their states to undertake a survey of the existing and projected density of residential development along the coastline. The state coastal agency should develop some perspective on the number and location of existing and proposed large subdivision developments and the potential build-out of individual undeveloped lots in areas where development may be particularly intense.

The impact of this development should be gauged and any conflicts with other desired uses determined. This information can be utilized in the planning process to determine where additional residential development can be accommodated and where it cannot, as well as the kinds of standards that should be imposed on this development where it does occur.

The final management program should represent the state's best thinking on how to contend with the problems associated with subdivisions and other residential development in the coastal zone. Although many states today have some type of law that attempts to regulate subdivisions, too often these statutory schemes have provided inadequate safeguards against the abuses of poor development. Concepts such as planned unit development, clustered housing, development rights transfer, phased development, developer exactions, and other innovative improvements in subdivision regulations should be considered as devices to reduce the costs and impact of residential sprawl in the coastal zone.

In addition, local planning officials often lack access to the sophisticated techniques and larger perspective necessary to assess properly the potential impacts of a large subdivision project.⁷³ Some mechanism for better review of large-scale developments should therefore be established which ensures that they will be judged from a regional or statewide perspective. For example, the management program might channel review of developments of a certain size directly to a state agency. Or, it may be desirable to require that large subdivisions win approval of both a state agency and local government.

In addition, states should not overlook the problems which may be created by subdivisions that already have been approved under pre-existing law and are partially developed. In these instances, the developer may have already spent substantial sums for roads and infrastructure, and individual lot purchasers may intend to construct homes in the near future. Halting such development is a harsh step. But if the project is particularly ill-conceived, the problems should be dealt with now rather than allowing unnecessary environmental damage to occur. In this way lot owners will also be spared unnecessary future costs that may be required to remedy the problems.

In a partially developed project, it may be possible

to force the developer to resubdivide the lots it still holds in a less damaging manner. The development might, for example, be clustered with some land left open for scenic vistas and public access to beaches. An alternative approach in particularly egregious situations would be for the state to acquire the undeveloped property, replan the area, and retain or sell the property as replanned.

Finally, states must come to grips with the so-called problem of "incrementalism." It often happens that a local land use agency will be presented with a proposal from a small land holder to develop his or her property into a higher intensity use or subdivide it into three or four parcels. Subdivision statutes typically exempt such developments, and they are often approved because the problems which they create may be minimal when considered individually.

At the next agency meeting, the neighbors are there with proposals to do the same thing with their properties. Since the local officials are understandably reluctant to deny similarly situated owners equal rights to develop, the neighbors' projects are approved, and then their neighbors' projects. And so on, until an entire area has been "urbanized" by increments, while no one ever took an overall look at the desirability of the change. The resulting development may be a hodgepodge of problems—inadequate roads, sewage problems, a shortage of schools and other facilities.

The problem of incrementalism arises in urban areas as well as in rural areas. In Redondo Beach, California, for example, the state's coastal commission routinely approved numerous multi-story buildings one at a time. When confronted with a later aerial photograph of the area, the chairperson of the commission exclaimed: "We suddenly realized that we were planning another Miami Beach."⁷⁴

If properly prepared, the state's coastal zone program should anticipate the effects of build-out in areas where development pressures may be more intense, and impose restrictions accordingly. The program could impose restrictions on the density of development in rural or largely undeveloped areas and encourage high-density development in appropriate areas.

If this task cannot be completed in the time allotted for initial coastal planning, then environmental impact reports could provide a means for judging the cumulative effects of development in the context of particular development proposals. Regulations governing the preparation of federal and most state impact reports require that the cumulative effects of a series of likely developments be carefully considered. If a state adopted a similar requirement for developments in the coastal zone, decision-makers could be more far-sighted in their review of these developments.

Coastal Property Rights— Whose Property and What Rights

The paramount objectives of coastal zone management should be to protect coastal ecosystems and to promote the wise use, balanced development and enjoyment of the coast by all people. However, these ecosystems and their land, water, and resource components are also "property"—owned by private individuals or federal, state, or local governments. In developing its management program, a state must understand the pattern of ownership in the coastal zone and thoroughly consider the social equities and legal limitations which may affect its regulation of the use of property.

It is important that citizens become acquainted with these issues so that they can understand any legal limitations upon the management program. Equally important is that they be able to enter the inevitable public debate over whether the management program strikes the proper balance between the rights of the public in managing precious resources and the rights of private individuals in the ownership of property.

WHO OWNS THE COASTAL ZONE?

Who owns a particular parcel of property will clearly affect the means chosen by a state to control its use, where necessary. The state may be free to deal with its own property as it chooses. On the other hand, its authority over federally-owned property may be substantially more limited. Under the CZMA, the "coastal zone"

may exclude federally-owned or controlled lands,⁷⁵ but another provision requires that federal activities "directly affecting the coastal zone" or federal development projects shall be consistent with an approved state program "to the maximum extent practicable."⁷⁶ The state may regulate the use of private property under its "police power," subject to various constitutional restrictions.

The general pattern of ownership and control of the lands and waters of the coastal zone can be conceived as forming five overlapping zones:

Shorelands. These lands—between the inland boundary of the management program and the mean high tide line—may be owned by private individuals or local, state, or federal government.

Tidelands. The lands between the mean high and low tides present a somewhat different case. Historically, these areas first belonged to the states, and public ownership has been maintained in some states, although it has been lost in others. Even where tidelands have been sold or leased to private parties, the public may have retained certain rights to use these areas for fishing or navigation. As discussed later in this chapter, a variety of legal doctrines are also available to reassert public rights of access to and use of beaches and tidelands.

Inner Waters. Included in this zone are bays, estuaries, and other bodies of water landward of the territorial seas. Their legal status is similar to tidelands. Orig-

Photo by NOAA



nally, the states owned them; but some tracts have been sold or leased to private citizens to permit them to harvest shellfish beds or mine, for example. These private rights may be subject to some privileges retained by the public.

Territorial Seas. This belt runs seaward from the tidelands. The United States currently claims jurisdiction up to three nautical miles. Under the Submerged Lands Act of 1953, Congress confirmed state title to lands and natural resources, including oil and minerals, fish, kelp, oysters, etc., beneath the territorial waters.⁷⁷

The Continental Shelf. This area includes the seabed and subsoil in and beyond the territorial sea to a water depth of 200 meters or the point to which exploitation of natural resources is possible. The outer continental shelf is the area beyond the limits of the territorial sea, and it is generally subject to federal control and ownership, including mineral rights.⁷⁸

PRIVATE PROPERTY AND THE PUBLIC INTEREST

The effect of the coastal management program on the use and value of private property will undoubtedly be one of the most difficult and controversial issues in the development of the program. Questions may arise as to whether private property rights are "violated" if certain regulations are adopted; whether some landowners are being treated unfairly; and whether the government should compensate property owners for reductions in the value of their property caused by regulation. Others may argue that the regulations are not strict enough.

Later sections in this chapter will discuss constitutional and other legal issues affecting the management program: the constitutional prohibition against a "taking" of private property for public use; the doctrine of "vested rights" which may exempt certain developments from new regulation; and laws relating to public use of and access to beaches and tidelands. For the moment, however, we are concerned less with legal issues than with the political issues which may be raised by the management program's treatment of private property.

It is clear that government cannot take a person's property without paying for it. If a government uses part of a farm for a new highway, converts a private home into a post office, or builds a dam that floods private property, it is obligated to pay for this use. On the other hand, regulation of the use of private property is often necessary to prevent injury to the interests of neighboring property owners or society at large.

Governments have long acted to protect the public from private uses of property which have resulted in unsafe working conditions, hazardous products, or undue pollution. More recently, restraints have been imposed to prevent the impairment or destruction of natural resources—the value and scarcity of which are only now

becoming widely recognized. The foremost example of this has been the changing public attitude towards wetlands which were once scorned as "swamps" and are today seen as an essential resource.

Restraints may also be necessary in order to protect the other vital areas described in Chapter 5, or to preserve socially-desirable uses such as farmlands, or to control developments in flood plains or on steep slopes, which would otherwise lead to unnecessary loss of life and property. If compensation to restricted property owners is required in all such instances, then effective regulation to protect these resources will founder under the financial burden imposed.

Of course, property owners may fairly claim in some instances that the costs of protecting a certain valuable resource should be borne by society as a whole rather than by them alone, and that they should be compensated for the loss in the value of their property. The other side of the coin which also must be taken into account is that much of the value of their property may have derived from public investments in the first place. Without roads and utility services, for example, which may have been financed largely through tax revenues, the property may have been inaccessible or unusable for development.

In addition, regulation itself may enhance the value of property. For example, a limitation on housing density in an area may reduce the number of units an owner can construct on his or her property, but the value of each lot may be increased by the heightened exclusivity and attractiveness of the neighborhood. After all, the purpose of regulation is not to reduce property values but often to preserve the character of an area that attracted people to it originally.

Finally, where owners have justifiably made investments in preparation for certain uses, it may be less fair to impose new regulations prohibiting or limiting those uses. The doctrine of vested rights establishes constitutional protection for these property owners in certain instances.

Determining what kind of regulation is required and where compensation is due are complex and difficult issues, and no precise guidelines can be provided. Every state management effort will have to face the realities that regulation will of necessity diminish the value of some property, and that if compensation is required in every case, the costs will make the program unfeasible. On the other hand, the losses that may be sustained by property owners must be fairly considered. Some balance must be struck.

In order to mitigate these problems, states should be urged to study and implement innovative devices to reduce the inequalities that regulation sometimes causes.



Subsidence. Baytown, Texas.

Photo by Michelle Tetley

By its nature, regulation will benefit some property more than others. The lucky owners get a windfall of added value through no efforts of their own, while the losers have potential profits wiped out. If means can be developed to transfer the windfall to those who would otherwise suffer losses, there would be less room for objection to regulation. Other devices, such as the creation of transferrable development rights, should be investigated to reduce the impact of regulation on particular property owners.⁷⁹

THE TAKING ISSUE

The Fifth Amendment to the United States Constitution provides that "private property [shall not] be taken for public use without just compensation." Land owners have been quick to argue that regulations which limit the profits they might secure from more intensive development amount to a taking of their property.

As previously noted, when private property is required to be employed for a public use, such as a public park, a taking has occurred. More difficult questions arise when the government does not physically seize the property but does regulate or control its use. Sometimes regulation is in fact tantamount to a taking; and government, of course, should not be allowed to use a guise of regulation to get property without having to pay for it.

Recent court decisions have held that no taking of property has occurred where a harmful use of property is restrained by the government (in the exercise of its "police power") or where other uses of the property re-

main, although less profitable ones.

In participating in the development of the management program, citizens should keep the following factors in mind in order to ensure that the program does not violate the takings clause:

(1) *The prevention of harm should be emphasized.*

The regulation should be directed to protecting the public or the public interest from harm, rather than to securing a benefit for the public. This distinction has been an important one to the courts.⁸⁰ Information which documents the harm to be prevented should be included in the formulation of the measure. Courts accord greater deference to land use controls which are based on a comprehensive analysis of the problem, based on research, planning, reports or hearings.⁸¹

(2) *Reasonable uses should be permitted.* They may be permitted expressly by the management program⁸² or by an administrative procedure which the program creates.⁸³ Permitting uses which meet these specific standards shows that it is only the harmful or undesirable uses of lands which are to be restrained—a practice long sustained under nuisance and zoning law.⁸⁴

(3) *Property owners should be allowed to continue their existing use of the land, where not unduly harmful.* This will limit the management program's restraint and will help to avoid legal challenges.⁸⁵ Where an existing use needs to be curtailed, however, it should be phased out over a period of years (unless it is an outright nuisance, which may be banned at once).

(4) Public rights and trust responsibilities should be affirmed in the management program and any implementing legislation which may be necessary. For example, under the public trust doctrine, resources in which the public has a special interest are held subject to a duty not to impair the resource, even if privately owned.⁸⁶ To date, this doctrine has been applied primarily to protect tidelands and the public interests in navigation, fishery, and commerce. Resources which are owned by the public and adversely affected by unrestrained use of nearby private lands should also be noted.

(5) Procedural protections for landowners should be included in the management program. Courts will be more sympathetic to governmental restraints if they have been fairly applied.

Careful draftsmanship of the management program will deter challenges on "taking" grounds, as will the trend of recent court decisions upholding the constitutionality of stringent limitations on land use which are needed to protect important natural resources. If a "taking" claim is nevertheless raised—whether in debate over the management program or in court—an effective defense should stress the need for the challenged regulation and its reasonableness. An outline of the argument which may be made in support of a regulation⁸⁷ is as follows:

(1) An unreasonable or harmful use of property may be restrained under the police power of the state and need not be compensated. One of the oldest principles of common law is that no person may use his or her property in a way that injures a neighbor. A long line of cases have held that restraints on an unreasonable or harmful use of property, without compensation to the restrained owner, are constitutional.⁸⁸ Recent cases have applied these older precedents to modern resource protection laws.⁸⁹

(2) The use affected here by the challenged regulation is a harmful use and may therefore be restrained. The documentation of harm which would be inflicted by the restrained use in question should include the full impact on people of the use's "spill-over" effects.⁹⁰ For example, a wetlands owner who proceeds with incompatible development forces fishermen to pay in reduced catches, consumers in higher prices for food; sportsmen in lost recreational opportunity; and nearby landowners in flood damages. In addition, the cumulative consequences of many similar unrestrained uses should be taken into account in gauging the harm to be prevented.

(3) This harmful use may be restrained even though the property will then be less valuable to the owner. Once it is established that the regulation prevents a use of property which would harm the public, it becomes apparent that the loss of value of the restrained owner's

property is little more than a measure of the private gain which might be had at public expense. A number of cases which have upheld restraints on property use, despite a large loss in value, can be cited.⁹¹

(4) This owner is not asked to bear a large loss in value, in any event. Some of the factors which should be considered in measuring the owner's loss, are the following: Does the owner retain the existing use of the land? Is this a use with which all previous owners have been content, as well as other landowners in the area? Is it only a major change in use for speculative profit that has been denied? Are there non-harmful uses to which the land may be put, perhaps including more profitable ones? Does the owner enjoy a reciprocal benefit from a similar restraint being placed on other nearby landowners? What part of the value of the property was attributable to governmental activity? Are the private interests in the land mixed with public ones, including easements and ownership rights? To what extent would unrestrained private use "take" property from the public? Does the owner have the opportunity to reapply for permission to develop a less harmful project? Is the parcel to which the restraint applies part of a larger whole (which should then be considered in determining the real measure of value)?⁹²

(5) In fact, the reduction in property value is limited enough so that the restraint may be sustained even if the restrained use were not considered to be a harmful one. Showing that the value of the regulated property will be reduced by only a limited degree can provide an alternate ground for sustaining the regulation, particularly where the harmful nature of the restrained use is less evident. Under long established principles of zoning, particular uses may be restrained in particular areas—not just to avoid harm, but to "harmonize" the use of land within the community—despite a substantial reduction in property value.⁹³

While the judicial standards employed in judging whether a "taking" has occurred vary from state to state, the trend of modern decisions is reflected in the principles discussed above.

THE VESTED RIGHTS DOCTRINE

A state may find, in the preparation of the coastal management program, that substantial problems would be created if all large-scale developments which had been proposed for a particular area were allowed to be completed. It may be advisable, moreover, to make such developments conform to certain environmental standards. Each state will have to determine to what extent its management program should be applied to these developments. Developers may claim, however, that they have a "vested right" to complete their development because of previous local approvals, and citizens should be

aware of the parameters of this doctrine.

New zoning or land use controls invariably find developers at every stage of planning for the future development of their property. Some developers may have reduced their plans to writing. Others have obtained certain government approvals and even started construction on a particular building. Yet, mindful that any constitutional exemption from new controls undercuts the authority of the government to regulate the use of land in furtherance of the public welfare, the majority of courts have confined the vested rights exemption to the few situations in which a developer had.

- obtained a building permit to begin construction on a building in question;
- commenced construction of the building in reliance on that permit;
- performed substantial work on the building; and
- incurred substantial liabilities for construction of and materials for the building.⁹⁴

Citizens should scrutinize closely any proposed exemption which is broader than the above requirements.

PUBLIC RIGHTS IN BEACHES

One of the tasks which must be performed in the development of each management program is to determine how public use and enjoyment of beach and tideland areas can best be secured (to the extent the carrying capacity of the area can accommodate this use). As discussed earlier, these areas may be owned by private individuals or various levels of government. Even where beaches are publicly owned, private developments bordering them may threaten public access. Citizens should urge their states to consider a variety of approaches to these problems.

Acquisition of land or of user interests in land ("easements") may be desirable, but its use is limited by the overriding problem of cost. Alternatively, in areas about to undergo extensive development, the management program could condition approval of a subdivision upon the developer's dedication of easements for beach access and use.

In other instances, it may be more difficult to secure public rights in beaches. However, under various common law doctrines, public recreational use of a

Photo by NOAA



privately-owned beach over a period of years may be held to have established a public right to continue this use. One of these doctrines is the theory of implied dedication. Long applied to create roadway easements, the theory has been more recently applied to beach property by the courts of Texas and California.⁹⁵ An owner's acquiescence to long-term, open public use of beach property, as if it were a public recreation area, is deemed to show an intention to have the land dedicated for this use—regardless of the actual intent. In California, the public need have used the beach for only five years, at any time in the past, and a new owner cannot revoke the effect of an earlier acquiescence.

The ancient legal doctrine of "custom" provides another theory in support of public rights in the beach. Oregon's Supreme Court held that the fact that dry sand beaches had been enjoyed by the public under claim of right since the beginning of the state's history was

sufficient reason to prevent a resort owner from fencing off the beach.⁹⁶

Public rights in the "tidelands"—the area between the reach of the low and high tides—have been more widely established.⁹⁷ Large portions of the tidelands are publicly owned. Moreover, privately-owned tidelands and submerged lands have long been held subject to a public trust.⁹⁸ This trust gives the public a continuing right to use the tidelands, not only for traditional purposes of fishing, navigation, and commerce, but also for recreational use in those states where modern needs have been recognized.⁹⁹ The scope of the public trust and its enforcement obligations varies from state to state and may be broadened through litigation and legislation.

To utilize these doctrines, where available, the management program should provide for surveys of past public usage of beach areas and a program to assert the public's right to use of the beach, through litigation where necessary.

Conclusion

We urge citizens and citizens' groups, who have the time and resources, to organize coastal task forces or committees which can participate extensively in the preparation of the coastal zone management program for their state or local area and which can disseminate their views widely. An active, sustained presence is necessary to ensure that the state does a thorough, comprehensive, and balanced job to protect the coastline from further deterioration.

The adoption of a sound management program does not guarantee that the coastal zone will be wisely managed, however. Fulfillment of this objective will ultimately depend on the agency's continuing commitment to the proper administration and implementation of the

program. The interest and participation of the public in this ongoing process is crucial. Citizens should therefore consider establishing means to monitor agency decisions, appear at public hearings, and undertake appeals, where appropriate.

We realize that it would be impossible for every citizen to mount this kind of full scale effort. However, everyone can, and we urge that you do, become involved. You can make your views, special concerns, or expertise known by writing a letter to your state's coastal agency, letting it know that you like or don't like what is proposed for your area. The ongoing planning in each coastal state will have a major impact on what will happen to *your* coastline.

Appendix 1

State Coastal Management Program Managers

State	Name and Address	Telephone
Alabama	Willis Hyde Alabama Development Office Building Montgomery, Alabama 36104	205/269-1831
Alaska	Glenn Akins Policy Development and Planning Division Office of the Governor Pouch AD Juneau, Alaska 99801	907/465-3512
California	Joe Bodovitz California Coastal Zone Conservation Commission 1540 Market Street San Francisco, California 94102	415/557-1001
Connecticut	Charles McKinney Director, Coastal Area Management Program Departmental of Environmental Protection 71 Capitol Avenue Hartford, Connecticut 06115	203/566-7404
Delaware	David Hugg State Planning Office Thomas Collins Building Dover, Delaware 19901	302/678-4271
Florida	Bruce Johnson Bureau of Coastal Zone Planning and Management Division of Resource Management, DNR 309 Magnolia Office Plaza Tallahassee, Florida 32301	904/488-8614
Georgia	Lowell Evjan Acting Director Planning Division Office of Planning & Budget 270 Washington Street, S.W. Atlanta, Georgia 30334	404/656-3861
Guam	David Bonvourloir Bureau of Planning Government of Guam P.O. Box 2950 Agana, Guam 96910	477-9502 (via operator)

State	Name and Address	Telephone
Hawaii	Dick Poirier Department of Planning and Economic Development P.O. Box 2359 Honolulu, Hawaii 96804	808/548-4609
Illinois	Peter Wise 300 North State Street Room 1010 Chicago, Illinois 60610	312/793-3126
Indiana	Russell Miller State Planning Services Agency 143 West Market Street Indianapolis, Indiana 46204	317/633-4346
Louisiana	Paul Templet State Planning Office 4528 Bennington Avenue Baton Rouge, Louisiana 70804	504/389-7041
Maine	Alec Giffen State Planning Office 184 State Street Augusta, Maine 04330	207/289-3155
Maryland	Ken Perkins Department of Natural Resources Tawes State Office Building Annapolis, Maryland 21401	301/267-1784
Massachusetts	Matt Connolly, Jr. Director of Coastal Zone Management Executive Office of Environmental Affairs 18 Tremont Street Boston, Massachusetts 02108	617/727-2808
Michigan	Jim Dooley Bureau of Water Management Water Development Services Division Stevens T. Mason Building Lansing, Michigan 48926	517/373-1950
Minnesota	Steve Reckers State Planning Agency 801 Capitol Square Building St. Paul, Minnesota 55155	612/296-2884

State	Name and Address	Telephone
Mississippi	Jay Thomas Mississippi Marine Resources Council P.O. Box 497 Long Beach, Mississippi 39560	601/864-4602
New Hampshire	Jerrold A. Moore Director, Division of Regional Planning Office of Comprehensive Planning Concord, New Hampshire 03301	603/271-2155
New Jersey	David Kinsey Coastal Area Planning Coordinator Department of Environmental Protection P.O. Box 1889 Trenton, New Jersey 08625	609/292-8262
New York	Henry Williams, Jr. Director Division of State Planning Department of State 162 Washington Street Albany, New York 12231	518/474-3617
North Carolina	Art Cooper Assistant Secretary Department of Natural and Economic Resources Box 27687 Raleigh, North Carolina 27611	919/829-4984
Ohio	Wayne Nichols Department of Natural Resources 1930 Belcher Drive Columbus, Ohio 43224	614/466-4768
Oregon	Jim Ross Land Conservation and Development Commission 1175 Court Street Salem, Oregon 97310	503/378-4926
Pennsylvania	George W. Fogg Chief, Division of Outdoor Recreation Third and Reily Streets Harrisburg, Pennsylvania 17120	717/787-6674
Puerto Rico	Arsenio Rodriguez Department of Natural Resources P.O. Box 5887 Puerto de Tierra, Puerto Rico 00906	809/724-8774

State	Name and Address	Telephone
Rhode Island	Daniel Varin Statewide Planning Program Department of Administration 265 Melrose Street Providence, Rhode Island 02907	401/277-2656
South Carolina	Andy Laurent Wildlife and Marine Resources Department 1116 Bankers Trust Tower Columbia, South Carolina 29201	803/758-8442
Texas	Ron Jones Texas Coastal Resources Program 1705 Guadalupe Austin, Texas 78701	512/475-6902
Virginia	B. C. Leynes, Jr. Division of State Planning and Community Affairs 109 Governor Street Richmond, Virginia 23219	804/786-7652
Virgin Islands	Thomas Blake Virgin Islands Planning Office P.O. Box 2606 Charolotte Amalie, St. Thomas U.S. Virgin Islands 00801	809/774-1726
Washington	Rod Mack Department of Ecology State of Washington Olympia, Washington 98504	206/753-6879
Wisconsin	Al Miller State Planning Office B-130 One West Wilson Street Madison, Wisconsin 53702	608/266-3687
BCDC	Mike Wilmar Bay Conservation & Development Commission 30 Van Ness Avenue San Francisco, California 94102	415/557-3686

Appendix 2

Key Federal and State Statutes Which Bear on the Coastal Zone

FEDERAL STATUTES

The *National Environmental Policy Act of 1969* ("NEPA") (42 U.S.C. §§ 4321 *et seq.*) contains an affirmative statement of federal environmental policy coupled with action-forcing procedures, of which the most important is the requirement that an environmental impact statement be prepared in connection with any proposal for major federal action having a significant impact on the environment.

The *Clean Air Act of 1970* (42 U.S.C. §§ 1857 *et seq.*) has land use implications for the coastal zone, through provisions which require development to be controlled in order to avoid the significant deterioration of already clean air (42 U.S.C. § 1857(b); 39 Fed. Reg. 42510 (1974; *see, Fri v. Sierra Club*, 412 U.S. 541 (1973)) or, in polluted areas, to attain or maintain national air quality standards (42 U.S.C. § 1857c-5; 40 C.F.R. Part 52.12).

The *Federal Water Pollution Control Act Amendments of 1972* (33 U.S.C. §§ 1251 *et seq.*) require, among other things, that states and regions engage in land use planning to control the location of new sources of pollution, including sources which pollute run-off waters and underground aquifers (33 U.S.C. § 1288), and restrains the dredging and filling of wetlands or other waters without a permit from the Army Corps of Engineers (33 U.S.C. § 1344; *see also*, 33 U.S.C. § 401, 403).

The *Flood Disaster Protection Acts of 1973* (42 U.S.C. §§ 4001 *et seq.*) requires communities to restrict development in flood plains and along the coast—i.e. the areas which might be flooded once every hundred years—in order for individuals within the community to be eligible for mortgage loans from private banks, as well as for federal construction funds and flood insurance. For a free Citizens' Guide to this federal program, write to the American Rivers Conservation Council, 324 C Street, S.E., Washington, D.C. 20003.

The *Endangered Species Act of 1973* (16 U.S.C. §§ 1531 *et seq.*) may be used to prevent federal agency action—including the granting of a permit needed by a private developer—which would modify the critical habitat of one of the more than one hundred species of mammals, birds, fish and reptiles which have been officially listed as "endangered" or "threatened" (50 C.F.R. § 17.12; *see*, 5 Env. Law Rptr 50189 (1975)).

The *Interstate Land Sales Act of 1969* (15 U.S.C. §§ 1701 *et seq.*) requires a developer of 50 or more lots to make a full disclosure of the subdivision's significant aspects.

The *Marine Protection, Research and Sanctuaries*

Act of 1972 provides for the designation and protection of coastal waters of special importance (16 U.S.C. § 1431) and regulates dumping into ocean waters (33 U.S.C. § 1401).

The *National Historic Preservation Act of 1966* (16 U.S.C. §§ 470 *et seq.*) provides for federal consideration of historic values prior to the alteration or demolition of selected buildings or districts, and for preservation grants.

The *Deepwater Port Act of 1974* (33 U.S.C. §§ 1501 *et seq.*) provides for federal licensing and regulation of offshore facilities used for the transportation of oil.

Section 4 (f) of the *Department of Transportation Act of 1966*, as amended (49 U.S.C. § 1653 (f)) bars highway construction through public parkland or an historic site unless there is "no feasible and prudent alternative" and all possible mitigating measures are taken. (*See, Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402 (1971)).

Section 22 of the *Water Resources Development Act of 1974* (Public Law No. 93-251, 88 Stat. 49) authorizes the Army Corps of Engineers to assist states in comprehensive planning for the coastal zone.

The *Land and Water Conservation Fund Act of 1965* (16 U.S.C. § 4601-4) provides federal grants for public acquisition of outdoor recreation areas.

STATE STATUTES

Coastal protection advocates will need to become familiar with their state statutes that bear upon relevant issues.¹⁰⁰ Such measures will be of either a procedural or substantive nature. Important procedural protections include legislation authorizing citizens to sue for the protection of natural resources;¹⁰¹ a requirement of environmental impact analysis on the state level in a manner similar to that which the National Environmental Policy Act requires of the federal government;¹⁰² and an administrative procedure act which provides for full citizen participation in the administrative process.¹⁰³

On the substantive level, legislation in a few states provides for comprehensive statewide or regional land-use planning.¹⁰⁴ A more typical pattern may be seen in laws which protect particular resources of critical importance, such as wetlands¹⁰⁵ or shorelands.¹⁰⁶ Tax measures should be considered, including legislation providing preferential assessments of agricultural land or open space;¹⁰⁷ for scenic easements¹⁰⁸ or for a special tax on speculative gains.¹⁰⁹ Other laws may provide for land acquisition¹¹⁰ or declare the public trust to which certain lands or resources are held subject.¹¹¹

Federal Sources of Information

Numerous federal agencies are involved in matters affecting the coastal zone. Many have special expertise and information that will be of use to citizens who are participating in the development of state management plans. For example, they may have data that permits state information to be cross-checked or supplements it with a regional or national perspective. The following are some of the best sources of information:

Office of Coastal Environment
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852
(clearinghouse for specialized coastal zone technical information)

U. S. Fish and Wildlife Service
Washington, D.C. 20240
(can provide information on local waterfowl, game fish and endangered species)

National Marine Fisheries Service
Page Building 2

3300 Whitehaven Street, N.W.
Washington, D.C. 20235
(data on commercial and sport fisheries)

Office of Sea Grant
3300 Whitehaven Street, N.W.
Washington, D.C. 20235
(supports a large program of university research on ocean and coastal topics)

Department of Agriculture
Federal Soil Conservation Service and
Cooperative Extension Agents
Washington, D.C. 20250
(can supply hydrological and soil data; also helpful in providing names of local experts and scientists)

In addition, a table prepared by NOAA concerning matters of "national interest"—set forth below in footnote 21—contains a useful list of the interests of various federal agencies in the coastal zone.

Appendix 4

Suggestions For Further Reading

Coastal Zone Management

Mentioned in Chapter 3, as a source of current news on coastal management issues, *Coastal Zone Management* is published weekly by Nautilus, 1056 National Press Building, Washington, D.C. 20004. Subscriptions cost \$135 per year.

The Coastal Zone Management Journal

Also discussed in Chapter 3, this journal is published by Crane, Russak and Company, Inc., 347 Madison Avenue, New York, New York 10017. Current subscription information is available from the publisher.

Coastal Zone Management: The Process of Program Development

This handbook was prepared by the Coastal Zone Management Institute. It is designed to provide technical assistance for state and local officials involved in developing CZMA programs. Copies are available through the Coastal Zone Management Institute, P. O. Box 221, Sandwich, Massachusetts 02563.

Coastal Ecosystems, Ecological Considerations for Management of the Coastal Zone

This book by John Clark was a primary source for the information contained in Chapter 5 and 6 of this handbook. It is available from the Publications Department, The Conservation Foundation, 1717 Massachusetts Avenue, N.W., Washington, D.C. 20036, for \$4 for paperback, \$7.95 for hard-bound. It is currently being updated and expanded by Clark to serve as a technical guidebook for coastal zone environmental management. The revised version will be published in late 1976 by John Wiley & Sons, under the sponsorship of the Conservation Foundation.

Coastal Ecological Systems of the United States

Written by H. Odum, B. Copeland, and E. McMahon, this four-volume set was published in 1974 and is available for \$30 from the Publications Department, the Conservation Foundation, 1717 Massachusetts Avenue, N.W., Washington, D.C. 20036. Like the next work, it is a serious study, useful for those who want to immerse

themselves in the scientific issues of coastal management.

National Estuary Study

This study was conducted by the United States Department of the Interior, Fish and Wildlife Service, and was published in 1970. It is a seven-volume set available from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402.

The Costs of Sprawl

Cited in footnote 71, the summary volume of this study documents the increased burden low-density suburban housing places on resources and the environment.

The Taking Issue

This book, cited in footnote 81, is a comprehensive legal study that traces the line between regulation and taking.

Performance Controls for Sensitive Lands

This guide sets forth environmental standards, sample ordinances and a list of technical assistance resources. It is available from the Planning Advisory Service of the American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill. 60637.

The Use of Land: A Citizens Policy Guide to Urban Growth

Edited by William K. Reilly and published in 1973, *The Use of Land* is the product of a Rockefeller Brothers Fund task force. While it does not place a primary focus on coastal areas, its discussion of the major land planning issues provides a worthwhile introduction to many of the legal issues and innovative techniques that will play a role in CZMA program development. Published by Thomas Y. Crowell Co., 666 Fifth Ave., New York, N.Y.

Outer Continental Shelf Oil and Gas Development and the Coastal Zone

Part of the National Ocean Policy Study, as cited in footnote 70, this study is an introduction to the impacts of the Outer Continental Shelf Leasing Program on the coastal zone, the information necessary to plan for those impacts, and the state role in the program.

Footnotes

1. The official citations for the CZMA are Public Law No. 92-583, 86 Stat. 1280, and 16 U.S.C. §§ 1451 *et seq.* Sections of the Act referred to in this handbook are those of the Public Law. They will be cited as "CZMA § ." Regulations issued under the Act will be cited here as "Reg. § ."
2. CZMA § 302(e).
3. CZMA § 302(c).
4. U.S. Cong. and Admin. News 4788, Conference Report on Public Law 92-583.
5. Copies of these regulations are available from the Office of Coastal Zone Management. Regulations governing CZMA § 305 grants and § 306 grants are also contained in the Code of Federal Regulations, Title 15, Chapter IX, Parts 920 and 923 respectively. Guidelines concerning estuarine sanctuaries are found in the Code of Federal Regulations, Title 15, Chapter IX, Part 921.
6. CZMA § 305(g).
7. CZMA § 306(c) (1).
8. CZMA § 306(c) (3).
9. CZMA § 306(h).
10. Reg. § 923.4, Comment.
11. CZMA § 304(a).
12. *Id.*
13. CZMA § 304(b).
14. CZMA § 304(a).
15. Reg. § 920.15.
16. See CZMA §§ 306(c) (1) and 307(b).
17. CZMA § 307(b).
18. CZMA § 307(f).
19. CZMA § 307(c).
20. Reg. § 923.15.
21. NOAA has prepared a table, set forth in Reg. § 923.15 and reproduced on p. 48 to illustrate the variety of concerns which may be in the national interest.
22. Reg. § 923.17.
23. CZMA § 306(d).
24. CZMA §§ 305(b) (4) and 306(c) (7).
25. CZMA § 306(c) (4).
26. Reg. § 923.3(b).
27. Reg. § 923.5.
28. Public Law 92-532, 16 U.S.C. §§ 1431 *et seq.*
29. Reg. § 920.31(c).
30. *Id.*
31. Reg. § 920.31(a).
32. CZMA § 308.
33. Reg. § 920.31(d).
34. Reg. § 920.31(e).
35. Reg. §§ 920.31(f) and 923.41(a).
36. Reg. § 923.31(a) (2).
37. Reg. § 920.32(c) (2).
38. Reg. § 923.12(b) (2).
39. See Reg. §§ 920.45-920.49.
40. A detailed analysis of the requirements that must be met by impact statements is contained in *NEPA in the Courts*, by Frederick R. Anderson, published by Resources for the Future, Inc., 1755 Massachusetts Avenue, N.W., Washington, D.C. 20036.
41. CZMA § 306(c) (4).
42. See CZMA § 305(b) (4).
43. Reg. § 920.31(b).
44. One set of standards is discussed by John Clark in *Coastal Ecosystems* (1974) at 165-166 (hereinafter "Clark").
45. Reg. § 923.11(b).
46. Reg. § 923.13(a).
47. CZMA § 305(b) (2), (E).
48. Reg. § 923.12(b) (2) (iii).
49. CZMA § 307(f).
50. See, e.g., *Steel Hill Development Inc. v. Town of Sanbornton*, 469 F.2d 956 (1st Cir. 1972). The leading case approving a phased development plan is *Golden v. Planning Board of Town of Ramapo*, 30 N.Y.2d 359, 334 N.Y.S.2d 138, 285 N.E.2d 359 (1972).
51. See, e.g., Council on Environmental Quality, *Land Use* (1974) at 36-44.
52. A survey of preferential assessment legislation is contained in Economic Research Service, U.S. Department of Agriculture, *State Programs for the Differential Assessment of Farm and Open Space Land*, Agricultural Economics Report No. 256 (Washington, D.C.: U.S. Government Printing Office, 1974).
53. See California Administrative Code, Title 14, Division 5.5, § 13304. This regulation was adopted under authority of the California Coastal Zone Conservation Act of 1972, Public Resources Code §§ 27000 *et seq.*
54. See Appendix 4.
55. CZMA § 304(d).
56. Clark at 101.
57. *Id.* at 67.
58. *Id.* at 68.
59. *Id.* at 111-164.
60. U.S. Department of the Interior, *National Survey of Hunting and Fishing* (1970).

Table: Requirements which are other than local in nature and in the siting of which there may be a clear national interest (with associated facilities and cognizant Federal Agencies)

Requirements	Associated Facilities	Cognizant Federal Agencies
1. Energy production and transmission.	Oil and gas wells; storage and distribution facilities; refineries; nuclear, conventional, and hydroelectric power-plants; deepwater ports.	Federal Energy Administration, Federal Power Commission, bureau of Land Management, Nuclear Regulatory Commission, Energy Research and Development Administration, Maritime Administration, Geological Survey, Department of Transportation, Corps of Engineers.
2. Recreation (of an interstate nature).	National seashores, parks, forests; large and outstanding beaches and recreational waterfronts; wildlife reserves.	National Park Service, Forest Service, Bureau of Outdoor Recreation.
3. Interstate transportation.	Interstate highways, airports, aids to navigation; ports and harbors, railroads.	Federal Highway Administration, Federal Aviation Administration, Coast Guard, Corps of Engineers, Maritime Administration, Interstate Commerce Commission.
4. Production of food and fiber.	Prime agricultural land and facilities; forests; mariculture facilities; fisheries.	Soil Conservation Service, Forest Service, Fish and Wildlife Service, National Marine Fisheries Service.
5. Preservation of life and property.	Flood and storm protection facilities; disaster warning facilities.	Corps of Engineers, Federal Insurance Administration, NOAA, Soil Conservation Service.
6. National defense and aerospace.	Military installations; defense manufacturing facilities; aerospace launching and tracking facilities.	Department of Defense, NASA.
7. Historic, cultural, esthetic and conservation values.	Historic sites, natural areas; areas of unique cultural significance; wildlife refuges; areas of species and habitat preservation.	National Register of Historic Places, National Park Service, Fish and Wildlife Service, National Marine Fisheries Service.
8. Mineral resources.	Mineral extraction facilities needed to directly support activity.	Bureau of Mines, Geological Survey.

61. Clark at 117.

62. U.S. Department of the Interior, 5 National Estuary Study at 16 (1970).

63. *Id.* at 38.

64. U.S. Dept. of the Interior, 2 National Estuary Study at 122 (1970).

65. Clark at 101.

66. *Id.* at 133.

67. President Richard M. Nixon, Address to the Nation

on Project Independence, January 23, 1974.

68. U.S. Congress, 2nd Supplemental Appropriations Bill for FY 75, PL 94-32.

69. Pamela and Malcom Baldwin, *Onshore Planning for Offshore Oil, Lessons from Scotland* (1975) at 72.

70. National Ocean Policy Study, *Outer Continental Shelf Oil and Gas Development and the Coastal Zone*, (1974) at 37; prepared for the U.S. Senate Committee on Commerce, available from the U.S.

- Government Printing Office, Washington, D.C. 20402, for \$2.15.
71. Real Estate Research Corporation, *The Costs of Sprawl*, Executive Summary at 3 (Washington, D.C.: U.S. Government Printing Office, 1974). This study was prepared for the Council on Environmental Quality, the Department of Housing and Urban Development, and the Environmental Protection Agency.
 72. *Id.* at 5.
 73. A case study of the problems a local government can face in evaluating coastal subdivisions is found in Toner, "Oysters and the Good Ol' Boys," 41 *Planning #7*, at 10 (August 1975).
 74. Quoted in Healy, "Saving California's Coast: The Coastal Zone Initiative and Its Aftermath," 1 *Coastal Zone Management Journal*, No. 4 at 391 (1973).
 75. CZMA § 304(a).
 76. CZMA § 307(c).
 77. 43 U.S.C. §§ 1311 *et seq.*
 78. 43 U.S.C. §§ 1331 *et seq.*
 79. See William K. Reilly (ed.), *The Use of Land: A Citizens' Policy Guide to Urban Growth* (1973) at 140-143.
 80. See *Just v. Marinette County*, 201 N.W.2d 761, 767 (Wisc. 1972); Dunham, *Flood Control Via the Police Power*, 107 U. Pa. L. Rev. 1098, 1108 (1959).
 81. F. Bosseman, D. Callies & J. Banta, *The Taking Issue* (1973), at 284, 290 (prepared for the U.S. Council on Environmental Quality; available from U.S. Government Printing Office, Washington, D.C. 20402, No. 4111-00017, \$2.35).
 82. See, e.g., Wisconsin shoreland protection law in *Just v. Marinette County*, 201 N.W.2d 761d 761, 765 (Wisc. 1972); Adirondack (N.Y.) Land Use Plan's list of presumptively "compatible uses," N.Y. Exec. Law § 905 (McKinney 1974).
 83. See, e.g., Connecticut Tidal Wetlands Law, Conn. Gen. Stat. §§ 22a-33.
 84. Sax, *Takings and the Police Power*, 74 Yale L. J. 36 (1964); Kusler, *Open Space Zoning: Valid Regulation or Invalid Taking?*, 57 Minn. L. Rev. 1 (1972).
 85. See section on vested rights; also *Sibson v. State*, 336 A.2d 239, 243 (N.H. 1975) ("Its value [marshland] was the same after the denial of the permit as before and it remained as it had been for milleniums. . . . The board has not denied plaintiffs' current uses of their marsh but prevented a major change in the marsh that plaintiffs seek to make for speculative profit.").
 86. *Illinois Central R.R. v. Illinois*, 146 U.S. 387, 435, 482 (1892); Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 Mich. L. Rev. 471 (1970).
 87. A model brief of the Natural Resources Defense Council based on this outline and used successfully in support of Connecticut's tidal wetlands law in *Brecciaroli v. Conn. Comm'r of Environmental Protection*, 5 Env. Law Rptr. 20319 is available as "Document A, Case No. 339" for \$1.90 from the Digest Facsimile Service of the Environmental Law Reporter, 1346 Connecticut Avenue, N.W., Suite 620, Washington, D.C. 20036.
 88. *Mugler v. Kansas*, 123 U.S. 623 (1887); *Hadacheck v. Sebastian*, 239 U.S. 394 (1915); *Miller v. Schoene*, 276 U.S. 272 (1928); *Goldblatt v. Town of Hempstead*, 369 U.S. 590 (1962).
 89. *Sibson v. State*, 336 A.2d 239 (N.H. 1975); *Brecciaroli v. Conn. Comm'r of Environmental Protection*, 5 Env. Law Rptr. 20319 (Conn. 1975); *Just v. Marinette County*, 201 N.W.2d 761 (Wisc. 1972); *Potomac Sand & Gravel Co. v. Gov. of Maryland*, 293 A.2d 241 (Md. 1972); *Candlestick Properties, Inc. v. San Francisco Bay Conservation and Development Comm'n*, 89 Cal. Rptr. 897 (1970); *In the Matter of Spring Valley Development*, 300 A.2d 736 (Me. 1973); *Turnpike Realty v. Town of Dedham*, 284 N.E.2d 891 (Mass. 1972); *Turner v. County of Del Norte*, 101 Cal. Rptr. 93 (1972); *Spiegle v. Borough of Beach Haven*, 281 A.2d 377 (N.J. 1971).
 90. Sax, *Takings, Private Property and Public Rights*, 81 Yale L. J. 149, 161 (1971); Plater, *The Takings Issue in a Natural Setting: Floodlines and the Police Power*, 52 Tex. L. Rev. 201, 249 (1974); *The Taking Issue*, *supra*, footnote 81 at 212-229.
 91. *Mugler v. Kansas*, 123 U.S. 623 (1887) (brewery property made worthless by liquor prohibition); *Hadacheck v. Sebastian*, 239 U.S. 394 (1915) (value declined from \$800,000 to \$60,000 due to pollution ordinance outlawing brickyard); *Consolidated Rock Products Co. v. City of Los Angeles*, 370 P.2d 342 (Cal. 1962) (quarry closed for safety and health reasons even though the only appreciable economic value of the land was for use as a quarry); *Goldblatt v. Town of Hempstead*, *supra*, footnote 88 (ordinance had the effect of prohibiting further mining by a mining company which was unable to afford the more than \$1,000,000 cost of compliance). If necessary, these cases may be distinguished from the decision in *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922) which looked to

- loss in value as the basic test of a taking in an instance where no substantial public harm was discerned in support of the challenged regulation, which was seen affecting only a matter of ordinary private affairs. *Id.* at 413-414. See, Sax, *Takings and the Police Power*, 74 Yale L.J. 36, 44-45 (1964). For relevant state court decisions, see source in footnote 81.
92. The value of the whole parcel is considered by the courts of most jurisdictions, which routinely uphold setback and other zoning regulations that prohibit virtually all uses on substantial portions of residential lots. *Sierra Construction Co. v. Board of Appeals*, 236 N.Y.S.2d 53 (1962); *Town of Windsor v. Whitney*, 111 A. 354 (Conn. 1920); *Curry v. Young*, 173 N.W.2d 410 (Minn. 1969); Kusler, *Open Space Zoning: Valid Regulation or Invalid Taking?*, *supra*, footnote 84 at 55-56; Plater, *The Takings Issue in a Natural Setting: Floodlines and the Police Power*, *supra*, footnote 90 at 231.
 93. See Note, *Preserving Scenic Areas: The Adirondack Land Use Program*; 84 Yale L.J. 1705, 1716-1721 (1975); Kusler, *Open Space Zoning: Valid Regulation or Invalid Taking?*, *supra*, footnote 84 at 33; *HFH, Ltd. v. Superior Court of Los Angeles*, No. L.A. 30382 (Cal. Supreme Ct., November 1975).
 94. See, e.g., American Law Institute, *A Model Land Development Code*, § 2-309(2), Note at 106 (Proposed Official Draft, 1975); *Penn. Twp v. Yecko Bros.*, 217 A.2d 171 (Pa. 1966); *Spindler Realty Corp. v. Monning*, 53 Cal. Rptr. 7 (1966).
 95. *Seaway Co. v. Attorney Gen.*, 375 S.W.2d 923 (Tex. 1964); *Gion v. City of Santa Cruz*, 465 P.2d 50 (Cal. 1970); *contra, Dept't of Natural Resources v. Mayor and County of Ocean City*, 332 A.2d 630 (Md. 1975); see, Comment, *Public Rights and the Nation's Shoreline*, 2 Env. Law Rptr. 10179 (1972).
 96. *State ex rel. Thornton v. Hay*, 462 P.2d 671 (Ore. 1969).
 97. McKeon, *Public Access to Beaches*, 22 Stan. L. Rev. 564, 565 (1970).
 98. *Shoreline for the Public*, 96, 118 (1974) (MIT Press, Cambridge, Mass.); Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 Mich. L. Rev. 471 (1970).
 99. *Marks v. Whitney*, 491 P.2d 374 (Cal. 1971).
 100. See, *generally*, State Laws, Environmental Reporter (BNA).
 101. See, e.g., Michigan Environmental Protection Act of 1970, Mich. Comp. Laws Ann. §§ 691-1201-1207.
 102. See, e.g., California Environmental Quality Act of 1970, Cal. Public Resources Code §§ 21000 *et seq.*
 103. See, e.g., ch. 167, N.Y. Laws 1975.
 104. See, e.g., Oregon Land Use Act of 1973 (S.B. 100), O.R.S. Chap. 197; Adirondack Plan Act, N.Y. Exec. Law §§ 800-819 (McKinney 1974).
 105. See, e.g., New York Tidal Wetlands Act, N.Y. Env. Con. Law §§ 25-0101 *et seq.*
 106. See, e.g., New York Wild, Scenic and Recreational Rivers Act, N.Y. Env. Con. Law §§ 15-2701 *et seq.* (McKinney 1974).
 107. See, e.g., N.Y. Agriculture and Markets Law, Art. 24AA §§ 300 *et seq.* (McKinney 1974); see also, footnote 52.
 108. See, e.g., Maine Rev. Stat. Ann. Title 33 §§ 667-8.
 109. See, e.g., Vermont Property Tax Relief Act, 32 V.S.A. §§ 5691 *et seq.*
 110. See, e.g., New Jersey: Green Acres Land Acquisition Act, N.J. Stat. Ann. §§ 13:18A-1 *et seq.*
 111. See, e.g. Conn. Gen. Stat. § 22a-1 (1971).

The Coastal Zone Management Act Amendments of 1976

On July 26, 1976, the President signed the Coastal Zone Management Act Amendments, thus acknowledging the planning currently underway in coastal resource management and endorsing the concept that planning and building for impacts resulting from energy development taking place in the coastal zone should be tied to already existing coastal zone management programs.

These Amendments strengthen the basic program by improving and extending the planning and management process. Three new planning elements have been added to the states' 305 program for: (1) public access to beaches and other public coastal areas; (2) siting of energy facilities; and (3) shoreline erosion. States may have a fourth year for planning, up to September 30, 1979, but only if that is found to be essential by the Secretary. The Federal share of funding for Section 305 and 306 grants has been increased from 66 2/3 percent to 80 percent. A new provision has been added which allows funding for partial implementation of nearly completed state management programs. In order to qualify for partial implementation funding, the state planning officials must identify remaining activities to be completed and establish a reasonable time schedule for completion.

Once a coastal program has been approved, an amendment to Section 306 requires that a state coastal zone management agency notify a local government of any decision in conflict with local zoning actions and allow that local government a 30-day comment period.

The Federal consistency provisions (Section 307 of the Act) are further strengthened by requiring persons submitting to the Secretary of the Interior any plan for the exploration or development of, or production from, any area leased under the OCS Lands Act to certify that each activity described in such plan affecting the coastal zone complies with and will be carried out in a manner consistent with a state's approved program. No Federal agency may grant such person any license or permit for an activity described in the plan until the state concurs with the certification statement.

Also in relation to Federal consistency, Secretarial mediation is now provided for when serious disagreement arises between a Federal agency and a state with respect to the administration of a state's program. Local public hearings are now required as part of this mediation process.

Other provisions have added new components to the program. The new Section 309 allows the Secretary to

make grants to interstate entities to coordinate state planning policies and programs with respect to contiguous coastal areas of states. This section also provides for advance Congressional approval of any interstate compacts established to promote coastal zone coordination between two or more states.

The new Section 310 allows the Secretary to conduct a program of research, study, and training to support state management programs. The Secretary may also make grants to states to carry out research, studies, and training required to support their programs.

The new Section 315 (2) allows the Secretary to make grants to states to acquire lands for protection of and access to beaches and public coastal areas and for preservation of islands.

In addition, the Amendments create a coastal energy impact program to provide financial assistance to coastal states and local communities affected by new or expanded energy facilities which are coastal-dependent. Specifically, the program aids states and communities to finance public facilities and services, as well as to protect or restore coastal environmental and recreational resources when other funds (private or public) are unavailable.

The bulk of the assistance provided covers primarily those new or expanded energy activities related to the Outer Continental Shelf and to the coastal transportation of fossil fuels. Planning grants, however, are also available through the program to help plan for any type of new or expanding energy activity affecting the coastal zone.

The energy assistance program comprises two major interlocking provisions: (1) a ten year \$800 million Coastal Energy Impact Fund and, (2) formula grants, authorized at \$50 million annually for eight years. Citizens should keep in mind that these impact funds could encourage location of inappropriate energy developments in the coastal zone, contrary to the purpose of the Amendments, if planning for impacts is not closely tied to the coastal management program.

Rules and regulations are now being written by the Office of Coastal Zone Management for the implementation of these new provisions. Some aspects of the new program, such as 80 percent grants to states for planning and implementation, will be effective immediately. Most of the provisions dealing with the basic program will be fully operational by early 1977, while the coastal energy impact program should be operational by mid-1977.

U.S. DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Office of Coastal Zone Management

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