

COASTAL VISUAL RESOURCE MANAGEMENT:
AN ELUSIVE OBJECTIVE

by Jens Sorensen and Richard C. Smardon

The Federal Coastal Zone Management Act and most state acts identify aesthetic or visual resources as an important component of the coastal zone. Many of the landmark environmental confrontations of the 1960's included scenic issues. Almost invariably, a review of specific projects reveals the following: little or no scenic evaluation data was available to project sponsors prior to project's design; project trade-off decisions did not formally include aesthetics; where utilized, aesthetic information was primarily "expert opinion" rather than the product of reproducible pre-tested methodologies.

With the advent of the Coastal Zone Management Act of 1972¹, Congress authorized funding for states to develop planning and regulation programs for their coastlines. Part of the purpose statement of the act included "to encourage states to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historical, and aesthetic values as well as needs for economic development..."². Many states developed coastal zone management plans under sponsorship of the Coastal Zone Management Act.

In a famous coastal environment "disaster", the Santa Barbara Oil Spill, local public's opposition to leasing in the Santa Barbara Channel for oil and natural gas development was based on aesthetic grounds (Baldwin, 1970), and the offshore platforms were perceived as being ugly (Baldwin, 1970, p. 43). According to Baldwin, "Aesthetic argument did win the two-mile wide buffer zone. However, once Interior determined that such a zone outside the state

sanctuary would be sufficient to forestall state leasing in the sanctuary, no further aesthetic arguments were successful" (Baldwin, 1970:43). The strong aesthetic grounds against oil and natural gas development were used in the form of alleged damage to natural beauty in a complaint for Mandatory Injunction³ to stop future drilling in the Santa Barbara Channel.

One of the landmark aesthetic considerations incorporated into coastal zone/shoreland management was in California with the Tahoe Regional Planning Compact⁴ and the evolution of the California Coastal Act.

The experience and history of the San Francisco Bay Conservation and Development Commission, which was created to plan for the development of the Bay by the California Legislature in 1965 (Bosselman and Callies, 1971:108-123) proposition 20⁵ into the California Coastal Act of 1976⁶. The Commission was formed to prevent the filling of the Bay, partly for scenic reasons. As Bosselman and Callies have stated, "The fact that the Bay is seen so frequently by so many people made it very easy for the average person to visualize its reduction to a 'river'" (Bosselman and Callies, 1971:109).

The California Coastal Zone Conservation Act⁷ established a state coastal commission, six regional commissions and a permit review process for coastal development. In a study of the permit process (Sabatier, 1976), 43% of the permits appealed from the regional to the state commission included aesthetics, view corridors and facility design (Sabatier, 1976:148).

The California Coastal Act of 1976, which has evolved from the Bay experience, however, has specific language which addresses aesthetic issues:

"True scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the attention of natural land forms, to be visually compatible with the character of the surrounding areas, and where feasible, to restore and enhance visual quality in visually regarded areas."⁸

Other coastal management/shoreline management programs of note include Delaware's Coastal Zone Act⁹ which restricts manufacturing and industrial uses along the coast. The Delaware State Planning Office takes aesthetic as well as other effects into consideration when reviewing permit applications.¹⁰ Other coastal management/shoreline management state statutes with aesthetic provisions include Conn. Ch. 440, s. 22a-28; Delaware Ch. 66 ss. 6602 and 6604; Maryland Title 9 s. 9-102; Michigan Inland Lakes and

Streams Act of 1972; s. 281.957; Mississippi Title 49, Ch. 27; New Hampshire Ch. 483 A s. 1-b; New Jersey Title 13 Ch. 19 s. 2; New York Tidal Wetlands Act 483 Ch. 25 s. 0101(h); North Carolina Ch. 13A-102; Rhode Island Title 2-1.13; Virginia Code s. 62.1-13.1; and Texas Ch. 33, s. 33.001.

Specific use of state agency authority developed under legislative mandate for shoreline land use restrictions including aesthetic issues have been upheld in some cases by state courts.

On November 3, 1977, the Washington State Supreme Court upheld use at police action in Dept. of Ecology under Washington's Shoreline Management Act¹¹ to regulate development on a private waterfront lot on the grounds of protection of aesthetic values alone.¹² In response to the plaintiff Pacesetter's argument that it was entitled to compensation because protection of aesthetics is not a proper exercise of police power without compensation, the court said,

"Much decisional law upholds a government regulation protective of aesthetic values whether or not accompanied or combined with the protection of economic values...Many cases hold protection of aesthetic values alone justify the exercise of police power without payment of compensation...Moreover, the legislature has given expression to this state's public policy of supporting protection of aesthetic values by the enactment of the SMA and similar statutes"¹³.

Finally, the shoreline development restrictions being implemented by the Adirondack Park Agency in New York State have been held up in an important court decision.¹⁴ The decision of Adirondack Park Agency prohibiting boathouses on shoreline of Oseetah Lake was properly based on aesthetic considerations pursuant to police power and constituted proper exercise of discretion.

Unlike many state-developed programs which vary in strength and specificity in regard to aesthetic or visual considerations, there has been mounting Federal legitimization for visual resource consideration and program development. The National Environmental Policy Act (NEPA)¹⁵ of 1969, augmented by the Coastal Zone Management Act of 1972¹⁶, the Water Resources Planning Act¹⁷ with accompanying Principles and Standards (Water Resources Council, 1973); the Federal Water Pollution Control Act as amended¹⁸ and the new EPA section 404 Dredge and Fill Guidelines (EPA, 1979), the Federal Land Management Planning Act of 1976¹⁹, and the Marine Mammals Protection Act²⁰ provide a clear legislative mandate for government agencies to fill the analytical vacuum, and implement aesthetically responsive programs with regard to the Coastal Zone.

Specific programmatic response for consideration of visual resources in the Coastal Zone is especially noteworthy for the following agencies: The Bureau of Land Management, which has jurisdiction over the outer continental shelf, has a Visual Resource Management System (VRM) which has been operational since the early 1970's and which has been recently published by the U.S. Government Printing Office (BLM, 1980). The Soil Conservation Service has a Landscape Resource Management program which has recently been published (SCS, 1978) and disseminated to over 2,000 district offices throughout the U.S. These district offices in coastal states are often involved in small coastal watershed improvements. Individual river basin commissions operating under the Water Resources Planning Act have also commissioned visual resource studies (see R.P.D., Inc., 1972 and Roy Mann, Assoc., 1975b). Although not constituting a visual resource management program, the Corps of Engineers has sponsored a study of dredged disposal island reclamation (Mann et al., 1975).

Despite all this activity at the Federal level, state programs do not directly address the management of coastal visual resources. This finding is supported by both a review of the state programs submitted to the Office of Coastal Zone Management (OCZM) for approval and a survey of OCZM regional directors.²¹ State coastal management programs are using indirect means to protect and enhance visual resources.

Distinction is necessary between direct and indirect approaches. Direct approaches are plan making in nature. Indirect approaches, as the term implies, achieve visual management objectives as a side benefit. Two indirect approaches are primarily being used. Coastal visual quality concerns are being addressed in the permit process established by the state coastal management program. Visual resources are also being protected as a side benefit of land use regulation for other coastal management purposes.

Coastal Visual Resources Management

In direct approaches, visual resource assessment techniques are used to prepare planning products such as management policies, land use plans, zoning ordinances and performance standards. Direct approaches include: visibility analysis and ranking (see Bobb et al., 1975; Felleman, 1979; Mann, 1979), landscape unit distinction and assessment (see Warbach and Harper, 1980; Litton, 1971; and Zube and Dega, 1964), and inventories of historic, archeologic and cultural features (see Research Planning and Design, 1972 and Walker, Havens and Ericksen, Inc., 1974).

There are three apparent reasons why states have not used the direct plan making approaches. The academic and professional community have not developed cost-effective reliable and valid methods that states can use in developing

and implementing visual resource plans. The absence of methods that can be defended as scientifically reliable and valid have made policymakers and the courts reluctant to use aesthetics as a primary basis for land use planning and regulation. Thirdly, and perhaps most importantly, the indirect approaches currently being used by states appear to be working--at least they are not costly and they avoid court confrontations.

The indirect approaches

In compliance with the Federal Act²², states have adopted a set of policies to guide the issuance of coastal development permits. This set of guidelines includes policies designed to protect and enhance visual resources. The California Coastal Plan and the California Coastal Act of 1976²³ provide a notable example of visual resources policies to guide the permit process (see Sabatier, 1976).

The protection and enhancement of visual resources are also being accomplished through plans that achieve the basic objectives of coastal management. Visual benefits are accrued by limiting of development in hazard prone areas, the preservation of agricultural lands, the protection of sensitive habitats such as wetlands, and the acquisition of recreation areas.

The indirect approaches have their limitations. Visual resource policies cannot be used as the only basis for denying or conditioning a development permit if such an action leaves the property owner with no reasonable use of the property within the foreseeable future. Developers that propose activity which degrades the visual quality of the coast will obtain building permits despite visual resource policies. Governments will not always have sufficient funds to purchase properties in all cases strictly to protect coastal visual qualities. The permit process is also ad hoc. Enhancing or restoring the coast's visual quality by using permits must rely on the initiatives of developers. Such reliance usually means that restoration or enhancement is a protracted process. Significant results are usually slow in coming and often emerge in a piecemeal pattern.

Perhaps the most serious defect in relying on permit letting is the myopic perspective usually provided in assessing and reviewing visual impacts. Without an assessment of the total stock of visual resources, it is not possible to determine the extent that visual values that may be enhanced or degraded by any given development proposal. For example, it is not difficult to assess that a housing development may block the scenic ocean view from a coastal highway. The view blockage, however, may result in the regional loss of 50% of the ocean view from the coastal highway and a 5% loss of the resource if measured on a statewide basis (see Bobb et al., 1975). Without regional and statewide assessments of coastal visual resources, the full

significance of a development's impact cannot be determined. Furthermore, without such assessments, it is quite likely that the visual resource will be slowly and relentlessly degraded by the cumulative impact of successive projects.

The permit process has spawned at least five means of addressing visual resource concerns: policies for the protection and enhancement of visual resources, developer's handbooks, design awards, professional staffing, and design review boards. As previously mentioned, most state programs have visual resource policies to guide permit review. A specific set of policies should assist developers in designing their site plan and structures. Some state agencies have gone one step further and prepared a developer's handbook (see B. Hendler, Roy Mann, Inc., 1975b; South Coastal Regional Commission, 1974). The text and graphics provides a set of suggested "do's and don'ts" in site selection, site design, architecture and landscaping.

The permit process provides the strongest feedback on what the regulatory agency regards as visually acceptable and unacceptable development. However, the agency's findings are often negative and critical reviews usually do little to advance the state of the art. To provide positive guidance, at least two state coastal programs have initiated annual design award competitions. California's objective is to cite excellence in the planning and design of projects that exemplify policies of the state's management program.²⁴

Appointing a design review board and hiring staff designers are two means that agencies have commonly used to improve the quality of review given to the visual aspects of a project. The San Francisco Bay Conservation and Development Commission is the coastal agency with the most experience with both these arrangements. A design board or a design professional on the staff also provides the opportunity of advising developers during the formative stages of a project (see Kaji, 1978). This prior consultation should reduce visual impact problems at permit application time.

Direct approaches

As previously stated, relatively little has been accomplished in coastal visual resources management by plan making approaches. However, if states want to overcome the limits of indirect approaches, three proven and relatively low-cost approaches are recommended. These approaches are systematic in nature, and if properly conducted, should meet the legal requirements of objectivity. The three approaches should be done conjunctively since they have mutually supportive characteristics.

The state should prepare guidelines to assist communities in preparing visual resource management plans. It has been

demonstrated that resource plans are workable at the community scale. There are numerous studies and reports that show how this process can be accomplished at the local government level (Vineyard Open Land Foundation, 1973; North Carolina School of Design, 1976; Zube and McLaughlin, 1978; Palmer, 1978). This direct approach to visual resources management also integrates very well with the most common form of coastal zone management. Local governments are required to prepare coastal management programs based on guidelines issued by the state.

Secondly, the state should identify areas of exceptional visual quality (see Warbach and Harper, 1980). This is not to suggest that the state conduct a visual inventory of the entire coastal zone. Statewide assessments of visual resources have shown little success. This is particularly true in larger states. The environmental complexity and variation within the coastal zone of a state with an extensive shoreline defies compiling a comprehensive inventory appropriate for either policy making or permit review. The state should, however, be able to identify areas where there is general consensus on the exceptional visual quality of coastal landscapes. This approach is similar to the designation of scenic highways. The state should also consider designating areas of visual degradation where restoration or enhancement projects are needed. It is recognized that a degraded designation may be an unwise political move. The state should draft guidelines for managing the designated areas--such as California has done for the Big Sur region and scenic stretches of the Pacific Coast Highway.

The state should conduct at least two types of coastal visibility inventories. Mapping should be done of all lands with a significant view of the ocean and all lands visible from the major highways paralleling the coast. The mapping of lands with a significant ocean view is one means of identifying and ranking potential recreation acquisitions (see Bobb et al., 1975 and Walker, Havens and Erickson, Inc., 1974). Impact assessment would also be improved by knowledge of the total stock of ocean view lands (see Baird et al., 1979, Gillespie and Clark, 1979; Mann, 1979; and Wohlwill, 1978). It could then be determined how development proposals would effect the amount and distribution of ocean view land presently available and potentially available for public purposes such as parks.

The importance of the coastal highway in visual resources management has not been fully recognized. The views of the ocean and coastal landscapes while traveling coastal highways can obviously have an effect on one's perception of the coastal zone's visual quality or even the existence of the coastal zone. The influence of coastal highway travel on perception of the coast can be expected to vary from state to state depending in part on both the amount and visual quality of coast that can be seen from the highway. In California, for example, 23% of the coast is visible from the highway, whereas in Oregon, 31% of the coast is visible

from the highway.²⁵ The lands over which there is a view of the coast from the highway are clearly the most important areas to inventory and evaluate. The primary criteria would be the vulnerability of the land to visual disturbance.²⁶ The drafters of California's original Coastal Act (Proposition 20)²⁷ recognized the importance of coastal views from the highway. Any development that would block the coastal view from the highway required a two-thirds vote of the Commission for approval.

In deliberating the policies of the present California Coastal Act²⁸, the coastal commissioners were concerned that too much of the coast would be restricted from development if the view blockage criteria was applied. This conclusion was not based on any quantitative information. Consequently, the present policies on view blockage are less stringent. It is conjectural whether the view blockage policy in the 1976 Act would have been both stronger and more specific if the commissioners knew that only 23% of the coast was visible from the highway, and of that modest percentage, only a small portion is highly vulnerable to visual disturbance.

Conclusion

If a state or local agency is seriously concerned about managing its coastal visual resources, it should assess the extent to which the present approaches are adequately protecting and enhancing the quality of the resource. Perhaps the indirect approaches with permit process augmented by other direct approaches such as design awards and design review panels are adequate. It is doubtful that states will develop and use direct planning approaches without concerted practical assistance from the academic and professional community. Some visual analysis information is available through Sea Grant Research and Extension activities in California (see Banerjee et al., 1980) and New York (see Harper, 1980; and Harper and Warbach, 1980), but it is not nearly enough and not targeted to coastal zone management agencies' needs.

Notes

1. Coastal Zone Management Act of 1972, 16 U.S.C. s. 1451 et seq.
2. Ibid.
3. County of Santa Barbara v. Hickel, Civil Mo. 69-636-R. D.C. Cal., filed April 4, 1969.
4. Tahoe Regional Planning Compact, 1969, Pub. L. Mo. 91-148, 83 Stat. 360.
5. California, McAteer Petris Act of 1969, Code ss. 666000.
6. California Resources Code, Div. 20, Art. 6 (1976).

7. California Public Resources Code, Div. 18, s. 2700 et seq.
8. California Resources Code, Div. 20, Art. 6, s. 30251.
9. Delaware Coastal Zone Act, Ch. 70, title 7, Del. Code Anno. ss. 7001 et seq. (1968).
10. Delaware Coastal Zone Act, s. 7004.
11. Dept. of Ecology et al. v. Pacesetter Construction Co., Inc.
12. Washington State Dept. of Ecology, 1977. Supreme Court Emphasis on Aesthetic "Pacesetters": a Landmark Decision. Shoreline Coastal Zone Management, Vol. 2(5): Olympia, Wash. 98504 newsletter.
13. Ibid.
14. McCormick et al. v. Lawrence 83 Misc. 2d 64, 372 N.Y.S. 2d 156, 8 ERC 1461, 5 ELR 20650; App. Div. 54AD. 2d 153, 387 N.Y.S. 2d 919, 6 ELR 20795; and cross-motion dismissed or no substantial constitutional questions 41 N.Y. 2d 800, 900 (Feb. 15, 1977).
15. 42 U.S.C. s. 4321 et seq.
16. 16 U.S.C. s. 1451 et seq.
17. 42 U.S.C. s. 1962 et seq.
18. 33 U.S.C. s. 466 et seq.
19. 43 U.S.C. s. 1701 et seq.
20. 86 U.S.C. s. 1027 et seq.
21. Informal survey conducted by Katherine Jamison among the regional directors in the Office of Coastal Zone Management, April, 1981.
22. 16 U.S.C. s. 1451 et seq.
23. California Resources Code, Div. 20, Art. 6 (1976).
24. California Coastal Commission, "Design Awards 1981", San Francisco, CA.
25. Windshield survey conducted by Jens Sorensen, in California, 1974; in Oregon, April, 1976.
26. See Felleman's article on visibility analysis and Ramos et al. on vulnerability classification in upcoming Special Issue of Coastal Zone Management Journal, Spring, 1982.
27. California, McAteer Petris Act of 1969, Code ss. 666000.
28. California Resources Code, Div. 20, Art. 6 (1976).

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FLORIDA'S COAST: WHO SHOULD USE IT IN THE 1980's?

Kathleen Shea Abrams

"Florida's Coast: Who Should Use It in the 1980s?" is a half-hour color videotaped documentary presented at the conference. Produced for television, the documentary is available to government agencies, educational institutions and community organizations for public education purposes at no charge. The videotape examines three issues of current controversy about present and future uses of Florida's coastal resources. These three issues are: off-shore oil development, ownership of coastal barrier islands, and coastal community preservation and redevelopment. The documentary clearly and coherently presents technical or scientific information about each of the three issues. On-location pictorial and graphic presentations supplement the discussions and narrator's remarks about each issue.

The issue of off-shore oil development in Florida is presented by showing how and where oil drilling occurs in Florida's marine waters, and what its economic and environmental effects are likely to be in South Florida. The videotape introduces the topic of Florida's barrier islands by defining and describing them, followed by a discussion of their ecological function and of governmental decisions about barrier island development or protection. The third issue - coastal community preservation and redevelopment - examines how the built environment affects the way people live in two communities - Key West and Miami Beach - on Florida's coast.

The videotape was produced by the FAU/FIU Joint Center for Environmental and Urban Problems and the FIU Media Services Department, with support from the Florida Endowment for the Humanities. Michael Munroe and Kathleen Shea Abrams are the co-producers and co-directors. Available at no charge on 3/4 inch video cassettes, the production can be obtained either in English or in Spanish by contacting: Dr. Kathleen Shea Abrams, FAU/FIU Joint Center, FIU - Bay Vista, TC 320, North Miami, FL 33181.

FAU-FIU Joint Center for Environmental and Urban Problems
Florida International University
TC 320, Vay Vista Campus, North Miami, Florida

COASTAL MANAGEMENT:
WHAT IS MANAGED AND BY WHOM?
IS THE PUBLIC BEING GIVEN A FAIR SHAKE?

F. Hermann Rudenberg

Abstract

Not too long ago just about everyone was free to do as they personally wished in the coastal zone. Then it was discovered that such individual action could impact unfavorably on the "common good". Deterioration became visible. Laws were enacted. One aspect of these called for review of proposed coastal modifications by suitable agencies. Often, public involvement was to be included. All too rarely, long-range planning was considered.

In actual fact, public involvement is usually limited to those members of the public who will be economically affected (beneficially or detrimentally) and to those who are usually labeled "rabid environmentalist" or "obstructionist" because they have a different set of values. Frequently the distinction can be related to the degree to which each individual has a direct vested interest. All too often an adversary posture results.

With the growth of "public-interest" groups there are now two oversight bodies: the public-interest groups who look more at long-term and at societal welfare, and the regulatory agencies who look at the specific area of their jurisdiction. Legislative or agency criteria are kept weak, thereby attesting to the success of industry lobbyists. Permit violations are rampant and fines are insignificant, for the most part.

The system is heavily tilted against the public long-term welfare. Examples, as well as suggestions for amelioration will be provided.

Introduction

Coastal management at one and the same time is desired and repressed. As we learn more about the intricate interrelationships of the coastal

Coastal Affairs Chairman, Lone Star Chapter Sierra Club.
3327 Avenue Q $\frac{1}{2}$, Galveston, TX 77550.

region we should be able to delineate criteria for protection, development and enhancement so as to prioritize values and determine necessary actions. Inevitably, vested interests will clash with protectionists. Most people agree that coastal management is worthwhile; but factions disagree as to what management means and how it should be carried out.

Public Involvement

Because of the principle of freedom of use of personal property, the application of restraints has been very slow in acceptance. When economic factors are involved, they are often pitted against environmental values in decision-making. While regulation has become a societal matter, the degree of regulation is still under constant, daily debate. Criteria for regulation include public involvement at various levels prior to the decision-making. This often is a means to appease the public with little effect upon the ultimate decision. Decisions are often rendered on the basis of purported economic necessity. As a consequence, the public in general finds it a waste of time to become involved. Those who do become involved will either have a vested economic interest or likely will be members of a public-interest group, and probably the few members who are vocal in conservation. The latter tend to be more concerned with long-term societal values than shorter-term economic aspects. Thus coastal management is of concern. Yet, in spite of the fact that about half of this nation's population lives within 100 miles of the coast, coastal values are not recognized by the public as a whole beyond that of a general impression.

Coastal Management

Coastal management requires an intricate balance between man-made development and natural environmental processes. Although many regulations have been made to delineate acceptable procedures during development, these are often unrelated to specific environmental preservation in a locality. By not establishing criteria and defining characteristics that must be preserved, "coastal management" has become a process that is supportive of man-made development.

For example, after three attempts at creating a Texas Coastal Program, the best that has been accomplished in Texas has been a descriptive consolidation of present regulations, many of which are inadequately enforced. Although the needs and concerns of the coastal environment are addressed broadly, no hint is provided that, at least in some regions, a limit to man-made development may be necessary, if indeed it is feasible. Management, therefore, implies regulation to only that extent prescribed legislatively for each agency, with little concern for cumulative detriments or for retention of the natural environment and its productivity. As a consequence, development is altering the coastal ecology. Evaluative techniques are required to determine whether this is good or bad. Decreasing fishery production, increasing tar on beaches, increasing pollution of oysters, and disappearance of brown pelicans are among the gross signs of coastal environmental deterioration.

Reversal of this trend does not come easily. Further, regulatory decisions or legislation is often successfully lobbied away. Only with an integrated, collective approach such as by the Sierra Club, League of Women Voters, Audubon Society, and the like can the public have any hope of achieving results. Although the public is to be involved in evaluation of issues affecting the environment, according to the National

Environmental Policy Act and the Coastal Zone Management Act, those who are interested in a particular issue, if they should hear about a project, often do not know how to interact effectively with local, state, or federal agencies. At times, legal representation is mandatory, and therefore public involvement fails. Review of major actions, such as require environmental impact statements is more difficult and time-consuming and therefore it, too, fails to stimulate public involvement.

While on occasion projects have been modified as a result of public response, very few indeed have been stopped. Likely there has never been an EIS produced which brought about as an end result the cancellation of a project! Applicant success derives from many reasons, including: (1) resource protection, development, and enhancement have not been defined adequately; (2) there are no standards for coastal biological productivity; (3) when there is mitigation required, productivity is not also required; (4) pollution standards are national and not adjusted to local needs; rarely is attention directed toward behavior or juvenile forms, in addition to lethality of adults; (5) pollution standards relate to that project only and usually not to summated regional conditions, nor to true worst-case conditions; (6) pre-application conferences with regulatory agencies modify the applicant's plans in order to meet those agency requirements; (7) the brevity of response time available to the public usually leaves inadequate time for study in depth; (8) interaction at public hearings favors the applicant since, naturally, the project is described with the intent to make it go forward; (9) rather than get into a rebuttal with adversaries, the applicant will deliver final comments in writing just before closing of the public record; and (10) the applicant's financial resources usually exceed those of the public-interest groups and may be tax-deductible to him as well.

Needless to say, man-made development continues. Industrial interests eagerly promote coastal development; and they often complain of the high cost of pollution control. Only rarely does any one, or any group, promote means to increase biological productivity in the coastal region; and the public, and especially community health departments, are sensitive to only gross coastal pollution. Until criteria are specified regarding the characteristics required to be maintained in the coastal zone, long-term concerns will continue to be ignored in favor of present economic pressures. This situation must be turned around. The most effective means will be an economic process. While the consumer-taxpayer pays inevitably, means to assess and retain coastal productivity must be developed so that criteria can be delineated.

A Proposal: A Coastal Management Fund

One way to initiate this process is to develop a coastal management fund which can be used to balance the biological degradation that usually results from man-made development. If sufficiently large, such a fund could be used for appropriate research studies, for real estate purchases, etc., to improve coastal productivity and aesthetic values--i.e., to serve the public, not any individual, in a manner which the public is not now being served adequately. To create this fund, I would propose a coastal management tax. A coastal management tax in amount at least equal to the cost of any new construction that impacts coastal productivity, would not only help to deter unacceptable deterioration but supply a fund for reaching the goal of true coastal management.

The coastal management fund should promote coastal productivity studies, perhaps using the established sea-grant mechanism, and should permit outright purchase of wetlands and other areas which are beneficial for maintaining coastal productivity. By increasing the first cost of new development, a benefit/cost ratio, such as is used with federal projects, is favorably adjusted to perhaps compensate for environmental losses that are at present ignored; at the same time, increasing the first cost reduces the chance that a project is funded initially. With user fees in effect in order to pay for federal projects, proponents will be forced to consider total cost, not just local token dollar expenditures.

How to get Conservationists and Developers on the Same Side

It seems fair to project that the coastal management tax should be at least equal to the economic cost of altering the natural habitat in the coastal zone. However, an even stiffer ratio would be more beneficial towards habitat preservation. As a guess, if the ratio were four to one, that is one being the cost of the project and four being the tax (!), it would appear that the conservationists will no longer oppose the developers but, rather, will work with them to promote projects--a most praiseworthy condition. Under such circumstances, the coastal management fund might blossom successfully so that coastal natural values increase in spite of new man-made development. To put the opposing forces together on the same side appears to be a worthy goal. It is not beyond our achieving.

Long-range Planning for Renewal

A second suggestion is that coastal planning be carried out to develop a long-term coastal goal for the benefit of the entire nation. For example there is no national benefit to deepening every harbor and river that enters the sea. Selections must be made, even if there is a negative impact on some industries or communities. If a 50-year, or sooner, goal can be delineated, then development will be more planned, less competitive perhaps, but also less destructive of our natural resources. While a 50-year plan should certainly not be etched in stone, it does provide direction to industry, where there is none at present, and it is intended to materially improve biological productivity upon which we will become increasingly dependent. In order to achieve the end result from where we are at today, there must be a radical change in approach. Since nothing that man has created is permanent anyway, renewal at some year in the future will need to become acceptable. Renewal, in analogy with urban redevelopment, would be planned for some specific date in the future, 25, 35, or 50 years, or for that matter any other identified year ahead. Activities that require permits would have to cease by that time. Variances likely would no longer be permissible. Enough time should be permitted so that costs of development could be amortized beneficially; but beneficially only if you start now! By having all permits in a region expire at the same time, true regional redevelopment would be possible. To that end, permits and criteria for permitted activities would be reviewed at first every 5 years, later perhaps more frequently, to bring each community into alignment with the plan. By introducing this concept today, it is possible to forewarn developers and at the same time to decrease the economic justification for certain types of coastal development. Different restrictions will be needed for homes and industry, as well as for developments which have only secondary impacts upon the coastal zone as compared to those with primary impacts.

While this concept may seem radical to some, it is not far removed from concepts which are at present acceptable to at least certain portions of society: structures which are 50% destroyed by a sudden "act of God" must be removed, houses built too close to the beach spontaneously fall into the water as erosion proceeds, land is taken by the government by eminent domain. All of these operate against the owner. This proposal features forewarning by sufficient years to flavor the decision-making concerning new coastal development. While the eventually-acceptable process may differ from that described here, the intent should be clear: If the coastal zone is to be managed, it must be managed for us all, and that means setting limits on development when development impacts upon the ecosystem. The word "no" must be in the vocabulary. But criteria for its use must be set forth.

Conclusion

Whether these ideas are acceptable or not, greater control over new and existing man-made development will be necessary. Until coastal values and biological productivity can be assured of growth, rather than decline, industrial economics will continue to preempt the public need. The public, therefore, must become more involved, and involved effectively, in the decision-making that leads to control. It is not a popular role to play. Unless more individuals accept this responsibility there will be no coastal management.

Appendix

Key considerations for coastal management and some examples:

I. Considerations

What kinds of needs are there?

Freshwater inflow into bays / Bay salinity
Hurricane safety--flooding, evacuation
Growth, commerce, tourism, fisheries, recreation, etc.

What kinds of problems have been detected?

Reaching the public
Lowering taxes on dune lots
Potable water supply
Sewage disposal
Solid waste disposal
Hazardous waste--injection wells
Subsidence--payments to residents in Baytown/Brownwood (Tx.)
Subdivision
Zoning

Air emission, and offsets

Air stagnation

Hurricane shut-down costs for industry

Political impact--sanctuaries

Economic drive for "development"

Adversary posture

Intimidation of experts by providing financial research support

Permitting procedure

What inadequacies exist?

Scoping--public not equal to breadth of projects

Fast-tracking--too little time for public fact-finding

Agency fractionation--independence of review

Lack of total and regional review

Looseness of definitions: "significantly", "minimize", etc.

EIS is advocate's, prejudicial document

Selective disclosure, including secondary impacts

"General Permits" of Corps of Engineers avoids public review

Public meetings held during working day

Standards are nationwide and relate to healthy adults

Siting considerations

Consideration of ship air-emissions

Relation of uplands to wetlands

Where have there been changes in values?

Power company advertising

Reclamation and recycling by industry

Limits on community growth

Public awareness

Where have there been attempts at management in Texas?

Beach nourishment - Corpus Christi

Critical dune identification - General Land Office

Dune ordinances - Galveston

Mitigation - various kinds, minor

II. Examples

From the Texas Coast:

Trinity River and Wallisville Dam - environmental values; salt water intrusion

Clear Creek - storm run-off without tidal control
Chocolate Bayou - for navigation with open bay disposal
Highland Bayou - storm run-off without tidal control
 - industrialization of flood-diversion canal
Omega Bay - finger canals with some stagnation; near toxic waste
 site
Eckert's Bayou - canals and residences in unique woodlot
 - hydraulics of proposed and initial canals
Oil well drilling-firm pits - in wetlands without storm considera-
 tion
MgGinnis Disposal pits - same
New waste disposal sites in wetlands, or adjacent to ditches
Injection wells - several locations
Flower Garden Banks coral reefs - disposal of drilling mud
Port development - Galveston, Texas City, Houston, Freeport,
 Corpus Christi, Brownsville - disposal of spoil,
 pollution, safety, fish and wildlife values.