

CHAPTER 30
LEGAL ASPECTS IN COASTAL PROTECTION ENGINEERING

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A LEGAL BASIS FOR COASTAL PROTECTION

In modern systems of democratic government the basic recourse for the necessary authority and power for solving problems is in the enactment of laws. These laws may vary extensively in character and content from the comprehensive acts of a congressional body to the simplest ordinances of a town council, but each provides a means acceptable to the people for implementing a desired program. Such is the case in the preservation of beaches and the protection of coastlines.

It is safe to assert that without the benefit of some legal basis, nothing would be undertaken beyond individual attempts to control the forces, natural and cultural, which threaten the shoreline. Coastal laws are necessary. They acknowledge the problem and the need to combat it. Yet, with continued efforts to refine the law and detail the most minute principles of implementation, it loses its value as the servant of the people and becomes the master - a coastal protection program no longer flexes to a contemporary situation, but is governed by the limitations of the law.

A sound coastal protection program, then, should be based on a law more general and adaptable than specific and rigid. It should recognize the preservation of shores and beaches as a public responsibility, and should provide authority and means for the discharge of this responsibility. Such a simple statement of the issue is misleading, however. If the legal prerequisites are so elementary, there must be some reason why every political entity with a coastal problem does not have a basic law conducive to a successful protective and remedial program. The explanation for this is not in the law itself.

Florida is a prime illustration. Since 1931 - for more than a quarter century - this state has had in its statutes a provision intended to authorize, if not direct, a program of almost unlimited scope for the administration of state lands by the Trustees of the Internal Improvement Fund - a board comprised of five cabinet members acting ex officio. Section 253.03, Florida Statutes, reads in part:

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The Trustees of the Internal Improvement Fund of the state are vested and charged with the administration, management, control, supervision, conservation and protection of all lands and products on, under, or growing out of, or connected with, lands owned by, or which may hereafter inure to, the state, not vested in some other state agency. Such lands shall be deemed to be all lands owned by the state by right of its sovereignty all tidal lands all lands covered by shallow waters of the ocean, gulf, or bays or lagoons thereof, and all lands owned by the state covered by fresh water all lands which have accrued, or which may hereafter accrue, to the state from any source whatsoever, unless or until vested in some other state agency.

General though it may be, sufficient authority is contained in this section to have enabled long ago the initiation of coastal protection work. The aforementioned Trustees, who have the power to approve disbursements from the Internal Improvement Fund for a "liberal system of internal improvements", might legally have instituted a program of coastal improvements as well. In its permissive aspects, this law is entirely adequate. Yet, today, Florida suffers coastal problems as critical as any in the world, and lags far behind in application of modern coastal engineering techniques.

Cursory analysis is sufficient to note that coastal problems in Florida have not gone unattended through absence of legal authority to cope with the situation. Progress within the state in recent years, stimulated largely by the efforts of the Coastal Engineering Laboratory at the University of Florida, provides encouraging evidence that such activities can be conducted in harmony with, if not as a product of, the existing law. To be sure, a law with more specific references to beach erosion and coastal protection might have been utilized more extensively; but basically, the relative inactivity in this field in Florida has been a consequence of widespread ignorance and apathy on the part of the people. Despite acute natural problems and Florida's economic interest in shores and beaches of the state, a strong protective program has not developed primarily because the people have been unaware of the situation and have not been inclined to support the much needed program. This problem is not confined to Florida.

To correct this situation, no amount of legal reform will suffice. Instead, public support must be obtained through a concerted education and information program by responsible governmental agencies or interested citizens' groups. In Florida, for example, a common problem united

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a number of local groups and agencies into the Florida Shore and Beach Preservation Association. This organization, which received part of its stimulus from the success of similar groups in other states, has been instrumental in specifying by legislative act the responsibility of the Trustees of Internal Improvement Fund for erosion control and beach preservation. In addition it has acquired support for the program of the Coastal Engineering Laboratory, and has the promise of providing an indispensable service in educating the public.

Active participation by both the government - determine by law - and the public - determined by sentiment - is necessary for the consummate success of a coastal program. Discussion thus far has pointed up the fundamental deficiency of each. First, over-refinement of laws encourages undue reliance on the provisions of the law, limiting its application and curbing initiative. Second, without public interest and support, no law, whether infinitely detailed or broadly permissive, can provide a remedy for coastal problems. The conclusion reached is simple, and yet profound: coastal laws are necessary for a remedial program, but until such time as these laws become mandatory directives, they must be drawn to enlist the fullest public cooperation, down to the last individual beach property owner.

Although coastal laws have their purposes in common, their application must vary to fit particular circumstances. If the law is not general and flexible, numerous difficulties are likely to be encountered. Procedures and policies should evolve through interpretation of the law rather than written into it, and local acceptance must be insured through adaptations. If coastal conditions become so critical that hazards are created, human life is endangered and the public interest in private property is jeopardized, the law should provide for positive governmental action. Otherwise, the initiative should be fostered at the lowest practical level.

PROVISIONS OF PRACTICAL COASTAL PROTECTION LAW

To be practical, coastal protection laws should provide for what may be done, the scope within which and the means which it may be done, and who may do it. If coastal conditions are critical enough, these provisions should require mandatory execution; otherwise permissive powers should be granted for use at whatever level the initiative is taken. As previously emphasized, the law must not be over-refined, but must authorize a liberal approach, adaptable to particular situations.

BEACH PRESERVATION LAW

In considering what the law should provide, the need

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for coastal protection can be logically divided according to source: human or natural. Human activities such as mining, dredging, filling and construction are often detrimental to beaches and coastlines, and may be regulated through a beach preservation law. The law may simply forbid such activities or may prescribe desirable limitations or restrictions. Offshore activities, which may be as harmful as those on the beach itself, should also be controlled. Responsibility for enactment and administration of this law should be in the political entity which legally holds title to coastal areas beyond the line of private ownership.

COASTAL PROTECTION LAW

Protection of shores and beaches from natural factors involves measures of greater complexity, and the law enacted for this purpose should provide correspondingly broader authority without attempting to prescribe superfluous procedural details. There are five basic provisions which should be incorporated into the coastal protection law:

- (a) a provision creating an agency in the central government, or placing the responsibility for coastal protection in an existing agency of the central government
- (b) a provision requiring certain measures to be undertaken to protect life and property, prevent hazards from products of storm and flood, and uphold the general public interest in private as well as public property
- (c) a provision authorizing measures to be undertaken at lower levels to prevent and remedy damage and loss of property through natural processes such as erosion
- (d) a provision authorizing the establishment of cooperative organizations for the purpose of shore and beach preservation and coastal protection at lower levels
- (e) a provision authorizing participation by the central government, through financial and technical assistance, in coastal protection activities at lower levels and establishing formulae for determining the extent of governmental participation

These provisions are more or less comprehensive, and

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it may be desirable to delegate them to one or more lower governmental levels within the central government, depending largely on the size of the political entity assuming the responsibility and the political subdivision system in use. A small state with a relatively short coastline might easily assume each of these functions, whereas a large country with a more heterogeneous coastline might prefer to place these functions within local governments. In any case, an unequivocal line of responsibility should be maintained and the advantages of some overlap of duties at each level should be considered.

The coastal protection agency - Whenever a coastal protection law is enacted, there should properly be an agency of the government to represent the public interest in the discharge of the provisions of the law. This agency may interest itself to some extent directly in coastal protection and remedial programs, but primarily it serves as supervisor and coordinator of subordinate activities, and as adviser to the governmental executive. Liberal powers toward the execution of a comprehensive coastal protection program should be vested in this agency.

Mandatory requirements for protection of life and public property - Many consequences are likely to result from the action of natural forces on unregulated human development and use of coastal areas. Some of these consequences are confined in their effects, and cause no immediate public concern. There are others, however, caused or aggravated by individual or local activity, which have far reaching effects and are of vital concern to the public as a whole. Among these consequences are the loss or jeopardy of human life through action of storms and floods on inadequately protected coastal areas, the development of public health hazards, and the destruction of public property. The coastal protection law should serve to prevent or eliminate such conditions before they become consequential requiring mandatory adherence to prescribed standards of public safety and coastal development.

Authority for individual coastal protection measures - Any individual or several coastal property owners should enjoy the right to undertake measures for the protection of their property from natural forces. To insure an orderly approach to this problem, the coastal protection law should authorize private activities subject to approval and supervision by the government of the techniques and structures to be used. Since such measures frequently entail construction on public property below the line of private ownership usually the mean or ordinary high water line - the law should authorize such invasion for legitimate purposes.

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Local cooperative organizations.- In many cases, coastal protection or beach preservation needs do not involve the entire limits of a particular local government, yet exceed the scope of individual property owners. The desirable recourse is the establishment of a district, covering the entire problem area. This district could take the place of a local government to effectuate a cooperative program. The basic coastal protection law should provide blanket authority for creation of beach erosion districts or similar organizations, and provide a framework within which they might function.

Governmental participation in coastal protection programs - Some public benefit accrues from almost all properly planned and executed coastal protection programs. For this reason the central government may desire to participate to some extent in protective and remedial programs for private property, as well as conducting programs for entirely public property. The assistance and incentive to be gained locally from governmental participation is extremely valuable, since coastal technology is not a common science and the planning and construction of coastal projects is costly. Coastal protection laws should make some provision to enable participation by the central government, and should set forth terms on which to base the amount of assistance to local governments, beach erosion districts and possibly individual property owners where the public interest is sufficiently great.

Provision for beach preservation and coastal protection needs as outlined above, liberally drafted in a law compatible with a particular constitution or charter, will afford a general and comprehensive basis to undertake or foster the actual protective and remedial programs. It would serve little purpose to elaborate on the numerous ways by which these provisions could be represented in the law, or on the even more numerous ways by which the legal provisions could be implemented. These are considerations which must be influenced by the needs and desires of a particular government. It will probably be of value, however, to examine selected provisions of existing law to gain the benefit of experience by other governments with perhaps similar coastal problems.

PROVISIONS OF EXISTING COASTAL LAW

Coastal laws currently in use by various governments of the world have evolved - or are evolving - in a manner responsive to the needs occasioned by conditions in the area. These conditions represent a complex of physical, legal, cultural and related factors which determine differences

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in the laws, or whether or not there is a law at all. The result has been a wide range of experience in producing coastal protection laws among various countries, and among the various states of the United States. Provisions of some of the representative existing coastal laws are summarized below.

DENMARK

Denmark has two different kinds of beach laws:

- (a) a beach preservation law, and
- (b) a coastal protection law.

The beach preservation law which is now in use was issued in 1906. It provides that when it is necessary for the protection of the coast, all removal of sand, clay, gravel and stones can be forbidden. Exemptions are sometimes made for such purposes as the removal of material for coastal protection work.

Executive power is in the hands of the Ministry of Public Works, which, when such a question arises, establishes a "coastal commission" for each county involved. Out of the three members on each commission the chairman is selected by the Ministry of Public Works (usually a district engineer from the ministry), and the two other members are appointed by the county commissioners, although they do not need to be county commissioners. The commission works out a proposal and holds a hearing before reaching its decision. The decision may be protested, but if the ministry sustains it, the decision is valid for five years. At the end of five years the matter can be re-considered if requested.

Coastal protection law now in use requires the approval of the Ministry of Public Works for any coastal structure built outside the mean high water line. The ministry can refuse to allow constructions which are inadequately designed and will have a detrimental effect on the adjacent coastal property. If support from government funds is applied for, the legislators act on each individual request through the "financial committee". There are no general rules regarding the financial participation by the government. On the North Sea coast a contribution of 100% may be made where it is considered important for the country as a whole to counteract erosion. The total amount of government funds usually is based on the percentage of public interest in the area to be protected. In the "inner seas", the Baltic and the Sounds, the government usually will contribute one-third, the coun

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one-third, and private interest one-third. If a city is involved, it may take over the whole cost, or share it with private interests. These are divided into two or three classes according to their interest in the matter. Class one has coastal property and pays twice as much per linear meter of protection as class two, which has its property inland from class one. Class three, if any, is inland from class two, and pays half as much as class two. The power is in the hands of a "property commission", similar to the coast commission described above. The chairman is usually a judge and is appointed by the Ministry of Public Works.

An important provision of the coastal protection law prescribes a means by which neighboring property owners may be assessed for a proportional share of the cost when benefits are derived from a project undertaken by another owner. The party initiating the project may request the property commission to determine the extent of the benefits to neighboring property and assign expenses for construction and maintenance accordingly. If the property commission deems it necessary that a coastal protection structure extend beyond the property of the builder to achieve proper results, it may grant such permission, even over the adjoining property owner's objection.

HOLLAND

Holland has no special coastal laws. Its program functions under a number of laws of more general tenor. The most important of these is the "Waterstaat" act, issued in 1900, which gives general rules for government, dealing with the regulation of the water and the defense against the sea in any situation.

Among the provisions of the Dutch law is that establishing water-divisions, or "waterschappen", which are in some ways similar to Florida beach erosion prevention districts. These waterschappen are arranged at different levels of authority and jurisdiction, and have the power to pass local legislation regarding defense against the sea. In many cases a lower level waterschappen must yield to the superior authority of a higher division, but otherwise it is responsible for coastal protection activities within its own province. In emergencies such as that which occurred in 1953, it is possible for most of the divisions to mobilize every able-bodied male between the ages of 16 and 65 for work at dikes and sea defenses.

Waterschappen are governed by a committee elected by the owners of the property within the limits of the division. The number of votes any owner has is dependent upon the size and use of his property. The chairman and members of the

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commission responsible for the over-all management of water divisions are appointed by the Crown. Final authority over all divisions is vested in the Crown. When the situation warrants, the official of the Ministry of Waterstaat may, in the name of the Crown, take command of any local situation.

All the beaches and the connecting dunes are part of Holland's defense against the sea, and for this reason are under control of the Ministry of Waterstaat. All land on the seaward side of the high water line is always owned by the state. In most cases the state or division also owns a narrow strip on the shoreward side of the high water line, but in a very few cases this strip may be private property.

A waterschap may be established whenever a certain percentage of the property owners in a district requests it, or if the Crown deems it necessary. The Waterstaat act states that public or private property may be used for digging, surveying or erecting of certain signs necessary for the design and execution of coastal protection works, provided written notice is sent to owners or users of the property, at least 48 hours in advance. The act also provides that no coastal defense works in an area under management of a waterschap are to be approved by the county authorities, or the Ministry of Waterstaat. Every county has its own hydraulic engineering division. The waterschappen, the county authorities and the Ministry of Waterstaat are jointly responsible for the management of the coastal protection works.

Activities of possible detriment to the foreshore, dunes or coastal waters are tightly regulated. For example, it is forbidden to dredge on the foreshore within a distance of 1500 feet from the toe of the dunes or the existing coastal protection works. Destruction of vegetation in these areas is especially prohibited.

If coastal protection structures built under the authority of a waterschap prove to be beneficial outside the division's limits, a contribution to the cost of these works may be paid by the county authorities and the government. The ratio of these contributions depends on the circumstances but in case of emergency the state may pay the whole cost.

UNITED STATES

Provisions of United States law concerning beach preservation and coastal protection are contained in a number of acts dating back to the important Rivers and Harbors Act of 1930. The most significant of the separately enacted laws are described here.

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Public Law 520, Seventy-first Congress, 1930 - This law created a seven man beach erosion board under the Chief of Engineers, U. S. Army, to furnish technical assistance and otherwise supervise and participate in investigations and studies made in cooperation with the states to determine beach erosion needs and remedies. The Corps of Engineers was assigned the primary responsibility for conducting the cooperative studies.

Public Law 166, Seventy-ninth Congress, 1945 - Additional responsibility was placed on the Corps of Engineers, through the Beach Erosion Board, which was directed to conduct general investigations at federal expense to protect, restore and develop the beaches. The responsibility of the Board under P. L. 520 was increased to include an opinion on (a) the advisability of adopting the project, (b) what public interest, if any, is involved in the proposed improvement, and (c) what share of the expense, if any, should be borne by the United States.

Public Law 727, Seventy-ninth Congress, 1946 - For the purpose of "preventing damage to public property and promoting and encouraging the healthful recreation of the people", this law authorized federal financial assistance for the construction, but not the maintenance, of coastal protection works. The project must be for public property, and must be recommended by the Beach Erosion Board and specifically authorized by Congress. Federal funds are limited to a maximum of one-third of the total cost of the project.

Public Law 826, Eighty-fourth Congress, 1956 - Important amendments to P. L. 727 were made by this law. Shores of territories and possessions were specifically mentioned for the first time. Also, provision was made to interpret "artificial nourishment" as a limited form of construction previously provided for. Probably most important is the broadening of the provisions of the act to include all shores, whether public or private, where public interests are involved.

INDIVIDUAL STATES

Of the forty-eight united states, twenty-two have a marine shoreline and six others have a shoreline on the fresh water Great Lakes. A vast difference is manifested among the coastal and beach laws that have been developed throughout the country. Georgia, Louisiana, Maine, New Hampshire and Oregon have no beach laws to speak of, while some states operate under highly effective statutory provisions.

Florida - The basic statute under which Florida has authorized a beach preservation and coastal protection program is Section 253.03, Florida Statutes, described in the initial

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part of this paper. The Trustees of the Internal Improvement Fund were so empowered as early as 1931, but little has been accomplished under that authority.

In 1941, a law was enacted which became Chapter 158, Florida Statutes, authorizing the establishment of beach erosion prevention districts. This law provides that any election precinct in the state may by majority vote organize as an erosion prevention district, with all the powers and functions necessary for undertaking a program of its own or cooperating with the federal and state governments. Only a limited number of such districts has been created, but these are in some of the areas of most critical need.

It has always been the responsibility of the Trustees of the Internal Improvement Fund to administer sovereign tidal lands and regulate their alteration and development. Inconsistent legislation in past years has produced such legal confusion that the Trustees' task has been extremely difficult. The 1957 Legislature enacted Chapter 57-362, Laws of Florida, vesting an unequivocal authority in the Trustees and repealing several conflicting statutory provisions. Of greatest significance in this law is the establishment of a procedure by which local governments under the over-all supervision of the Trustees shall fix bulkhead lines in tidal waters to control dredging, filling and similar alterations. Broad application of Chapter 57-362 is currently being made.

Another important act passed by the 1957 Florida Legislature, Chapter 57-791, designates the Trustees of the Internal Improvement Fund as the erosion agency of the state, and authorizes the expenditure of surplus funds for assistance to localities in combating beach erosion. The Trustees' responsibility in the beach preservation field is further confirmed, and a department of beach erosion may be created as a part of the Trustees' staff if it proves desirable.

Massachusetts - In Massachusetts, activities in shore protection, river and harbor development and stream improvement all are authorized by Chapter 91 of the statutes. Section 11 of this law, which pertains more specifically to beach erosion and harbor and channel protection, provides the Department of Public Works with broad authority to undertake such activities for improvement, development, maintenance and protection as it deems reasonable and proper. It has been the policy of the state to require a fifty per cent contribution from local sources toward the cost of beach protection works. A twenty-five per cent local contribution is required for dredging projects if the general public interest is served. Local partici

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must petition the Department of Public Works for assistance and hold a public hearing on the proposed cooperative project.

New York - Erosion prevention and beach protection works in New York State are carried out under the Superintendent of Public Works by authority contained in Chapter 535, Laws of New York. The initiative rests with local or municipal governments, who must enter into an agreement with the state to contribute fifty per cent of the total project cost. Necessary lands or easements are provided by local interests, and plans for the project are drawn by the state, subject to local approval. The state may contract actual construction work or may undertake all or part of it with its own forces. After completion, the municipality assumes all responsibility for maintenance and repair. Provision is made to utilize assistance from the federal government in any project, but the local obligation remains at fifty per cent of the total cost. Municipalities are authorized to levy a general tax on all taxable real property therein or a special assessment on real property actually benefited by the project.

Ohio - The state of Ohio, which has no marine coastline, has a very detailed shore protection law, pertaining primarily to the shores of Lake Erie. Chapter 1507, Ohio statutes, vests the responsibility in the Division of Shore Erosion, with authority to cooperate with the federal government and to call upon other state agencies and departments for needed assistance. The Division regulates all activity, either for shore improvement and protection or for mining and removing materials from the beach or lake bottom, through the issuance of permits. The state may enter into agreements with local governments for undertaking shore protection projects. If the property to be protected is wholly public, the state assumes two-thirds of the project cost and local interests one-third; if private property is to be protected, the ratio is reversed, with the state paying only one-third. In emergencies, the state may act without an agreement for local contribution, and regardless of the ownership of the property involved. The maintenance of completed works also is shared by state and local interests. Responsibility for the preparation and continued modification of a comprehensive plan for erosion prevention is placed in the Division of Shore Erosion.

Michigan - Neither does Michigan have a marine coastline, but its fresh water shore line on the Great Lakes Superior, Michigan, Huron and Erie is extensive. The state itself, however, has not been particularly active in shore protection programs. In 1952, two measures were enacted

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by the Legislature to authorize initiative at the local township or municipal level. Act No. 44, 1952, authorizes any political subdivision of the state to make expenditures from its general or contingent funds for beach protection work, Act No. 278, 1952, further authorizes local governments to enter into agreements and cooperate with the federal government in any of its natural resource or conservation programs, including beach erosion control.

California - Control over beach erosion in California formerly was vested in the State Park Commission, under the immediate supervision of a beach erosion control engineer. In 1953, the office of the engineer was abolished and the powers and duties relating to control of beach erosion were transferred to the Department of Public Works. In 1956, these functions were transferred to the newly created Department of Water Resources.

Sections 330-334 of the State Water Code outline the existing authority pertaining to the control of beach erosion. Provision is made for the conduction of studies independently or in conjunction with other local, state or federal agencies. Within certain financial limitations, the Department of Water Resources may plan and construct whatever works the studies indicate to be necessary. Specific authority is provided for cooperation with the federal government or other agencies in constructing beach protection works.