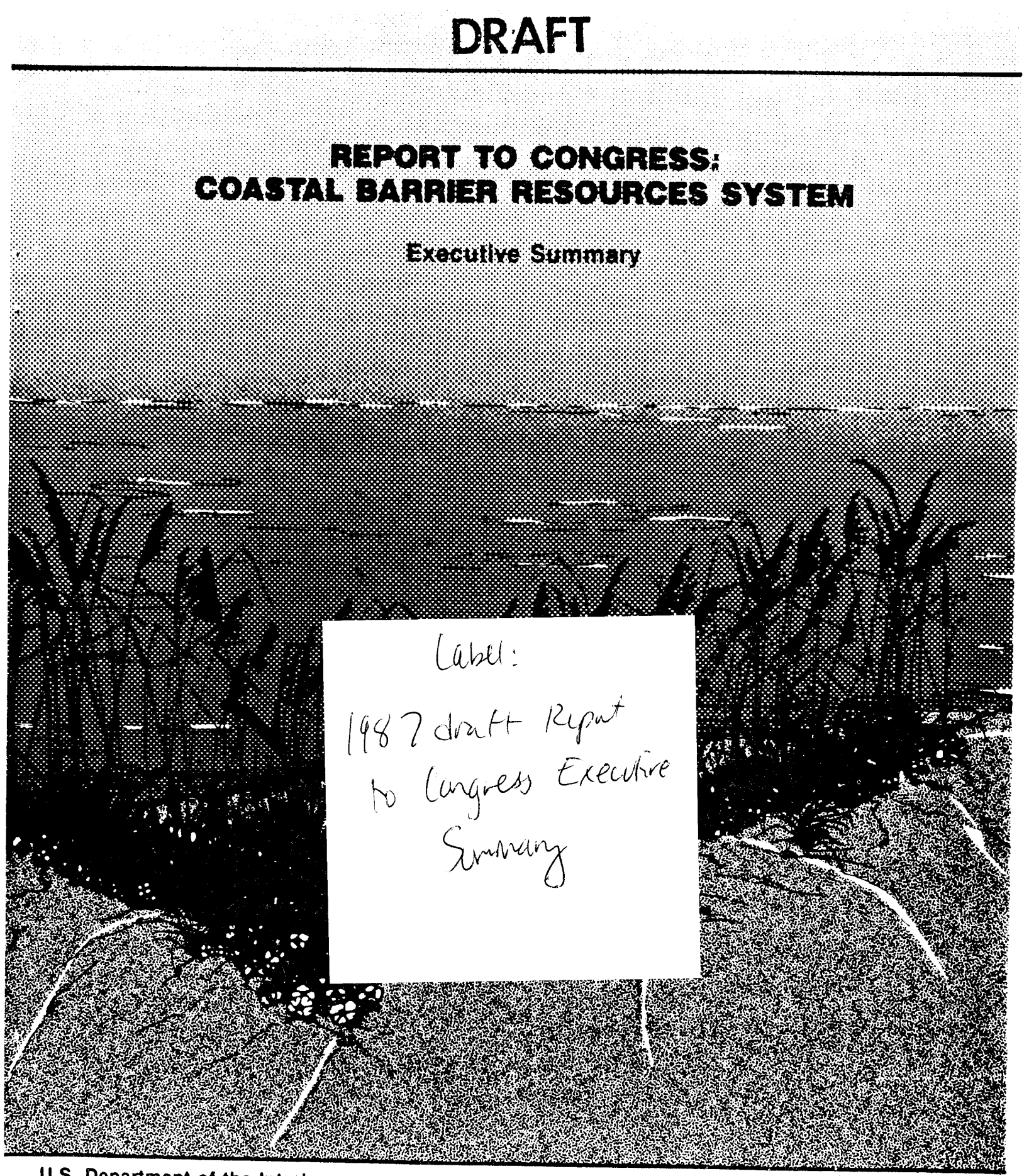
DRAFT

REPORT TO CONGRESS: COASTAL BARRIER RESOURCES SYSTEM

Executive Summary



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EXECUTIVE SUMMARY

Mapped, edited, and published by the Coastal Barriers Study Group

United States Department of the Interior

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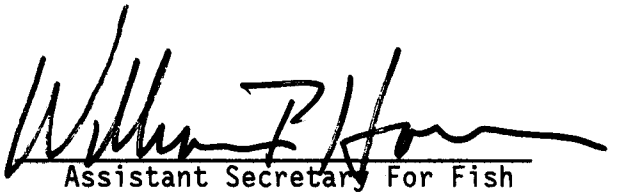

Assistant Secretary For Fish
and Wildlife and Parks

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INTRODUCTION

The Coastal Barrier Resources Act (CBRA) of 1982 (Public Law 97-348) established the Coastal Barrier Resources System (CBRS), a system of undeveloped coastal barriers along the Atlantic and Gulf of Mexico coasts. Section 10 of CBRA (16 U.S.C. 3509) states:

Sec. 10. Report to Congress

(a) In General.--Before the close of the 3-year period beginning on the date of the enactment of this Act, the Secretary shall prepare and submit to the Committees a report regarding the System.

(b) Consultation in Preparing Report.--The Secretary shall prepare the report required under subsection (a) in consultation with the Governors of the States in which System units are located and with the coastal zone management agencies of the States in which System units are located and after providing opportunity for, and considering, public comment.

(c) Report Content.--The report required under subsection (a) shall contain--

(1) recommendations for the conservation of fish, wildlife, and other natural resources of the System based on an evaluation and comparison of all management alternatives, and combinations thereof, such as State and local actions (including management plans approved under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.)), Federal actions (including acquisition for administration as part of the National Wildlife Refuge System), and initiatives by private organizations and individuals;

(2) recommendations for additions to, or deletions from, the Coastal Barrier Resources System, and for modifications to the boundaries of System units;

(3) a summary of the comments received from the Governors of the States, State coastal zone management agencies, other government officials, and the public regarding the System; and

(4) an analysis of the effects, if any, that general revenue sharing grants made under section 102 of the State and Local Fiscal Assistance Amendments of 1972 (31 U.S.C. 1221) have had on undeveloped coastal barriers.

This proposed report to Congress has been prepared as a 22-volume compendium. It was compiled under the direction of the Assistant Secretary for Fish and Wildlife and Parks by the Coastal Barriers Study Group, a task force of professionals representing the National Park Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and other Departmental offices. Volume 1 of the report describes the CBRS and discusses all the conservation alternatives that might be appropriate for CBRS. It is a revised version of the document released in March 1985 ("Coastal Barrier

Resources System Draft Report to Congress") for public comment. It will not be released again until the final report goes to Congress. Volumes 2-22 of the report contain background information about each State's or Territory's coastal barriers, maps of those barriers, and proposed recommendations for specific additions to and deletions from the CBRS in those States or Territories. The proposed recommendations in these Volumes were prepared after Departmental study and review of the public comments on the draft National inventory of undeveloped coastal barriers. This Executive Summary outlines the Department's proposed general recommendations for changes to the CBRS and presents the proposed conservation alternatives selected from Volume 1.

A. Description of Coastal Barriers

The coastal barriers of the Atlantic Ocean and Gulf of Mexico coasts make up one of the longest and best defined chains of coastal barriers in the world. From Maine to south Texas, coastal barriers stretch like protective ribbons along 2,700 miles of our Nation's shoreline. These barriers, formed of sand, shell, and gravel, endlessly shift into a variety of shapes and sizes as they absorb ocean energies, buffering associated wetlands and the mainland from daily waves and tides and occasional hurricanes and northeasters.

The unique and valuable habitats of coastal barriers and their associated wetlands support a tremendous variety of organisms. Millions of fish, shellfish, birds, mammals, and other wildlife depend on barriers and their wetlands for vital feeding, spawning, nesting, nursery, and resting habitat. Often the highest diversity of wildlife on coastal barriers is found at the edge between marshland and upland or land and water.

People, too, seem to prefer this land-water interface. Many of the major resorts on the Atlantic coast--such as Atlantic City, Virginia Beach and Miami--are located on coastal barriers. The coastal region, in fact, is the focus of many competing demands, including National defense, commerce, energy development, real estate development, recreation, and conservation. Pressures for the use of coastal habitats can lead to significant deterioration of coastal barrier resources. Construction and development, alteration of primary dunes, beach stabilization measures, maintenance of navigation channels, and ground water extraction and contamination are all examples of human activities that can disrupt coastal processes, destroying the ecological well-being of coastal barriers and even the barriers themselves.

Coastal barriers in their natural state exist in a state of dynamic equilibrium as they constantly respond to the varying assaults of wind and water. Sand is shared between offshore sand bars, the barrier beach, the dunes, and, over the longer term, the entire land mass of the barrier. As sand is eroded from one part of the barrier it is deposited somewhere else. During storms, the barrier retreats from the direct attack of the ocean through the overwash process. Large storm waves push through the dunes and sometimes across entire islands, depositing fans of sediment behind the dunes or in the soundside marshes. The overwash process also permits barriers to survive the worldwide rise in sea level by somersaulting backwards up the coastal plain.

Clearly, such a dynamic environment is a difficult place for people to live. Structures built too close to the shoreline are quickly threatened by an eroding beach. Hurricanes and northeasters can threaten property virtually anywhere on a barrier. Traditional beach stabilization structures such as groins, jetties, seawalls, and bulkheads interfere with the natural sand-sharing process; in the longer run they seriously degrade or destroy the beach and may lead to the destruction of the barrier itself. Without the barrier, large population centers on the mainland would be threatened by the direct assaults of the sea.

Increased affluence and Federal subsidies are among the primary causes for the rapid development of our beaches in the past four decades. Populations in Coastal States are growing rapidly, at a rate well over three to four times the National average. Today one out of every two Americans in the continental United States lives within an hour's drive of the coast. As development and investment increase, the need to protect those investments also intensifies. Protection of coastal development is not only complex, but costly as well. There are now over seven million people exposed to potential hurricane storm surges and flooding along the Atlantic and gulf coasts (Kusler 1983). Average annual property losses due to hurricanes rose from $250 million during the decade between 1951 and 1960, to over $400 million in the decade between 1961 and 1970. Hurricane Alicia in 1983 caused over $750 million in damages to commercial, residential, and public facilities in the Galveston, Texas, area (Platt 1985). Hurricanes Danny, Elena, Gloria, Juan, and Kate cost an estimated $1 billion in Federal payouts over the Atlantic and gulf coasts in 1985 (Federal Emergency Management Agency, pers. comm.).

From 1981 to 1985, about 23% (16 of 67) of the presidentially declared disasters involved coastal flooding and about 49% ($265 of $539 million) of the Federal disaster aid obligations were attributable to coastal damage (Platt 1985). The National Flood Insurance Program (NFIP) is one of the largest single financial obligations the U.S. carries. The NFIP insures over 2 million eligible properties with coverage in force of about $150 billion (Federal Emergency Management Agency, pers. comm.). Of this total, about 70% are in coastal communities (Platt 1985). The NFIP regards as coastal communities cities, towns, and counties having a portion of their areas on the coast. Miller (1981) has estimated that the costs to the Federal Government of extending its current development programs to the remaining undeveloped coastal barriers would be more than five times greater than the costs of public acquisition.

Cost considerations such as these, along with environmental and safety concerns, led to the enactment of the Coastal Barrier Resources Act (CBRA) in 1982. This legislation was specifically designed to restrict federally subsidized development of undeveloped coastal barriers along the Atlantic and gulf coasts in order to:

(1) minimize the loss of human life,
(2) reduce the wasteful expenditure of Federal revenues, and
(3) reduce damage to fish and wildlife habitat and other valuable natural resources of coastal barriers.

This Act prohibits, within the undeveloped, unprotected coastal barriers of the Coastal Barrier Resources System (CBRS), most expenditures of Federal funds promoting development. The intent of the Act was to remove from undeveloped coastal barriers Federal incentives for new development, such as National Flood Insurance, U.S. Army Corps of Engineers structural development projects, and Federal assistance for construction of sewer systems, water supply systems, airports, highways, bridges, and jetties. The effect of the Act is to put the burden of financial risk associated with development on those who choose to live on coastal barriers, not on the American taxpayer.

B. Background on CBRA

The Coastal Barrier Resources Act was the culmination of several years of study by Congress and the Department of the Interior (DOI) of Federal programs and the development of coastal barriers. Studies initiated by the Department in 1977 assessed options for modifying about 40 Federal programs affecting coastal barriers, including the National Flood Insurance Program. The results of these studies were released in a draft Environmental Impact Statement (EIS) in January 1980. Congressional action followed to redirect partially the economic risk of development back to the private sector.

Section 341 of the Omnibus Budget Reconciliation Act of 1981 (OBRA) amended the National Flood Insurance Act of 1968 to prohibit the issuance of new Federal flood insurance coverage after October 1, 1983, for any new construction or substantial improvements of structures located on undeveloped coastal barriers. The Act gave the Secretary of the Interior a twofold responsibility: (1) to designate coastal barriers based on a definition provided in the Act, and (2) to report to Congress with recommendations (if any) relating to the term "coastal barrier."

In accordance with OBRA, the Secretary submitted a report to Congress on August 13, 1982. The designation and delineation criteria and a listing of 188 units proposed for designation as undeveloped coastal barriers were published in the August 16, 1982, Federal Register (47(158):35696-35715). The Secretary's report to the Congress endorsed the general definitions and delineation criteria contained in OBRA, and recommended that the Act's implementation proceed according to the detailed criteria developed by the Department. This report further recommended that protected coastal barriers be included within the scope of the legislation. The action recommended in this August 1982 report to Congress was identical to the Proposed Action of the 1980 EIS.

A Final Environmental Statement (FES) was issued in May 1983. It assessed the environmental consequences of four alternatives considered in the planning process between January 1980 and October 1982. A large part of the High Level Protection Alternative (the Proposed Action) was incorporated into CBRA. The definitions used in the CBRA are consistent with the definitions used in the OBRA and the delineations of undeveloped coastal barriers in the CBRS are generally consistent with those proposed by the Secretary of the Interior in his August 1982 report to the Congress.

While CBRA reflects the Proposed Action in the FES in terms of geographic coverage, it expands the Federal prohibition from just Federal flood insurance to include all Federal programs that expend funds or provide financial assistance in support of development, unless specifically exempted or permitted by CBRA. The High Level Protection Alternative was written pursuant to enactment of CBRA and in cognizance of the Section 10 requirement to prepare this report. The environmental impacts of these proposed recommendations are addressed in the 1983 FES.

C. CBRA Section 10 Report

On December 5, 1983, the DOI published an outline of the studies it was undertaking to prepare the Section 10 Report in the Federal Register (48(234): 54543-54545). The Department accepted public comments on this study plan through February 1, 1984.

In the Spring of 1985, DOI issued a draft National inventory of undeveloped coastal barriers on all U.S. coastlines and a draft text report on conservation alternatives for the CBRS. These documents were made available for public review as part of the information-gathering process; they did not include recommendations but rather provided a range of alternatives that could be used as the basis for recommendations to Congress.

On September 30, 1985, the Department closed the public comment period on the report and inventory. The Department received over 2,300 comments on the documents. A wide variety of viewpoints were expressed on the possibility of expanding the CBRS to include other coastlines, protected barriers, secondary barriers, and expanded aquatic habitat. A variety of opinions were also expressed on the conservation alternatives.

In addition to soliciting written public comments through the Federal Register. Departmental representatives met with State and local officials, and visited or attended public meetings and workshops in 21 of the 29 States included in the inventory. Various options for expansion were evaluated to increase our understanding of coastal barriers and their locations and status around the Nation. Based on a review of the public comments received and the research conducted, the Department has concluded that some expansion of the CBRS and the CBRA provisions is warranted and important.

PROPOSED RECOMMENDATIONS FOR ADDITIONS TO OR DELETIONS FROM THE CBRS

The coastal barriers included in the CBRS in 1982 were delineated based on definitions developed for OBRA. As the scientific understanding of coastal barriers has grown and the functional requirements of a good definition have become more obvious, the definitions and delineation criteria used by the Department of the Interior to inventory barriers have also evolved. The criteria used to delineate the proposed changes to the CBRS were published in the Federal Register in March 1985 (50(42): 8698-8702). Major changes that the Department proposes to recommend concern the undeveloped and unprotected coastal barriers in the Florida Keys, Puerto Rico and the Virgin Islands, associated aquatic habitat,

secondary barriers, military and Coast Guard lands, and "otherwise protected" barriers.

As mentioned earlier, individual proposed recommendations for additions to or deletions from CBRS in each State or Territory are contained in the 21 State and Territory atlases (Volumes 2-22 of the report). A summary of these proposed recommendations appears in Table 1.

A. Geographic Scope

Congress did not address the possibility of including barriers on coastlines other than the Atlantic Ocean and Gulf of Mexico in 1982. At the direction of the Secretary in 1983, the Coastal Barriers Study Group undertook the task of identifying and delineating the undeveloped coastal barriers on all U.S. coastlines. Although this endeavor resulted in a massive amount of data, no recommendations are proposed to include other coastlines in the CBRS. Additional study and consideration is necessary before a recommendation can be made regarding undeveloped coastal barriers along the Pacific Coast, Great Lakes, Alaska, Hawaii,and American Samoa. Undeveloped and unprotected coastal barriers in the Florida Keys, Puerto Rico and the Virgin Islands were not included in the CBRS in 1982. These barriers border the Atlantic Ocean and are subject to the same dynamic forces and development pressures as other Atlantic coastal barriers.
Proposed recommendation: DOI proposes that the undeveloped, unprotected coastal barriers of the Florida Keys, Puerto Rico and the Virgin Islands be added to the CBRS.

B. Associated Aquatic Habitats

CBRA defines an "undeveloped coastal barrier" to include all associated aquatic habitats: "adjacent wetlands, marshes, estuaries, inlets, and nearshore waters." However, the original units of the CBRS include only minimum aquatic habitat because the 1982 Congressional designations were based on Departmental delineations for a prohibition on just the sale of Federal flood insurance as required by OBRA. These delineations focused on the undeveloped fastland portion of the barriers, where residential development might occur.

Coastal barriers protect the aquatic habitats between the barrier and the mainland. These habitats are critically important to many fish and wildlife, including most of the Nation's commercial fish and shellfish harvest. The barrier and its associated habitats are one ecological system and the health and productivity of the entire ecosystem depends on the rational use of all the component parts.

"Associated aquatic habitat" includes all wetlands (e.g., tidal flats, swamps, mangroves, and marshes), lagoons, estuaries, coves between the barrier and the mainland, inlets, the nearshore waters seaward of the coastal barrier including the sand-sharing system and, in some tropical areas, the coral reefs associated with nearshore mangroves. Under normal weather conditions, only aquatic habitats immediately adjacent to coastal barriers are exposed to direct wave attack. Major coastal storms, however, routinely affect the entire landward aquatic habitat. Such habitat survives major storms because coastal barriers receive the brunt

of the ocean's energies. Storm waves break on the barrier beach, leaving a diminished storm wave to travel into the wetland. At the same time, the wetland stores storm flood waters, easing the flood pressure on the mainland. For this report, the associated aquatic habitat is considered to comprise the entire area subject to diminished wind, wave, and tidal energy during a major storm because of the presence of the coastal barrier. It could include up to a 1-mile expanse of open water or a 5-mile expanse of marsh behind a barrier.

Fringing mangroves with associated coral reef systems are considered as coastal barriers in tropical and subtropical areas because the protection afforded the associated aquatic habitat and mainland are comparable to that of coastal barriers that contain a linear or curvilinear beach.

Proposed recommendation: DOI proposes that all of the aquatic habitats associated with existing CBRS units be added to the CBRS. This definition reflects the specific conservation purposes of CBRA to protect the fish, wildlife, and other natural resources of coastal barriers. All such associated aquatic habitats are inseparable parts of the coastal barrier ecosystem.

C. Secondary Barriers

Secondary barriers are located in large, well-defined embayments (e.g., Narragansett Bay, Chesapeake Bay). They are maintained primarily by internally generated wind, waves and tidal currents rather than open ocean waves. Consequently, they are generally smaller and more ephemeral than barriers along the coast of the Atlantic Ocean or Gulf of Mexico. Nonetheless, these secondary barriers are formed of unconsolidated sediments just like oceanic coastal barriers, and more importantly, they also protect important fish and wildlife habitat and provide substantial protection for the mainland during major storms.

Proposed recommendation: DOI proposes that secondary barriers be added to the CBRS.

D. "Otherwise Protected" Coastal Barriers

Congress excluded from the CBRS undeveloped coastal barriers that are "included within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization as defined in Section 170(h)(3) of the Internal Revenue Code of 1954, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes." About one-third (34%) of the Atlantic and gulf coast falls into this protected category.

In his 1982 "Report to Congress on Undeveloped Coastal Barriers," the Secretary recommended that "otherwise protected" coastal barriers be included in the CBRS to ensure that owners of property within the boundaries of these areas not be granted Federal flood insurance. However, review by the Study Group revealed that most of the federally subsidized development that occurs in protected areas is necessary to allow access and accommodate visitors to publicly managed conservation or recreation areas.

Table 1. Summary of proposed recommendations for changes in the CBRS.

State	Number of existing CBRS units	Number of units with recommendations	Shoreline length in CBRS	Shoreline length with recommendations	Acreage in CBRS	Acreage with recommendations
Maine	12	26	10.0	21.15	1,045	2,784
Massachusetts	44	62	70.7	110.93	17,214	56,816
Rhode Island	11	20	17.7	25.28	4,791	8,070
Connecticut	11	19	8.2	11.59	3,045	5,008
New York	12	39	21.0	42.67	4,635	18,404
New Jersey	0	7	0	13.43	0	10,666
Delaware	2	4	17.1	20.67	1,565	7,884
Maryland	0	35	0	23.95	0	6,287
Virginia	4	53	13.8	88.10	11,298	84,892
North Carolina	8	6	54.6	25.33	31,913	38,168
South Carolina	13	14	38.4	40.96	26,885	72,556
Georgia	6	6	16.2	18.71	33,073	67,843
Florida	33	63	118.8	208.11	61,575	237,697
Alabama	3	4	17.6	22.32	10,678	11,026
Mississippi	4	6	9.6	15.16	4,309	12,319
Louisiana	12	17	91.7	186.06	59,243	385,375
Texas	11	20	161.0	208.60	181,565	426,400
Puerto Rico	0	50	0	61.13	0	10,182
Virgin Islands	0	21	0	12.54	0	1,103
TOTAL	186	472	666.4	1,156.69	452,834	1,463,480

With the exception of certain recreational beaches on Cape Cod, all nine Atlantic Ocean and Gulf of Mexico coastal units of the National Park System that provide a significant amount of beach recreation are located on coastal barriers. These coastal barriers supported a total of 30 million visits in 1984, up from 22.5 million visits in 1979, and 8.9 million visits in 1977 (Platt 1985; U.S. Department of the Interior 1983). Much of this use is moderate or low intensity resource-oriented recreational and educational activity. On National Wildlife Refuges, recent estimates show an average of 6 million visits annually to 20 of the 50 refuges located on the Atlantic and Gulf of Mexico coastlines. More than 95% of the beach-oriented recreational use of Federal areas occurs on coastal barriers.

State and local governments also protect coastal barriers. The large urban populations in the Northeast have created substantial demands for beach facilities. In New England, New York, and New Jersey, town beaches--often contiguous with the town and planned to provide beach recreation for residents during the summer--are common. In the southeastern and Gulf States, where urbanization is generally less intensive and more recent, beach use tends to be associated with private residential development. In Florida, where urbanization pressure is greatest, the State is making a considerable effort to develop local parks to satisfy the increasing public demand.

Although a few of the protected areas contain substantial amounts of "permanent" public recreational development, most are undeveloped, contain scattered public and private development of a temporary or minimal nature (such as boardwalks, dune crossings, picnic areas, campsites), or contain only a single developed area of bathhouses and other facilities to support beach-oriented recreation.

In addition to the public parks, about a score of coastal barriers are effectively protected as wildlife sanctuaries and research areas by private conservation organizations such as the Audubon Society and The Nature Conservancy (TNC). Exclusion of these privately protected areas from the CBRS increases their market value, thereby increasing the incentive to the owners to subdivide and sell off the properties for development purposes. Owners can sometimes justify the sale of these lands if the profits are turned over to acquire property elsewhere that is more "valuable" for conservation purposes.

For example, on Dog Island, Florida, property owned in 1982 by The Nature Conservancy and excluded under the provisions of CBRA for that reason, has since been sold by TNC and can be developed utilizing the full range of Federal subsidies, including Federal flood insurance (about 50% of the NFIP's policies in force are at least partially subsidized). Other landowners on Dog Island, whose property is also undeveloped but is within the boundaries of the CBRS, are unable to purchase flood insurance or acquire other Federal subsidies.

Proposed recommendation: DOI proposes that all privately owned property within a conservation or recreation area established by Federal, State, or local law on an undeveloped coastal barrier (inholdings) be included by reference in the CBRS. DOI also proposes that privately owned undeveloped

coastal barriers held for conservation purposes be automatically included in the CBRS if the not-for-profit owner ever proposes to sell the property for development that is inconsistent with the long-term conservation of the barrier. An amendment to CBRA providing a legislative directive to DOI to develop guidelines for such acceptable development is necessary. These guidelines would be similar to the Secretary's Standards for Historic Preservation utilized to certify Historic Preservation Tax Credits. Lack of safeguards or long-term plans in selling the land would constitute justification for automatic inclusion in the CBRS.

PROPOSED CONSERVATION RECOMMENDATIONS

Traditionally, the Federal role in coastal management has focused on acquisition, planning, and regulation. Enactment of the CBRA in 1982 marked a departure from this approach. In recognition of the insupportable public costs associated with development of the coastal barriers along the Atlantic Ocean and Gulf of Mexico coastlines, the Federal Government withdrew its financial support for investment in the remaining undeveloped barriers. These costs included not only recurrent expenditure of Federal revenues, but also the loss of human lives and the destruction of important fish and wildlife resources.

To develop recommendations for conservation of the CBRS, Volume 1 of the draft text first addressed all actions that affect, or could affect, conservation of the CBRS, including acquisition, regulation, and tax policy. Recommendations concerning each of these alternatives follow.

A. Federal Stewardship: The Acquisition Alternative

The Federal Government did not originally own as much coastal acreage as it did acreage in other areas of the country. For a short time, the coasts of Florida, Alabama, Mississippi, and Louisiana were federally owned, but these were transferred to the States or private parties by the mid-1800's (Platt 1985). Federal interest did not turn towards conservation and preservation of coastal resources until relatively recent times when the Cape Hatteras National Seashore was established in 1937 (U.S. Department of the Interior 1983). As steward of the Nation's natural and cultural resources, the DOI has a long-standing interest in and responsibility for these coastlines. Today, the National Park Service administers nine National Seashores along the Atlantic and gulf shorelines, encompassing about 550 shoreline miles and 400,000 acres of land. The Fish and Wildlife Service manages about 50 National Wildlife Refuges along these coastlines.

During the last three decades, public awareness of the diverse national benefits associated with natural coastal barrier ecosystems has increased, resulting in a greater commitment to conservation of undeveloped areas. This trend parallels the corresponding proliferation of development, predominantly residential, that reflects the desire of an increasingly affluent population to use these resources for personal enjoyment. The result has been a progressive commitment of vast expanses of coastal barrier open space to long-term public and private uses.

Before World War II, more than 90% of the Nation's coastal barrier real estate existed as undeveloped natural areas, largely inaccessible to the general public. Post-war development soon began to change this situation, but not until 1961--when the Cape Cod National Seashore was authorized as the second National Seashore--did Congress begin to take aggressive action to protect large acreages of coastal barriers. From 1961 through 1972, Congress established eight new coastal barrier units of the National Park System, with a combined total acreage of 468,131 acres. During the same 12-year period, the U.S. Fish and Wildlife Service established 12 new National Wildlife Refuges totaling 205,910 acres, and the network of State and local parks expanded substantially. Although primarily established to provide beaches for recreation, the State and local parks often included substantial areas of dunes and wetlands that were effectively conserved as undeveloped open space. Acquisition programs, particularly in the private sector and Coastal States, have accelerated in recent years as competition for remaining undeveloped acreage has intensified. Since 1972, the National Park Service (NPS) has also continued to add acreage to its nine National Seashores, and the Fish and Wildlife Service (FWS) has acquired new parcels of land on coastal barriers for the National Wildlife Refuge (NWR) System.

The Emergency Wetlands Resources Act of 1986 (P.L. 99-645) provides additional mechanisms for Federal acquisition of wetlands to augment the NWR system. One provision of this law authorizes entrance fees at some refuges with 70% of the receipts collected dedicated to the Migratory Bird Conservation Fund for the purchase of migratory bird habitat. A second provision authorizes an increase in the price of Federal Duck Stamps, which are required for hunting migratory birds, that is also to be used to acquire wetlands. Both these provisions employ the user fee concept to finance wetland acquisition. Other provisions of the Emergency Wetlands Resources Act allow for the use of monies appropriated under the Land and Water Conservation Fund (LWCF) to be used for Federal wetland purchases and for State acquisition under the related State grant program.

Since enactment of CBRA, several CBRS units have been acquired for recreational or conservation purposes, including Shackleford Banks (NPS-Cape Lookout National Seashore), part of Mobile Point (FWS-Bon Secour NWR), and several areas in Florida (for inclusion in the State's park system). Acquisition, however, has been limited because of the excessive costs of acquiring prime beach real estate. It is pursued on a case-by-case basis as determined necessary by individual land-managing agencies.

The CBRS also includes 14,000 acres of military land, including about 40 miles of beachfront, on three installations. During the 1985 inventory, an additional 29 undeveloped coastal barriers covering approximately 45 miles of beachfront and 30,000 acres in Maine, Maryland, Virginia, North Carolina, Georgia, Florida, and Puerto Rico, were identified on military lands. The CBRS also includes 2 units with Coast Guard facilities.

After consultation with DOI, "military activities essential to National security" (CBRA, Section 6(a)(4) and "the construction, operation, maintenance, and rehabilitation of Coast Guard facilities and access thereto" (CBRA, Section 6(a)(5)) are exempted from the restrictions of CBRA. It is the Department's understanding that most military activities

along the Atlantic and Gulf coastlines are essential to National security. Compliance with the National Environmental Policy Act and other environmental safeguards is required of the military and Coast Guard. Under the Sikes Act, the Fish and Wildlife Service works with the military to develop fish and wildlife conservation plans for the bases.

CBRA does not address surplus or excess property transfer of CBRS lands held by Federal agencies. At present the only protected Federal holdings in the CBRS besides Shackleford Banks and Mobile Point are those located on three military installations and several Coast Guard stations. These areas could be used for development if transferred to private ownership without appropriate safeguards. There are also considerable Federal holdings on developed Atlantic and Gulf coastal barriers not included in the CBRS.

Proposed recommendation: DOI proposes that the Federal Government continue to employ the user fee concept in acquisition of CBRS lands as appropriate. DOI also proposes that State, and local land-managing agencies be encouraged to pursue acquisition of CBRS lands as appropriate. If any CBRS lands are added to a conservation/recreation unit managed by a government agency, these lands would automatically become exempt from CBRA's restrictions. DOI also proposes that the areas currently included in the CBRS on military and Coast Guard lands be deleted. In addition, DOI proposes that if at some time in the future these, and any other Federal coastal barrier properties, are determined to be excess/surplus to government needs, the portions of such properties which GSA, in consultation with DOI, determines are appropriate for inclusion in the CBRS would be included in the CBRS prior to disposal unless they otherwise qualify for exemption under the law.

B. Regulatory Consistency

CBRA prevents Federal funding of new construction within CBRS units but does not prevent Federal agencies from issuing permits for activities within or adjacent to CBRS units. Several Federal agencies, including the Army Corps of Engineers, the Environmental Protection Agency (EPA), and the Coast Guard administer regulatory programs that affect coastal barriers and their associated natural resources. These programs require permits for the construction of causeways, bridges, and docks, which may be the means of access to coastal barriers that are physically isolated; and for many components of the infrastructure necessary for development, such as utility crossings and wastewater discharges. All of these programs have the potential for limiting or modifying development on coastal barriers.

Conservation without creation of a new Federal regulatory program was one of the major tenets of CBRA. In signing CBRA, President Reagan stated, "The Coastal Barrier Resources Act meets a National problem with less Federal involvement, not more." However, activities within or adjacent to CBRS units that are subject to current Federal permit requirements have the potential for adversely affecting the fish and wildlife resources of the CBRS or creating risks for human safety. Some public comments have indicated concern that continued issuance of Federal permits without consideration of the purposes of CBRA works at cross-purposes with the conservation and safety goals of CBRA. These commenters recommended that Federal permits for activities within or adjacent to CBRS units be

consistent with the purposes of CBRA or that an additional fee for permits on CBRS units be assessed and used for CBRS conservation.

Since the passage of CBRA in October, 1982, over 250 Federal permits for various types of construction activities on or adjacent to coastal barriers in the CBRS have been issued. While these permits have authorized several different types of structures and activities, the greatest number have been issued for the construction of individual boat docks or marinas. The effects of any structure and its usage on coastal barrier resources must be considered during the permit review process. None of these permits indicate a direct disregard for the purposes of CBRA.

Proposed recommendation: The DOI finds that the major Federal permit programs that affect the CBRS--permits for dredge and fill and bridge construction--take fish and wildlife values into account. Requiring regulatory consistency at the Federal level would depart from the basic CBRA premise that conservation can be achieved without increasing Federal regulatory involvement, by simply withdrawing Federal financial support for development of undeveloped coastal barriers. Furthermore, most States have additional regulatory safeguards that also serve the purposes of CBRA. These include wetlands protection programs, construction setback requirements, and poststorm reconstruction policies to control development on barriers. Therefore, DOI recommends no regulatory amendment.

C. Tax Policy Alternatives

The United States income tax was enacted in 1913. It was originally imposed at low rates and applied to fewer than 400,000 individuals with very high incomes. The need to finance World War II and expanded non-defense expenditures turned the individual income tax into a levy paid by most Americans. In 1954, the Internal Revenue Code was enacted. While it was a relatively simple, economically neutral system, even then some tax analysts and experts criticized the fact that certain activities were accorded preferential tax treatment. During the last three decades, there has been enormous erosion in the tax treatment. During the last three decades, there has been enormous erosion in the tax base as tax-exempt actions have increased. For example, accelerated depreciation and deduction of interest expense combine to eliminate most taxes on income from debt-financed investments in real estate. Exclusions, itemized deductions, and deduction value of credits offset about 34% of personal income in 1982 as opposed to 18% in 1954 (U.S. Department of the Treasury 1984).

Exclusions and deductions mean that tax law, along with the market, has become a major force determining how economic resources are used. Over the years, the tax system has exerted a pervasive influence on the behavior of private decisionmakers. In coastal communities, tax-induced distortions have severe costs in terms of lost human lives, property, public revenues and natural resources.

A number of amendments to the Tax Treatment Act of 1980 and CBRA were considered in the course of this study. They are as follows:

1. Conclusively establish that the CBRS units serve a conservation purpose for conservation easement purposes.

2. Permit the donation of a fee simple interest with the reservation of a compatible term of years or life estate. This could serve to eliminate appraisal/valuation ambiguities with regard to the donation of easements.

3. Under the present law, the amount of tax deduction is typically limited to 30% of a owner's adjusted gross income. In addition, the deduction is only available at the time of the gift plus 5 years. It has been argued that this provision provides little incentive to donate valuable interests in land by less wealthy landowners. More owners might be encouraged to donate by:

-permitting a longer carry forward, and
-permitting the deduction of a higher percent of adjusted gross; or
-creating a tax credit for the value of the conservation easement donation.

4. Remove the gift tax penalty for good faith conservation donations that are found not to qualify as conservation contributions.

5. Define the level of development (or establish a process through which it could be determined) that would be acceptable for CBRS purposes and that, accordingly, should be permitted to be retained by a landowner making a conservation easement donation.

6. Remove the authority for an owner to donate entire interest to any charity without regard to the preservation of a conservation purpose.

7. Remove the ability of landowners in CBRS units to deduct casualty loss from personal income tax on new structures unless a conservation easement is established on the property.

Proposed recommendation: We recommend no tax amendments at this time. A guiding principle behind the Tax Reform Act of 1986 was reducing the extent to which the Internal Revenue Code interfered with economic decisions made by individuals and businesses. An attempt was made to eliminate provisions in the Code which interfered with market decision-making, even when the tax provisions in question served a valuable social purpose. Having just accomplished a major reform after two years of debate and legislative effort, a period of stability and certainty in tax law is necessary.

With regard to the specific proposals that we looked at, we have been assured by the Department of Treasury that the interpretation of the rules issued under section 170 of the Code, the section governing conservation easements, has not adversely affected charitable contributions within the CBRS. In addition, present law allows a deduction for a contribution of a remainder interest in a personal residence or farm, and for the

contribution of a remainder interest in other property if made to certain organizations exclusively for conservation purposes. With respect to the gift tax penalty, the thrust of this proposed amendment was adopted in section 1422 of the Tax Reform Act of 1986.

We believe that the IRS ruling procedure is sufficient for determining what level of development is possible without jeopardizing the "qualified" status of the conservation restriction for charitable deduction purposes. We also believe that restricting the charity to which a landowner can donate his property would be too great of an infringement on that landowner's rights. Finally, with respect to disallowing casualty losses, this proposal violates the general rule that the Internal Revenue Code should aim for proper measurement of income. A taxpayer denied casualty losses could be put in the difficult position of having zero economic income and positive taxable income. Second, to require that the taxpayer donate a conservation easement on the property in order to retain the casualty loss, would be excessively coercive, especially for taxpayers experiencing financial difficulty.

D. Other Amendments to CBRA

With certain exceptions, CBRA prohibits new Federal expenditures and financial assistance for development within the units of the CBRS. Section 3(3) of the Act defines "financial assistance" as "any form of loan, grant, guaranty, insurance payment, rebate, subsidy, or any other form of direct or indirect federal assistance." The prohibition on new Federal expenditures and financial assistance in CBRS units is broad and covers all Federal programs unless specifically exempted by CBRA.

All exceptions to the CBRA limitations are discussed in Volume 1 of the report. Some examples include general revenue sharing, social programs, and a list of activities which may be excepted after consultation with the Secretary of the Interior. Energy projects, channel and road maintenance, military activities, and Coast Guard station construction are all potentially valid exceptions in this last category. Scientific research, emergency actions, nonstructural beach stablization projects (such as beach nourishment) and fish and wildlife management activities can also be excepted after DOI consultation if they are consistent with the purposes of the Act.

Several questions have arisen as each Federal agency has attempted to assure compliance with the CBRA prohibitions. For example, can Federal monies be used to support a project that is not located in a CBRS unit but might have substantial impact on it; i.e., can a bridge to a coastal barrier be constructed with Federal revenues if it terminates outside the CBRS unit even though it might substantially improve the accessibility and, therefore, the development potential of the CBRS unit?

1. Section 5. Section 5(a) prohibits Federal funding for activities within CBRS units. In several instances, Federal agencies have had to decide whether to obligate Federal funds for facilities such as wastewater treatment plants that are located outside the CBRS but whose service areas may include developments in CBRS units.

Federal funding of facilities that serve CBRS units even though they are located outside the CBRS subsidizes coastal barrier development and runs counter to CBRA purposes. A prohibition on funding for new facilities that would serve CBRS units and for expansion of existing facilities so that they may serve CBRS units is consistent with the CBRA purposes.

Proposed recommendation: Although CBRA and its legislative history do not speak directly to this issue, DOI concludes that Federal financial assistance specifically directed to a purpose within a CBRS unit is prohibited by CBRA. DOI will develop guidance for Federal agencies that will clarify our understanding that Federal funding for a facility located outside a CBRS unit whose direct purpose is to provide a tangible product within the CBRS unit (water, electricity, etc.) is restricted by CBRA.

2. Section 6. Section 6 lists exceptions to the general prohibitions in Section 5(a) on Federal expenditures within the CBRS. Federal agencies must consult with DOI (FWS) prior to obligating funds for any of the exceptions permitted. Ambiguities in the wording of several of the exceptions and differing interpretations among Federal agencies have created apparent conflicts with the purposes of CBRA.

(a) Essential Link. Section 6(a)(3) allows expenditures for the repair, replacement, or reconstruction of facilities that are "essential links" in a larger network or system. Under Section 6(a)(6)(F), expenditures for the repair, replacement or maintenance of these roads, structures or facilities are allowed when the expenditure of Federal revenues will be "consistent with the purposes of (CBRA)." The Department of Transportation has declared all Federal highways to be "essential links" in the Federal Highway System and thus avoids additional consideration of whether its expenditures are consistent with CBRA's purposes.

Proposed recommendation: DOI proposes that Section 6(a)(3) be deleted. Maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly-owned or publicly-operated roads, structures, or facilities would continue to be allowed under Section 6(a)(6)(F) provided they are consistent with the purposes of CBRA.

(b) Dredged Material Disposal. Section 6(a)(2) provides that dredged materials may be disposed without consideration for the purposes of CBRA. To meet these purposes, it is desirable for the Corps of Engineers and the Fish and Wildlife Service to agree on disposal within the context of the purposes of CBRA.

Proposed recommendation: DOI proposes that Section 6(a)(2) be amended to insert after the word "improvements" the phrase "which shall be performed in a manner consistent with the purposes of this Act," so that it would read: "the maintenance of existing channel improvements and related structures, such as jetties, and including the disposal of dredged materials related to such improvements, which shall be performed in a manner consistent with the purposes of this Act."

(c) Recreational Projects. Section 6(a)(6)(A) clearly allows fish and wildlife management and conservation to occur within the purposes of

CBRA. However, several States have expressed questions regarding the extent of allowable outdoor recreation and have requested that if publicly managed lands continue to exist in, or are added to, the CBRS, then this section should be clarified to allow outdoor recreation, so long as it complies with the purposes of CBRA.

Proposed recommendation: DOI proposes no amendment to Section 6 (a)(6)(A). The term "recreational project" is not ambiguous; further clarification, if needed, can be supplied by this Department upon request.

(d) Technical Assistance. Section 3(3) defines the term "financial assistance" to mean "any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, or any other form of direct or indirect Federal assistance." Several commenters have asked whether technical assistance is included in the prohibition on Federal expenditures and financial assistance.

Proposed recommendation: DOI proposes no amendment to Section 3(3). The term "technical assistance" is generally considered as a form of "indirect Federal assistance" as listed in Section 3. Further clarification, if needed, can be supplied through Departmental guidelines.

(e) Federal Agency Compliance. Particularly difficult to oversee is the prohibition against block grants related to development, such as the Community Development Block Grant Program. Such programs often involve no-year appropriations that give broad discretion to State and local governments. Such Federal expenditures could, if not carefully monitored, inadvertently be used for development of CBRS units.

Proposed recommendation: DOI proposes no amendment to address block grants. The Department believes most agencies have incorporated compliance with CBRA into regular program activities. For instance, the Department of Housing and Urban Development requires recipients to comply with the purposes of CBRA. The benefits derived from amending the law to require Federal agencies responsible for disbursing Federal funds to States and localities to establish coordinated tracking systems to monitor and assure compliance with CBRA would be outweighed by the costs of implementation.

3. Section 7. Section 7 requires the Director of the Office of Management and Budget (OMB) to certify annually in writing, on behalf of each Federal agency concerned, that each such agency has complied with CBRA during the preceding fiscal year. In compliance with this provision, the Director annually certifies that each Federal agency has certified to him that it is in compliance with CBRA.

Since most affected agencies have incorporated the requirements and prohibitions of CBRA into their regulations or administrative procedures pertaining to the expenditure of Federal funds, this recurring certification requirement is unnecessary. In addition, the certification process is administratively cumbersome, since OMB does not have the capability required to audit agency expenditures.

Proposed recommendation: DOI proposes that Section 7 be deleted from CBRA. All Federal agencies comply with CBRA. There is no reason to expect that such compliance will not continue. Continued compliance can be ensured through Departmental and Congressional auditing and oversight. The annual certification requirement, therefore, is unnecessarily burdensome.

E. Conservation of Atlantic and Gulf Coastal Barriers: The Next Step

Several noted coastal experts have predicted that the general trend of deterioration along the entire coastline will continue as long as the Federal Government continues to support development and reconstruction on those coastal barriers (approximately 1/3 of the Atlantic and Gulf coastline) not included in the CBRS or protected by Federal, State, or local entities. Preliminary reconnaissance indicates that those units of the CBRS that were experiencing heavy development pressure prior to enactment of the CBRA have continued to develop regardless of the loss of Federal financial support.

Certainly in developed coastal areas that have experienced hurricane damage since 1982 there is evidence of reconstruction and, in most cases, growth, in spite of predictable recurrent losses in the foreseeable future. For instance, the City of Galveston's annual rate of new construction has grown from $30 million in 1982 prior to Hurricane Alicia to over $150 million in 1985 (Miller 1985). There is no reason not to expect that another hurricane will cause significant damages in the future.

Sea-level rise is another factor that will continue to be responsible for predictable barrier shoreline losses. From the end of the last ice age 15,000 years ago until about 5,000 years ago, sea level rose approximately 300 feet as the glaciers covering much of the northern hemisphere melted. Although it has been more stable since then, worldwide sea level has risen 4 to 6 inches in the last century. Because most of the Atlantic and gulf coast in the United States is also slowly subsiding, the apparent rise in sea level relative to most of the shoreline is even greater: about 1 foot in the last century (Hicks et al. 1983). Even that relatively slow trend is widely thought to be the underlying cause of most coastal erosion (Bird 1976; Pilkey et al. 1981).

Many scientists expect the rate of sea-level rise to continue to increase because of the increases in atmospheric concentrations of carbon dioxide and other "greenhouse gases." Because these gases allow sunlight to penetrate the atmosphere but retain outgoing infrared radiation (heat) in a manner somewhat analogous to the glass panels of a greenhouse, this phenomenon is commonly known as the "greenhouse effect." Without the greenhouse effect of the gases occurring naturally in the atmosphere, the earth would be 30^{o} C colder. The amount of carbon dioxide in the atmosphere is expected to double over the next century and the National Academy of Sciences (NAS) has estimated that this doubling could warm the earth an additional three degrees in the next century. The combined impact of increases in the other greenhouse gases could warm the earth another three degrees.

This warming of the earth would raise sea level by two major mechanisms: the ocean water volume would expand because of warmer ocean temperatures, and the melting of the alpine, Arctic, and Antarctic ice sheets would add huge volumes of water to the ocean. EPA and NAS have estimated a 3- to 5-foot rise in sea level along the U.S. coast over the next century because of these processes (Revelle 1983; Hoffman et al. 1983).

The physical effects of sea-level rise include inundation of wetlands and other low-lying areas, beach erosion and barrier island overwash, and higher storm surges. Recent studies by the EPA estimate that 50% to 85% of coastal wetlands could be lost if sea level rises as projected (Kana et al. 1986; Titus 1985). To a large degree, they note, the loss in wetlands will depend on whether development prevents new wetlands from forming further inland.

The impact of sea-level rise on coastal erosion has been well documented. Bruun (1962) showed that a 1-foot rise in sea level will erode the typical sandy beach 100 to 500 feet. For developed coastal barriers, the projected rise in sea level will dramatically increase the necessary level of expenditures for beach nourishment.

The impact of sea-level rise on undeveloped barriers will vary. In some areas, sea-level rise may cause barrier islands to disintegrate gradually. This is already occurring in Louisiana. In other areas, barrier islands will narrow and washover will occur. Where there is a wide bay or where an undeveloped mainland shore can also retreat, the resulting landward migration of the barrier should pose little problem. Where barriers are separated from a developed mainland by a narrow bay, the bay will have to be artificially maintained if the citizens are unwilling to allow the barrier to cross the bay and become part of the mainland.

Sea-level rise may also have important implications for barriers that are undeveloped today, but are likely to be developed in the future. Unlike existing coastal communities, it is possible to plan new developments around the assumption of a retreating shoreline (Howard et al. 1985). However, developers may be reluctant to plan for a rise in sea level until it is actually observed, regardless of the scientific evidence. Titus (1984) suggests that new coastal communities employ "conditional planning" measures. These measures would put property owners on notice that a retreat will be necessary if sea level rises substantially, but would not impose any restrictions until a rise actually took place. Titus argues that people who are unconcerned about the distant future sea-level rise would view such policies as costing them nothing, while those who are concerned about future sea-level rise would be satisfied that a long-term solution had been implemented.

Two recent conferences of coastal geologists, ecologists, engineers, lawyers, economists, and environmental managers have expressed concern about sea-level rise, the country's eroding shorelines, and coastal barrier development ("Cities on the Beach - Management of Developed Coastal Barriers" in January 1985, and "Second Skidaway Institute of Oceanography Conference on America's Eroding Shoreline: National Strategy for Beach Preservation" in June 1985). Both advocated a policy of retreat from the shoreline and an end to all direct and indirect Federal

expenditures in support of private coastal development. Both also wrestled with the increasing problem of development or stabilization on one portion of a barrier negatively affecting the adjacent undeveloped beaches up or down the barrier.

During the 1970's, major environmental problems associated with the juxtaposition of developed and undeveloped or conservation areas became progressively more apparent and widespread. The rapidly urbanizing areas began to place demands on the entire natural ecosystem which caused impacts outside the developed areas themselves. Pollution of shellfish beds in undeveloped areas from inadequately treated sewage effluents has become an increasing problem, especially on Long Island's south shore, but also locally in Massachusetts, New Jersey, Florida, and elsewhere. Sludge from offshore municipal dumping areas has drifted shoreward, threatening public recreational use of the beaches of southwestern Long Island. Sewage and industrial pipeline effluents are contaminating nearshore habitats. Structural projects to maintain recreational beaches, prevent undermining of oceanfront buildings, and stabilize inlets are causing accelerated erosion and adverse ecological effects in the vicinity of the projects and in the areas immediately downdrift of the structures.

Where urbanized areas are located immediately updrift from protected areas, the requirements for protecting development and the growing economic base in the urban area are opposed to the requirements for perpetuating the nearby natural area. The case of Ocean City, Maryland, which is located across a stabilized inlet from Assateague Island National Seashore, is a good example of this problem. The accelerated, landward shoreline recession of the north end of Assateague Island is attributable to the cumulative effects of human manipulation of the natural drift system by inlet stabilization and by attempts to nourish the rapidly eroding beaches at Ocean City.

As developed areas continue to place greater demands on the resources of nearby undeveloped areas for ground water, assimilation of water pollutants, sand for beach nourishment, mosquito control (i.e., ditching), and space for public recreation, the severity of impacts at the interface of the two kinds of areas will increase, along with the number of areas affected. Many of the coastal barriers of the Atlantic Ocean and Gulf of Mexico coasts contain both developed and undeveloped (often protected) areas on the same barrier. If the considerable number of areas where bay barriers abut developed mainland areas are added, the potential for problems at land-use interfaces is even greater.

In many areas under severe development pressure, particularly in Florida and North Carolina, conservation opportunities are rapidly disappearing. Today, large portions of the ocean shoreline are undeveloped and unprotected only in the States of South Carolina, Florida, Louisiana, and Texas. Although it is difficult to predict future trends in a fluctuating economy, it seems safe to conclude that continued intense interest in both conserving and developing our remaining coastal barriers will mean nearly all of these areas will be committed to one use or the other by the end of the century. Actions taken by government and the private sector during the next 20 years will affect the rate at which this process of commitment proceeds, and how much of that barrier land is committed to conservation.

In the next century, the major conservation emphasis must shift progressively from acquisition to the protection of natural ecosystems and their public benefits from stresses imposed by the increasing impacts of nearby development and by demands for public recreational use of the conserved areas themselves. Restoration and conservation of developed areas severely damaged by storms will also become more important.

If planning for sea-level rise and grappling with the pressures of developed areas on fragile ecosystems are difficult problems, defining a policy towards reconstruction in coastal areas following major storms or hurricanes poses an equally arduous challenge. There is ample evidence showing that Federal subsidies support reconstruction, often increasing the Federal investment in coastal communities that experience repeated destruction by storms. Conservation of coastal resources could be enhanced and Federal involvement in the costs associated with coastal redevelopment could be reduced if the purposes of CBRA were taken into account by Federal decisionmakers involved in coastal reconstruction following storms or hurricanes.

Proposed recommendation: DOI proposes that a joint study be undertaken by DOI, DOD, FEMA and NOAA to develop alternative guidelines on which to base decisions concerning redevelopment of coastal barriers following major storms or hurricanes. The existing policy of simply replacing the structures that have been damaged or destroyed does not consider the special risks associated with development on coastal barriers. Additional efforts in public education could also help coastal barrier residents and government officials make these difficult decisions in an informed manner.

REQUEST FOR PUBLIC COMMENT

The Department's proposed recommendations have been prepared after a great deal of study and with careful consideration of all the public comments that were received on the first draft of the report. Further public comment on the proposed recommendations in this executive summary is solicited.

Comments should be directed to:

The Coastal Barriers Study Group
Department of the Interior
National Park Service
P. O. Box 37127
Washington, DC 20013-7127

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