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Federal Coastal Flood Hazard Policy

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by

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TABLE OF CONTENTS

CH.I
INTRODUCTION

The coastline of the United States is a vast natural resource. It plays host to a wide variety of activities; from wildlife preserves and stretches of unspoiled beach to fishing communities and public recreation sites to major urban systems, oil refineries and nuclear power plants. This relatively thin stretch where land and ocean meet is a complex and diverse place, a string of rocky shores, cliffs, beaches, estuaries, bays, harbors, islands and marshes. It is a fertile yet fragile breeding ground for countless species of fish and wildlife. It is a great economic resource, providing us with shipping access to the rest of the world. It is a source of endless fascination, invention and wonder. We marvel at the power and relentlessness of the sea, the regularity of its tides, and the savage unpredictability of its storms.

Perhaps no other natural resource exerts such powerful economic and aesthetic attractions over us as does the coast. Industry, homeowners, vacationers, retirees, and developers all make conflicting demands on this great resource. But the resource is a limited one. As years pass, we see relentless environmental degradation; beaches pol-

luted, water unswimmable, shellfish inedible, wildlife imperiled. In the process, unique aesthetic features can be lost forever.

Coastal development endangers not only the rich and diverse natural systems found there, but also those people who, through choice or circumstance, live there. The coast forms our nation's first defense against ocean storms and accepts the brunt of their awesome strength. It is a fluid, moving system of shifting sands, undergoing continuous change from the ocean that eats away from the coast in come areas, building up the coast somewhere else. It does so in unpredictable fashion; sometimes slowly nibbling and depositing, sometimes totally rearranging the coast in the master stroke of a major storm.

We know the dangers of the coast, and we are attracted just the same. It should be pointed out that events which take place along the coast, like any other natural occurrences, only become dangerous with the presence of man, his structures and his possessions. The attraction is a strong one. Coastal communities are growing at four times the national average.[1] This population growth is the underlying cause of most coastal resource problems. Increasingly, Americans are placing themselves in coastal areas far more vulnerable to disasters than inland areas. No segment of the coast is without vulnerability to coastal storms, though some have a greater history than others (parts of Texas, Louisiana, Florida, and North Carolina,

for instance). New England and the east coast in general has seen a relative lull in hurricane activity in the past generation. This short memory has given many home buyers and developers a false sense of security.

Since the 1900 hurricane that struck Galveston, Texas and left 6000 dead, loss of life due to hurricanes has declined steadily. This is most likely the result of earlier warning systems and quick transportation out of hazard areas. Property losses, however, have risen at an alarming rate. Annual losses due to hurricanes alone averaged $250 million between 1951 and 1960, rising to over $400 million annually between 1961 and 1970[2] and are certainly higher today (figures are adjusted to account for inflation). Present losses due to erosion are estimated at $300 million annually.[3] A single storm like Hurricane Frederick in 1978, one of the most devastating to ever hit the Gulf Coast, caused property losses well in excess of $2 Billion and seventeen deaths. (An average hurricane is estimated to cause $500 million in damages). Another 1978 hurricane, David, unleashed most of its fury on the Caribbean, where it claimed 1200 lives and property valued at $1.5 Billion. The weakened storm that struck the U.S. coast caused nineteen deaths and property damage of $500 million.[4] It should be stressed that this ever increasing destruction occurs despite the estimated $10 Billion that has been spent on structural flood control works in the past

forty years.

The Great Blizzard of February 1978 was one of the most devastating storms to strike New England in this century. Damages in Massachusetts alone were estimated at $750 million. Twenty-nine people died, 10,000 were evacuated from the coast; 1,500 houses were either totally destroyed or suffered major damage. Heavily developed stretches of coastline north and especially south of Boston suffered the greatest damage. High winds and wave surges inflicted most of the destruction, crashing over sea walls, overrunning barrier beaches and dunes. Lowland flooding was widespread. Receding flood waters left the coast strewn with massive boulders, sand and other debris, often piled several feet thick.

Despite man's frequent losses to the sea, the battle for the coast continues. Most people whose homes are destroyed by hurricanes rebuild, not willing to give up the many amenities of the coast and feeling they are safe from a similar storm for another generation or so. Those wishing to sell have no trouble finding an interested buyer, and the value of coastal property continues to climb. Previously undeveloped land is under ever increasing development pressures.

So far federal policy has fallen short of the challenge of protecting the nation's coast and preventing its unwise development. Indeed, federal policy has often served to encourage poorly planned development through its funding of highways, sewers, and various federal facilities. Even

the structural efforts to protect the coast's population (traditionally the domain of the U.S. Army Corps of Engineers) have often contributed to the very problem they were designed to cure. Structural solutions in the wake of a flood frequently regenerate development interests with a newly found sense of security. Increased development within the now 'protected' community beyond the designed capability of the engineered solution renders it inadequate to deal with the next major flood. The cycle repeats itself.

This paper will examine federal coastal flooding policy, its inadequacies and its possibilities. The most significant programs and legislation dealing with the coast will be discussed. These programs present many conflicts in goals and objectives. Many of them appear to work against sound coastal development practices. Some work against each other. And many are enormously expensive to the federal government.

II. Federal Programs

1. Overview

There are literally dozens of federal departments, agencies, and programs dealing with issues affecting the coast. A list of key federal programs is included in Appendix A. The underlying problem of these varied programs is that each was created to deal with specific coastal issues; their very creation often dependent on favorable and timely political winds. Because of the number of programs and the number of agencies administering them, coordination has become a monumental problem. There is no one federal department or agency with general authority over all others regarding sound use of the coast. Programs frequently operate in their separate worlds, often to the detriment of other programs.

Congress must accept the greatest share of the responsibility for this confusion. There is no clear national policy on coastal development and protection, affirmed and funded by Congressional action. There have been tentative steps taken in that direction as flood losses continue to grow and the federal government picks up the rising tab for

disaster relief and assistance. The pages that follow will review some of the major coastal programs, particularly those dealing with coastal flooding and hazard mitigation.

The regulatory aspects of coastal development make up an enormously complex system that includes the technical difficulties of determining exactly where the hazard areas are, the intergovernmental issues involving the regulation of coastal land between federal, state, and local authorities, the legal issues that surface when strict regulation is perceived as a taking, and the political unpopularity of government, especially the federal government, becoming involved in local land use. Always, there is a shortage of funds to provide all the needed programs. These issues are continually at work in the area of coastal regulation, and must be considered jointly.

Of the two choices for dealing with coastal flood problems, structural and non-structural programs, the federal government has generally favored the structural approach, the construction of dams, seawalls, and other devices to protect those living behind them from the effects of winds and waves. Non-structural approaches are designed to prevent people from occupying dangerous floodplains, to mitigate the problems of existing floodplain occupation, and to maintain the beneficial values of untouched floodplain (its functions as a buffer between stormy seas and land, the rich and unique natural habitat it provides). Non-structural

approaches have long been neglected by government and received comparatively little funding support. They are receiving more attention now as the failure of structural works becomes increasingly clear. A recent example, the February, 1978 blizzard that struck Massachusetts, provides a case in point. Pounding surf and high tides left dozens of properties destroyed behind virtually untouched seawalls in Scituate and other coastal towns.

The events that occur in the aftermath of a disaster are important for an overall understanding of federal coastal policy. Generally, there are two kinds of federal relief for coastal areas subject to disastrous storms; recovery and mitigation. Recovery programs are the most numerous, receiving the greatest political support and funding. These come into play directly after the disaster event and often include the building or rebuilding of the various structural measures mentioned above. Mitigation can be either structural or non-structural. Non-structural efforts lack the political support and funding that recovery and structural programs have traditionally enjoyed. Politically, it would be unthinkable to deny massive doses of federal aid for an area devastated by disaster. The long range planning perspective of the non-structural mitigation approach lacks the emotional and political impact of dozens dead, thousands homeless and millions of dollars worth of property destroyed.

2. Federal Disaster Assistance

The disaster recovery process was outlined in the Disaster Relief Act of 1974 (PL 93-288). This legislation provides for special measures designed to assist the efforts of the states in rendering aid, assistance and emergency services by:

1. revising and broadening the scope of existing disaster relief programs.
2. encouraging the development of comprehensive disaster preparedness and assistance plans, programs, capabilities and organizations by state and local government.
3. achieving greater coordination and responsiveness in disaster preparedness and relief programs.
4. encouraging individuals, states, and localities to protect themselves by obtaining insurance coverage to supplement or replace governmental activities.
5. encouraging hazard mitigation to reduce losses, including the development of land use and construction regulations.
6. providing federal assistance for public and private losses sustained in a disaster.
7. providing long range economic recovery programs for major disaster areas.[5]

When an emergency strikes that is beyond the capability of the state and localities to handle, the governor requests a declaration of a disaster/emergency from the President. The governor's request describes what state and local actions have been taken and defines the type and extent of federal aid required. By this point, the governor has already directed the execution of the state's emergency plan (the Act provides that technical assistance be granted

to states for developing such comprehensive plans for preparation against disasters; grants cannot exceed $250,000.).

The President's declaration of a disaster triggers a wide variety of programs, administered and coordinated by the newly organized Federal Emergency Management Agency (FEMA). The President appoints a Federal Coordinating Officer (FCO) who makes an initial appraisal of an area, establishes field offices for the dissemination of disaster program information and aid and coordinates the administration of all relief programs. In addition to federal efforts, these include programs of state and local governments and programs of private relief agencies such as the American Red Cross, Salvation Army, and Mennonite Disaster Service.

Most programs fall under one of two broad categories; assistance to individuals or assistance to state and local governments. Assistance to individuals encompasses a wide variety of programs including:

1. temporary housing, where apartment, hotel, or mobile home costs are paid for one year, after which rent is based on the market value of the accomodations, factored with ability to pay.
2. minimal repairs provides grants to homeowners to perform minor repair work to make their homes livable, thereby avoiding the need for temporary housing.
3. mortgage or rent payments to persons in danger of foreclosure or eviction due to disaster.

4. individual and family grants (not to exceed $5,000) are granted by the President to the states, states in turn provide grants to individuals (state pays 25% share of the program, which it can borrow from the federal government).
5. special unemployment benefits without the usual waiting period (operated through states).
6. a variety of low interest loan programs to:
    a. individuals and businesses (administered through the Small Business Administration).
    b. farms, rural areas (administered through the Farmer's Home Administration).
7. provision of free food stamps in disaster areas.
8. legal services, relocation assistance.
9. special veteran's and social security benefits.

Aid to states and localities consumes the larger share of total federal disaster assistance (60-80 per cent, depending on the disaster). This includes emergency activities such as rescue, providing shelter, medicine and communication as well as the clearance of debris and the post disaster protection of life and property. These efforts frequently involve reciprocal agreements with private non profit disaster assistance agencies. The largest portion of this aid goes to infrastructure repairs, such as roads, bridges, and sewers. Funds are available for the reconstruction or repair of federal facilities, public buildings, public utilities and recreational facilities. Loans are available to

communities which, because of tax revenue losses due to a disaster, are unable to perform basic governmental functions.

It should be stressed that the administration of these various programs is coordinated through the states. The system of post disaster assistance appears to operate quickly, smoothly and in a reasonably coordinated fashion, considering the vast number of disaster aid programs operated through various federal departments and agencies. It is only fair to point out, however, that the main concern in these programs is to get the money where it is needed - fast. There is neither the time nor the personnel available to determine that only those who really qualify for assistance receive it. Given the constraints of a post disaster situation, the accountable dispersion of funds is to some extent written off as impossible. What these programs seek to accomplish, and what they succeed in accomplishing, is a quick response. This quick response is due in part to a relaxation of certain program requirements. The rapid and steady flow of funds from the Treasury also aids in response time.

Section 406 of the Disaster Relief Act of 1974 specifically calls upon state and local governments to consider mitigation techniques when rebuilding occurs in a high danger zone;

> ...state or local government shall agree that the natur-hazards in the areas in which the proceeds of the grants and loans are to be used shall be evaluated and appropriate action shall be taken to mitigate such hazards, including safe land use and construction practices..[6]

Too often however, the exact opposite occurs. The focus of government and private efforts after a coastal disaster has traditionally been to restore the area to its pre-disaster condition, and to provide structural means for protection of population and property in the event of future storms. Government disaster assistance funding has aggravated this unwise approach through reconstruction loans and grants for public utilities, buildings, roads and the like. At the very moment when the potential for sound mitigation to alleviate the effects of future disasters is at hand, the emphasis of federal dollars is directed toward the restoration of the very areas where nature has just proven development was unwise.

3. National Flood Insurance

The National Flood Insurance Program is a major federal program that incorporates some hazard mitigation techniques. The program as laid out in the National Flood Insurance Act of 1968 as amended (PL 90-448) has four basic elements. It provides for:

1. flood insurance for structures and their contents,
2. floodplain regulations as a prerequisite for a community's participation in the program,
3. floodproofing of new structures and rebuilt ones,
4. land acquisition of particularly sensitive areas

(this provision has never been funded).

Authorized in 1956 but not funded until 1968, flood insurance was at first ignored by eligible communities. In its first four years of operation, only four communities in the entire U.S. joined. After the devastating Hurricane Agnes of 1972, there were Congressional inquiries as to why the flood insurance program hadn't performed as expected. Amendments were passed in 1973 to make not joining the program a less attractive option for communities. Basically, this was done through the witholding of all federally aided or insuredmortgages in communities that did not participate in the flood insurance program (through such loan programs as those operated through the Veterans Administration, Farmer's Home, FHA, the Federal Reserve System, Federal Deposit Insurance Corporation, National Credit Union Administration, Federal Home Loan Bank Board, and the Small Business Administration). Although still technically voluntary, the program became a great deal more popular. Over 16,500 communities are now entered in the program.

For individual homeowners to qualify for flood insurance, the community in which they reside must first enter the program's Emergency Phase. Under this initial phase, limited amounts of flood insurance become available (see Table 1). A flood Hazard Boundary Map is drawn which identifies flood prone areas in the community. Low cost rates, subsidized at up to 90 per cent by the government are charged for all structures regardless of the risk posed by their

Table 1

NATIONAL FLOOD INSURANCE PROGRAM COVERAGE LIMITS

	Emergency Program		Regular Program		
	total amount available 1st layer [a]	sub-dized rate of $100 coverage	2nd layer	total amount available	maximum required
single family residential	$ 35,000	$.25	$150,000*	$185,000	$ 70,000
other residential	100,000	.25	150,000*	250,000	200,000
contents, residential	10,000	.35	50,000*	60,000	20,000
small business	100,000	.40	150,000*	250,000	200,000
contents, small business	100,000	.75	200,000*	300,000	200,000
other non-residential	100,000	.40	100,000*	200,000	200,000
contents, other non-residential	100,000	.75	100,000*	200,000	200,000

[a] when a community is eligible under the regular program, the subsidized rate or the actuarial rate is used, whichever is lower, for existing structures. Newly constructed buildings, or those that have been substantially improved pay the actuarial rate.

*second layer coverage is available under the regular program only. Actuarial or "capped" rates are charged. The maximum charge for a one to four family residential structure is $.50/$100 coverage for 1. first layer limits on new construction, if the first floor elevation is above the 100 year flood level or 2. second layer limits of insurance on all one to four family structures.

Source: Federal Insurance Administration, NFIP
H. Crane Miller

location. For its part, the community must adopt preliminary floodplain management measures such as:

1. requiring building permits for all proposed construction or other development in the community,
2. reviewing the permit to assure that sites are reasonably free from flooding.

For flood prone areas, the community must also require:

1. proper anchoring of structures,
2. the use of construction materials and methods that will minimize flood damage,
3. adequate drainage for new subdivisions,
4. the location and design of new or replacement utility systems to prevent flood loss.

Under the Regular Program, the total limits of insurance become available. Rates for additional insurance, for existing structures, though not as low as rates for the first layer of coverage, do not reflect the true actuarial risk of the structure's location. A more detailed Flood Insurance Rate Map (FIRM) outlines various risk areas for insurance purposes for new construction. Premiums vary according to locational risk, but, if structures are properly floodproofed, these rates are not substantially higher than subsidized rates. The community must upgrade its floodplain management techniques to enter the Regular Program through zoning, subdivision regulations, building codes or a special flood insurance ordinance. All the regulations required for entry into the Emergency Phase remain in effect with the

addition of these;

1. new or substantially improved structures, including basements, must be elevated at or above the level of the 100 year flood.
2. new or substantially improved non-residential structures must be similarly floodproofed to the height of the 100 year flood. This must be done in accordance with standards outlined in Floodplain Regulations, 1972 U.S. Army Corps of Engineers. Such floodproofing must be certified by an architect or engineer.
3. In high hazard areas, in addition to measures mentioned above, communities must insure that new or substantially improved structures will be located
   a. landward of the mean high tide mark,
   b. elevated above the 100 year flood and properly anchored to piles,
   c. maintain space beneath the elevated structure free from obstructions so water can pass through.

Some of the problems in flood insurance are most basically due to the extreme difficulty of applying law equally to all states when the states and localities within them have widely divergent levels of sophistication regarding the regulation of coastal hazard areas. Consequently, the minimum requirements demanded by flood insurance are attacked in one state for being too lenient and in another for being too strict. Some problems are apparent across the board. Re-

quiring that structures be elevated or floodproofed to one foot above the one hundred year flood level may be adequate along rivers, where waters rise gradually, but is inadequate along the coast due to the action of waves and tides. The long waiting time required to prepare the Flood Insurance Rate Map and thus permit a community to pass from the Emergency Program into the Regular Program may serve to encourage development during that time span, grandfathering in these structures under subsidized rates, when management techniques are less strict and the initial attractive subsidized insurance rates are available.

The Rhode Island experience with flood insurance points out some of the flaws in the program, as well as possibilities for federal state conflicts. In a study performed by H. Crane Miller for the Federal Insurance Agency, Coastal Hazards and the National Flood Insurance Program, the author determined that the flood insurance program actually spurred development in three towns alone the So. Rhode Island coast (Westerly, Charleston, and South Kingstown). Mortgage money, impossible to obtain from Rhode Island banks for high risk coastal property became available after flood insurance. (The banks presumably had a clear memory of the hurricanes of 1938 and 1954 which wiped out whole sections of beachfront property). It should be pointed out that the Rhode Island experience does not appear to be typical (although a similar situation occurred in Galveston, Texas).[7] In those places where mortgage

money was available before flood insurance, the availability of insurance does not appear to have had a great impact on the rate of coastal development. On the other hand, the cost of insurance does not appear to have lowered the demand for coastal property, as most property owners consider flood insurance to be a 'good buy'.

In Rhode Island it seems clear that even the more stringent requirements of the Regular Program have been less than compatible with sound coastal management objectives in that they tacitly affirm development in coastal high hazard areas. According to John Lyons, Director of the state's Coastal Resources Management Council, the availability of flood insurhas increased the number of individuals who can "now afford to get wiped out" when they build along the coast. It has aggravated any possible state or local attempts to acquire land in high hazard areas by raising land values enormously.[8] It is not uncommon for a (then unbuildable) lot that sold for $600 in 1969 to command $25,000 today. The program is favored by many influential segments in local communities; landowners, realtors, builders, banks and other lending institutions, and sometimes the local communities themselves.

Flood insurance also has its detractors from the other side, those who claim that it over regulates privately owned land to the point of constituting a taking. In a 1978 court case, Texas Landowner Rights Association v. Harris, the program (because it denies federally sponsored loans and mortgages to non-participating communities) was challenged on the grounds that it constitutes:

1. an invasion of state sovereignty under the Tenth Amendment,
2. a taking of property without just compensation,
3. a violation of the due process requirements of the Fifth and Fourteenth Amendments.

The Federal District Court, District of Columbia, ruled that the National Flood Insurance Program uses an acceptable "carrot and stick" approach in order to encourage communities to participate in the program. Since no flood plain lands had been appropriated by the government, the court rules that no taking had occurred. Restrictions imposed by NFIP regulations were valid because they served to protect the public health, safety, and welfare.[9]

There have also been several recent Congressional attempts to weaken the flood insurance program by repealing the ban on federally backed loans in non-participating communities. Supporters of such a move feel that the program's land use controls interfere unnecessarily with local affairs. Opponents claim that such a move would allow communities to drop out of the program, develop their floodplains in indiscriminate fashion, and later re-enter the program so that recent construction would be covered by subsidized rates. The proposed amendments seek to avoid this by including a provision of prohibiting all federal disaster relief to non-participating communities. However, public sentiment and political expediency would make such a 'punishment for past mistakes scheme' unlikely (although it

is an idea not entirely without appeal).

Attacked by environmental interests on one side and development interests on the other, the flood insurance program illustrates the difficulty of federal programming in sensitive coastal land use issues on a national scale. Sophistication of local officials can vary tremendously from one town to a neighboring town, and, naturally, from state to state. What is perceived as dangerously lenient by many in Rhode Island is seen as unconstitutionally restrictive by many in Texas.

Still, there are several conplaints about the present Flood Insurance Program that are quite legitimate. Since the program's inception in 1968, wave heights and storm surges have not been factored into the determination of the 100 year flood elevation. Because wave and wind action account for a great deal of the destruction brought by a coastal storm, their inclusion in the determination of a relatively safe building area is crucial. Studies by the Federal Insurance Administration (which operates the Flood Insurance Program as part of the Federal Emergency Management Agency) are currently underway to develop techniques for applying added wave height elevations for new construction. These added elevation restrictions are likely to be extremely controversial in many parts of the country, particularly where coastal land is flat (such as Florida) and added wave height restrictions of five to ten feet are likely to extend flood insurance minimum construction require-

ments far inland. Naturally, the inclusion of wave heights will require the remapping of all communities that have already entered the Regular Program.

Critics of flood insurance have often questioned the determination of "substantial improvement" for the reconstruction of damaged homes after a disaster. Flood insurance regulations state that a structure requiring repairs that amount to 50 per cent of its pre-damage market value must comply with flood insurance floodproofing standards for new construction. However, because of inadequate enforcement and loopholes in the existing regulation's language, many structures are not properly rebuilt. The determination of substantial improvement is based on the amount of repair work to be done, rather than the amount of damage. Therefore, a homeowner may choose not to fully repair his home, or to make only those repairs necessary to meet building codes. The loss of personal property and household effects does not enter into the 50 per cent repairs figure. Also, local building inspectors are frequently under pressure to make findings that structures were not sufficiently damaged or are not to be sufficiently repaired to trigger the more stringent (and more expensive) federal standards for reconstruction.

Other problems may exist in the area of new construction supposedly built to program specifications. Here, the flood insurance programs relies on the inspection of an architect or engineer, not necessarily trained in the program's re-

quirements or the structural problems posed by rushing waters and eroding sand. This reliance on non-program staff to enforce program requirements is not the best solution to the problem. However, when properly adhered to, flood insurance requirements for new construction in the Regular Program phase can be quite adequate to deal with the severe punishment of a damaging storm. Of the approximately 200 structures built on Dauphin Island, Alabama after it had entered the Regular Program, only three were destroyed or severely damaged by Hurricane Frederick, a much greater survival rate than that of structures built prior to flood insurance.[10] The vast majority of these were reduced to a pile of rubble.

4. Program Costs

The costs of federal disaster relief programs is demonstrated by Tables 2 and 3. The National Flood Insurance Program has grown steadily during the 1970's. In 1971, 75,000 policies had been written for coverage totalling $1.1 Billion. By 1979, those figures had risen to 1.6 million policies representing coverage of $60 Billion. The number of communities has increased from 158 in 1971 to 16,500 today. With this increase in the program's popularity has come an increase in premiums paid into the program and losses paid out. Between 1971 and 1979, premiums have risen from $6,341,893 to $138,803,414. Loss payments in

Table 2

FEDERAL DISASTER ASSISTANCE
SBA, FDAA, FIA 1972-1979
(Dollars in Millions)

	SBA Disaster Loans (Fiscal year)	Total FDAA Outlays (calendar year)	FIA Flood Insurance Payments (fiscal year)
1972	327	NA	25
1973	1,524	514	15
1974	370	274	37
1975	248	214	26
1976	179	288	81
1977	359	395	59 (7/1-12/31,77) 50
1978	2,561	434	138 [c] calendar year
1979	1,219 (through 9/79)	518	427 calendar year
Totals	6,787	2,293	858
		GRAND TOTAL	10,281

a. through Aug. 31, 1979

Sources: Small Business Administration
Federal Disaster Assistance Admin. Federal Insurance Admin.

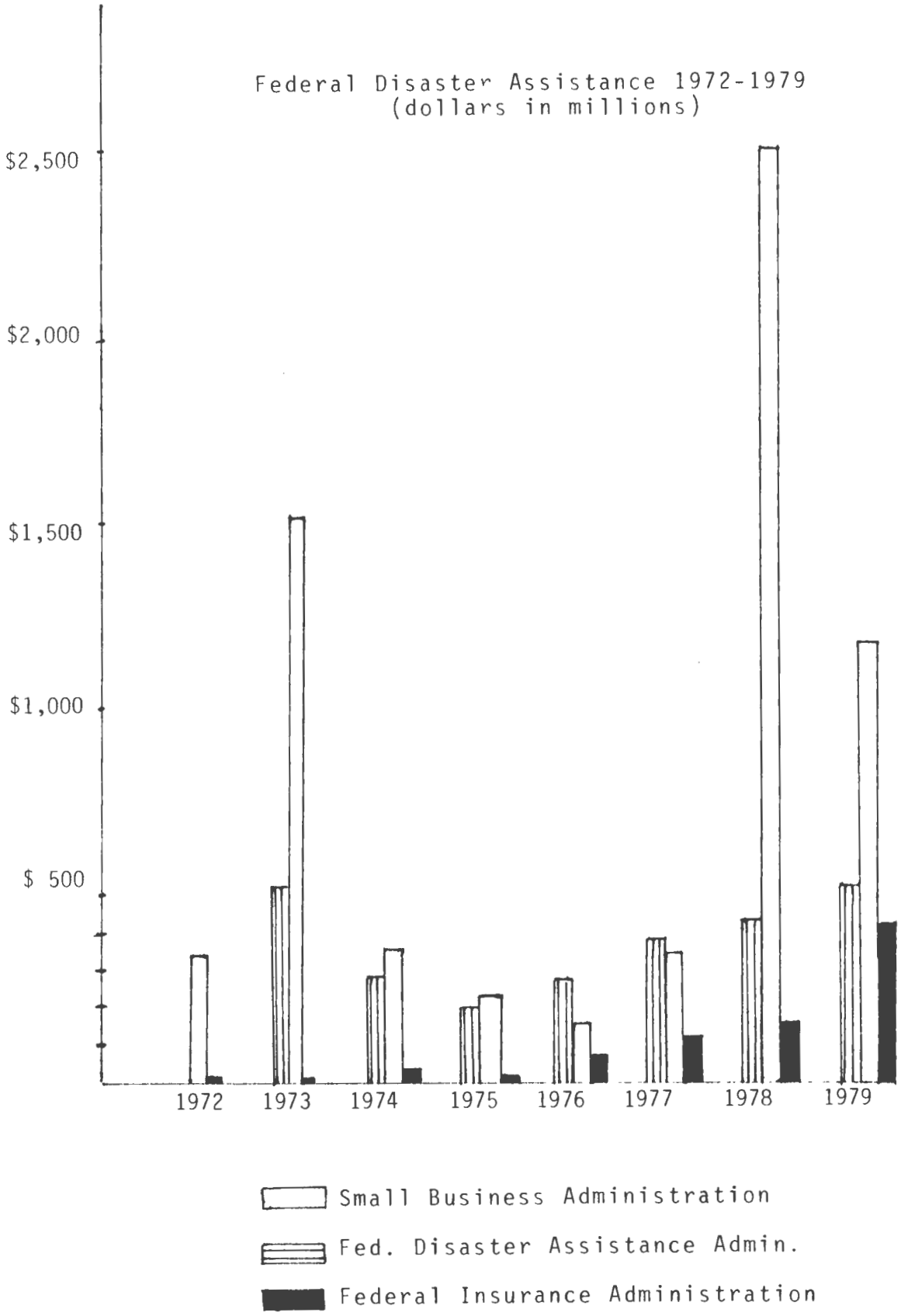
Table 3

NATIONAL FLOOD INSURANCE PROGRAM
Premiums and Losses

	Premiums	Losses
1970	$ 373,274	NA
1971	6,341,893	251,318
1972	7,003,383	2,562,806
1973	15,315,372	15,007,149
1974	25,777,224	36,638,631
1975	40,950,701	26,235,018
1976	57,524,951	81,359,082
1977	83,783,715 40,235,594*	59,190,026 50,887,801*
1978	107,891,306	138,644,591
1979	138,803,414	427,483,256
Inception - 12/31/79	524,000,837	838,259,678

*last six months of 1977, prior to which figures represent fiscal years ending June 30. Figures since 1977 represent calendar years.

Source: National Flood Insurance Program


Federal Disaster Assistance 1972-1979
(dollars in millions)
$2,500
$2,000
$1,500
$1,000
$ 500
1972
1973
1974
1975
1976
1977
1978
1979
Small Business Administration
Fed. Disaster Assistance Admin.
Federal Insurance Administration

the same period have increased from $251,318 to $427,483,256. Up until 1979, the Flood Insurance Program broke roughly even between premiums paid in and losses paid out ($384,819,000 vs. $410,711,000). Payments for losses in 1979 however, vastly exceeded premiums, reflecting significant flooding activity (due in large part to Hurricanes David and Frederick). Indeed the total paid out in 1979 ($427,483,000) exceeds the combined total of eight previous years. Other years have seen payments exceed premiums (1974, 1976), but slow storm years have made up the difference (1975, 1977). It will take a number of slow years to make up the deficit of 1979's loss payments. Figures cited above do not reflect the program's administrative costs.

The period between 1972 and 1979 also saw a significant increase in Federal Disaster Assistance Administration payments. 1972 was an unusually expensive year (due in large part to Hurricane Agnes) with FDAA outlays totalling $584,000,000. Since then the trend has been generally upward. A total of $2.3 Billion has been paid out since 1972. The Small Business Administration has been a major source of disaster assistance loans. Since 1972, SBA has paid out a total of nearly $7 Billion in disaster loans. The federal government underwrites a portion of the interest on these loans. The current rate paid by the borrower is 8¼ per cent for business loans (reduced to 5 percent for businesses for which conventional credit is not available). Residential loan rates are 3 per cent in a presidentially

declared disaster, 8¼ per cent for other disasters. Naturally, the amount of subsidy paid by the government through these loans fluctuates according to the difference between these interest rates and those which the government must pay for its borrowed money.

The purpose of these loans is to restore homes or businesses to their pre-disaster condition. Disaster loans comprise only one part of the Small Business Administration's activities. It is not a disaster relief agency per se. SBA relies on the technical expertise and authority of other agencies for guidelines in post disaster reconstruction. It may provide funds for relocation only when "a disaster victim cannot get a building permit, or is unable to restore his property at the disaster site for other reasons."[11] Still, the size of the SBA Physical Disaster Loan Program makes it an important factor in overall federal coastal policy. It should be pointed out however, that SBA is unlikely to become a policy making agency in regards to federal coastal policy.

5. Executive Order 11988

A recent and potentially very significant federal initiative in the area of sound use of the nation's coast is Executive Order 11988, Floodplain Management (5/24/77). In a statement accompanying the order, which carries the force of law, the President pointed out that flooding problems

arise mainly from unwise land use practices. He added that "active floodplain management represents sound business practice by reducing the risk of flood damage to properties benefitting from federal assistance...unwise floodplain development can lead to loss of human life and other natural resources - it is also a bad federal investment and should be avoided."[12]

Executive Order 11988 replaces a 1966 Executive Order, 11296 (Flood Hazard Evaluation) which recognized that structural flood control programs by themselves were incapable of dealing with the annual rise in flood losses. Despite that order, flood losses continued to rise. Executive Order 11988 and the complementing EO 11990, Wetlands Protection, are significant steps that tie together the goals of protecting life and property with a recognition of the natural and beneficial values of floodplains, wetlands and barrier beaches. It orders all federal agencies to:

> "avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modifications of floodplains and to avoid direct and indirect support of floodplain development where there is a practicable alternative."[13]

It applies to all agencies that:

1. are involved in financing or otherwise assisting construction and improvements,
2. acquire, manage, or dispose of federal lands and facilities,
3. conducting activities and programs affecting land use, including planning, regulating and licensing functions.

The order applies to all floodplain locations, river, stream, pond, ocean etc. within the 100 year floodplain. If use of the floodplain cannot be avoided, the agency involved must adjust its plans to reduce the hazards of flood loss and to minimize the impact of construction on human health, safety and welfare. In such a case, the order provides for early public review of any federal agency's action within a floodplain and allows for citizen input in the process.

In spite of the fact that EO 11988 constitutes a major federal policy initiative, it falls short on at least two counts. It does not designate any particular agency to insure the proper implementation of the order. It provides no deadline for which a department or agency must submit evidence that the principles of floodplain management indicated in EO 11988 have been incorporated. The U.S. Water Resources Council has provided a set of guidelines for federal agencies, but has no authority to see that these guidelines are adopted into agency operations.

Although many agencies have cooperated, others have not. An interesting case in point involves the possible rebuilding of the Dauphin Island Causeway, which, until Hurricane Frederick linked this barrier island with the Alabama mainland. The island has a permanent population of 1,600 people, which increases considerably with the influx of summer tourists. The cost of rebuilding the bridge is estimated at between $30 and $40 million. Its construction

will undoubtably contribute to increased development pressures on this island. Yet this project has received the approval of the Federal Highway Administration, an agency which comes under the guidelines of the executive order and has demonstrated particular unwillingness to follow them. The National Resources Defense Council has recently brought suit against the Federal Highway Administration for violating EO 11988.[14] Such a legal action is at present the only means to assure implementation of the executive order.

Although the U.S. Army Corps of Engineers project to rebuild Miami Beach was initiated prior to EO 11988, it demonstrates the type of federal effort that the order seeks to abolish. On the heavily developed barrier beach, bulkheads and groins extended out into the sea by the many hotels lining the beach have effectively stopped the longshore transport of sand to replenish the beach. Year by year, the beach disappeared, to the great distress of tourists who came in dwindling numbers and hotel owners who suffered as a result. Barges are presently sucking up offshore sand and depositing it on the beach, a new beach 300 yards wide, ten miles long, built at a cost of over $60 million in taxpayer money. For their money, the public is at least guaranteed access to this previously private domain, but the taxpayers will continue to pay the annual one million dollars it will cost to maintain the beach. Critics claim that this project is particularly unjustified because it directly benefits the very hotels whose construction practices made the

disappearance of the beach inevitable. In addition, they feel this new, even less stable beach than the original one, will be blown away in the first major storm.[15]

6. Other Federal Programs

Other Federal programs have important impacts on our national coastline. EO 11988 draws some of its inspiration at least from the National Environmental Policy Act of 1969. NEPA firmly established enhanced environmental quality as a national goal. Its major provision is the requirement that Environmental Impact Statements be produced for any directly or indirectly federally sponsored project or program that may significantly affect the environment. This procedure has been used to predict susceptibility to flooding and to modify these potential impacts. Public participation in the formulation of the EIS is an important element of the program. However, the mere doing of an EIS does not necessarily mean that its recommendations will be sound, or that they will be followed.

The Coastal Zone Management Act (PL 92-583) is a major federal program designed to assist states in producing plans to preserve, protect, develop, and restore coastal resources. It encourages states to develop and implement management programs to assure the wise use of coastal resources. The act recognizes certain key features and prob-

lems of the coastal zone;

1. that the coastal region should be viewed as a complex interdependent system rather than as a collection of separate issues for which programs are separately developed.
2. that there is a pressing need for coordination and consistency of these programs.
3. that the act reflects a growing environmental consciousness on the part of the American people.
4. that there is a need to acquire coastal and recreational programs.
5. that sound land use planning and management are vital to coastal resources planning.
6. that efforts to develop marine resources should be enhanced.

Congress' reasons for enacting the Coastal Zone Management Act are clear; "there is a national interest in the efficient management, beneficial use, protection, and development of the coastal zone."[16]

The program includes three major implementation strategies. Section 305 provides federal grants to states for CZM program development, Section 306 provides grants for administering the program and Section 307 includes requirements for interagency coordination, cooperation and consistnecy. It should be stressed that the CZM program operates primarily through the states. The federal authorities are more concerned with the process of the development of CZM

plans rather than their content (although this is subject to federal review, content of state CZM plans is largely left to the states, which are allowed maximum flexibility in the development of their programs).

This lack of direction from federal agencies in the development of state programs has been criticized in a recent report from the Comptroller General of the United States, Coastal Zone Management: An Uncertain Future. In particular, this report states that the National Oceanic and Atmospheric Administration (NOAA) which administers the program, "must do more than just excel in its procedural and technical functions. It must shift its emphasis to increased assistance in monitoring state programs, resolving special problems and strengthening federal-state coordination."[17] The report also cited the considerable delays in the states' progress in developing their management programs due in part to less than desirable coordination wirh federal agencies and eroding public and political support for environmental restrictions, particularly as they relate to offshore energy issues. This in itself is likely to be a major sore spot in coordinating state plans with overriding federal energy development considerations.

This possible weakening of support for environmental legislation in general is likely to become even more important as the United States enters the 1980's. Increasing population, continued energy problems, and an uncertain economic future may combine to negate many of the strides that have been made in environmental legislation. It is in our

long term interest to maintain and strengthen these efforts. Much of our success will depend on the severity of our short term problems that threaten to eat away at past successes.

7. President's 1979 Environmental Message

In his August 2, 1979 Message to Congress regarding Environmental priorities and programs, President Carter noted that the nation's coastline is subject to unusual pressures from natural causes and human activity. Citing various accomplishments in the environmental area since 1975 (for example, the fact that 75 per cent of the nation's coast is now "covered" by federally approved state coastal management programs) the President offered three major initiatives;

1. to submit for Congressional approval legislation to reauthorize federal assistance to state coastal zone management programs - states would be guaranteed a minimum of five years of federal assistance at current levels after a state management program is approved and before federal support is gradually phased down.
2. a recommendation that new amendments be enacted to the Coastal Zone Management Act that "will establish a national coastal protection policy."[18] The goals of this policy will be:

a. to protect significant natural resources such as wetlands, estuaries, beaches, dunes, barrier beaches, coral reefs, fish and wildlife,
b. to manage coastal development to minimize loss of life and property from floods, erosion, saltwater intrusion and subsidence,
c. to provide predictable siting processes for major defense, energy, recreation and transportation facilities,
d. to increase public access to the coast for recreation purposes,
e. to preserve and restore historic, cultural, and aesthetic coastal resources,
f. to coordinate and simplify government decision-making to insure proper and expedited management of the coastal zone.[18]

3. the President directed "the Secretary of Commerce to conduct a systematic review of federal programs that significantly affect coastal resources. This review, to be conducted by the National Oceanic and Atmospheric Administration, will provide the basis for specific recommendations to improve federal actions affecting the coastal zone and to develop any additional legislation needed to achieve our national coastal management goals."[19]

This NOAA study project has recently held public meetings around the country. Recognizing the problem of numerous governmental programs responding to varied Congressional and Presidential mandates, the study report (due in June, 1980) will focus on that often studied phenomena - increased coordination between federal programs. In particular, this NOAA review will examine:

1. Federal infrastructure programs - how these growth inducing public facility programs relate to the expressed national goals or protecting significant

natural resources.

2. Development and reconstruction assistance in coastal hazard areas - an examination of the inconsistencies that may occur between national coastal management goals and programs providing development subsidies, reconstruction assistance provided by insurance, credit assistance and infrastructure repairs in coastal hazard areas. This segment will undoubtably focus on such programs as flood insurance, low interest disaster loan programs of the Small Business Administration and Farmer's Home Administration and disaster recovery and relief programs. In a fact sheet accompanying the August Environmental Message, it was noted that "preliminary studies indicate that the National Flood Insurance Program may actually encourage rather than discourage rebuilding in coastal floodplains after storm damage."[20]
3. Public access to the coast - particular emphasis on federal programs involved in urban waterfront revitalization, support of transportation and rural recreation areas, and expanded public recreational use of existing federally owned lands.
4. Improved government decisionmaking - how advance planning techniques can be integrated into key federal programs to attain the national goal to coordinate and simplify government decisionmaking.

The Detailed Fact Sheet for New Initiatives that accompanied the President's Environmental Message demonstrates some concern on the part of the administration about development pressures that annually consume greater portions of sensitive coastal areas. The fact sheet notes that man has altered two thirds of the nation's barrier islands. It further states that the ever increasing concentration of population along the coast (53 per cent of the nation's population now lives within a 50 mile wide coastal strip)[21] brings about increased property damage and loss of life. These could be reduced if "natural buffers, such as wetlands, beaches, dunes, and barrier islands, were maintained."[22]

III. Barrier Islands

Barrier islands stretch along the United States coast from Maine to Texas. Very little of this coastline is unprotected by barrier islands. The salt ponds and estuaries behind them are a diverse and richly productive ecosystem, supporting many types of fish and shellfish life along with many species of birds and mammals. Although they provide a protective buffer between coastal land and a tempermental sea, barrier islands themselves are unstable. According to the 1979 Department of the Interior Draft Environmental Statement on Alternative Policies for Protecting Barrier Islands:

> "the islands are made up of unconsolidated and shifting sands. The continually changing relationship between the ocean floor, surf line and moving sediment produces islands that are for the most part, structurally and locationally unstable."[23]

Despite their sensitive natural aspects in the overall coastal system, population of barrier islands increased by over 30 per cent between 1960 and 1970, more than double the national average. Fourteen per cent of barrier islands are considered urban compared to only three per cent of the mainland.[24]

The Department of Interior report confirms the widely held belief that federal programs have encouraged and as-

sisted the development of barrier islands. Over twenty agencies are identified as having an impact on barrier beaches. Of these, around "one fourth provide programs which directly or indirectly provide protection for barrier islands, over one half administer loan, grant, permit, and construction programs that have had adverse impacts on the study units; the remainder administer property insurance and relief programs that have encouraged or perpetuated unwise use of the islands."[25] Over three fiscal years, the permitting, granting and licensing agencies committed nearly one half billion dollars to barrier island development projects.

Ironically, the Environmental Protection Agency contributed the largest share of these funds in the form of grants for wastewater treatment facilities. A typical example of EPA involvement that can spark development pressures is as follows: a local community has allowed development to take place with septic tanks in a coastal area. Over time, the systems prove inadequate and begin to constitute a health hazard. EPA provides funding support for extension of sewer facilities in the area. With the problem of on site disposal of waste now eliminated, denser development can now take place. The Economic Development Administration and the Farmer's Home Administration also provide funds for wastewater treatment. Home and business mortgage insurance programs have also provided considerable support to the development of barrier islands, and other sensitive

coastal areas. The Coast Guard, with its bridge permitting authority, can have a profound effect on the opening up of barrier islands to development, as can the Federal Highway Authority. The report also concluded that the Flood Insurance Program and Federal Disaster Relief Program, both administered by the Federal Emergency Management Agency, "appear, in many situations to provide the impetus for developing (or redeveloping) barrier islands."[26]

Although states and localities have been acquiring barrier islands for conservation purposes, often with federal assistance, these efforts have not been enough. The uncharacteristic lull in hurricane activity on the Atlantic coast has increased development pressures for barrier beaches. The difficulty of evacuating a developed barrier island, often connected to the mainland by only a single narrow bridge, is in itself a serious logistics problem. Bridge building programs designed to speed evacuation of barrier islands also increase their accessibility and population, thereby contributing to the problems of development. Soaring property values on barrier islands will make disaster relief an even more expensive proposition for the nation's taxpayers.

IV. The Taking Issue

> "nor shall private property be taken without just compensation.[27]

In any attempt to regulate land, especially environmentally sensitive land, the taking issue looms heavily in the background. The line between the police power (the power to regulate land) and eminent domain (the power to acquire) is a vague and elusive one. Since the 1920's, guidance on this issue has frequently rested on a pronouncement by Justice Holmes. Referring to Pennsylvania Coal Co. v. Mahon (260 U.S. 393), Holmes said,

> "The general rule at least is, that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."[28]

Since then courts have tried to use a "balancing test" in determining whether land use statutes are confiscatory by weighing the public benefits (health, safety, welfare) of the regulations against the loss of property value to the property owner.

The notion that restrictive floodplain management techniques (such as zoning and subdivision controls)are designed to protect the health, safety, and welfare of the community as a whole is at the heart of such regulations. The

danger involved is that although the courts may feel the objectives are valid, they may object to the use of the police power to pursue objectives more appropriately achieved through the use of eminent domain.

Courts have generally upheld stringent regulation of new and existing nuisance uses. In Hadacheck v. Sebastian (239 U.S. 394 1915), the court upheld a nuisance regulation of a brick manufacturing and clay mining concern even though this was the existing use that became a public nuisance only as population growth impinged on the surrounding area and even though the plaintiff's property value was diminished by 90 per cent of its previous value.

There are several important cases dealing with coastal flooding issues. In 1953, the California Supreme Court in McCarthy v. City of Manhattan Beach (264 p2d 932) upheld an open space beach zone for an area subject to frequent storm flooding. The owner wished to erect houses on pilings on the beach front. The zoning of the area permitted only beach operation recreational activities and operation of beach facilities for an admission fee. This regulation caused the owner a serious loss in the economic use of his property. Due to the fact that the beach is frequently subject to erosion and wave pressures, the court felt that reasonable minds could differ as to the safety of the proposed construction, even on pilings, and upheld the ordinance.

In Spiegle v. Beach Haven, the New Jersey Supreme Court upheld an ordinance requiring lengthy setbacks for new con-

struction, with only dunes, fences and boardwalks for beach access allowed seaward of the setback line; this in an area of beach previously subject to severe storm damage. The plaintiff argued that this regulation denied him all reasonably economic use of his lands. The borough in this case produced unrebutted proof that houses built seaward of this line would be destroyed in a major storm and claimed the health, safety, and welfare of the community would be endangered due to the destruction of streets, sewers, gas, electrical and power lines.

However, an earlier decision in a lower New Jersey court arrived at the opposite conclusion. In Lorio v. Sea Isle City (New Jersey Superior 506,212A 2d 802 1965), the court ruled that the erection of a sand dune barrier by the U.S. Army Corps of Engineers on private land after a period of flooding constituted a taking rather than a regulation of land under the police power. The court suggested that private lands could not be physically altered, even for public benefit, without the payment of compensation.

Some courts have addressed the issue of minimum lot sizes in coastal areas to serve flood management and scenic goals. In County Commissioners of Queen Anne's County v. Miles (246 Md. 355 228 A. 2d 450 1969) the Maryland Court of Appeals upheld a two acre minimum lot size as preserving broad community values including the protection of scenic and historic sites in the area. But in Bismark v. Incorporated Village of Bayville, a lower New Jersey Court invalida-

ted a zoning amendment raising the minimum lot size in a coastal area from 15,000 to 40,000 square feet. The court found there was no need or demand for such large lots, that nearby properties had been developed at higher densities with no ill effects and that the zoning amendment was not in accordance with a comprehensive plan.

The U.S. Water Resources Council in its Regulation of Flood Hazard Areas to Reduce Flood Losses cites five general requirements that coastal regulations should meet:

1. be adopted pursuant to and in close compliance with the procedures of a general or specific enabling act,
2. serve valid police power objectives,
3. have some reasonable tendency to aid in the accomplishment of the objective,
4. not discriminate between similarly situated individuals,
5. not take private property without just compensation.[29]

The report goes on to say that "coastal regulations based upon sound flood data, which guide rather than prohibit most uses, are most likely to be held constitutional."[30]

The technical considerations here are important. So far, they appear to have made stricter regulations for riverine flooding more legally enforceable than the less well understood and more unpredictable coastal flooding problem. This is particularly true in the absence of sufficiently repetitive historical data for many coastal hazard areas.

An example of this can be found in a 1972 case decided by the Massachusetts Supreme Court, Turnpike Realty Co. v. Town of Dedham (284 N.E. 2d 891 Mass. 1972). The town had a flood plain district as part of their zoning by law

whose purpose was:

> "to protect the public health, safety, persons and property against the hazards of flood water inundation for the protection of the community against the costs which may be incurred when unsuitable development occurs in swamps, marshes, along water courses, or in areas subject to flood; and to conserve natural condition, wildlife, and open spaces for the education, recreation and general welfare of the public.[31]

The ordinance permitted no building in the zone except for accessory structures for agricultural, horticultural, recreational, or woodland uses. The court upheld the ordinance on the grounds that it was motivated by considerations of public welfare and because it felt that the necessity of floodplain zoning to reduce damage to life and property was clear.

An important currently pending case will provide some clue as to the direction courts might take in the future regarding stricter floodplain regulations. In Annicelli v. Town of South Kingstown et als.[32] the property owner has been denied a building permit for a house lot located in a town designated Flood Danger Zone, along a barrier beach. This beach area has had a long history of flooding and has been wiped clean during the hurricanes of 1938 and 1954. The plaintiff argued that the regulation constituted a taking, that it was not in compliance with the comprehensive plan, and was a violation of the due process and equal protection clause of Article IV of the Amendments to the Constitution of the U.S.. The plaintiff also claimed that the State of Rhode Island's enabling legislation grants South Kingstown no power to enact such an ordinance. The town

cited the stormy history of the barrier beach and its ecological significance, claimed a presumption of validity in its legislative action and stated that the expressed purpose of the ordinance was to safeguard the health, safety and welfare of the community, rather than to provide the community with added open space. Although the town claims that the construction of a residence is not compatible with the ecological constraints of a barrier beach, it claims the ordinance does not deny the property owner all "reasonable uses" of his property (uses such as agriculture, horticulture, commercial docks, tent camps, shipbuilding, and repairing are among the uses permitted by special permit in this zone). The judge in this case has not rendered a decision in the four years since it was heard, indicating perhaps, the serious landmark implications the eventual decision may have. In the meantime, the ordinance stands.

The taking issue in regards to coastal and all other land revolves around one crucial question, "can a landowner collect damages when regulation by a public agency is so stringent that it substantially limits that property's use and value?" It is an issue that the United States Supreme Court will be facing very soon in Agins v. City of Tiburon (a city near San Francisco). Although this case deals with the city's upzoning a piece of prime coastal property to protect its scenic attributes, it could have considerable importance for other land use controls that diminish property values (perhaps unfairly so, since this case deals more with aesthetics, as opposed to areas of high flood danger

and ecological significance). The case is important because it is one of the rare land use cases to have reached the Supreme Court in many years. The decision in this case will most likely affect many land use issues including open space, farmland preservation, environmental protection and innovative land use controls in general.

Fear of litigation based on the taking issue has led many government agencies at all levels to be more timid in their regulatory approach that sound mitigation policies would otherwise demand. Litigation is usually lengthy and expensive. Sound technical and historical data regarding the dangers of coastal flooding and erosion is often lacking. Court decisions frequently hinge on these crucial factors. Greater research into the technical questions still unresolved in coastal flooding can have a significant impact on the promulgation of more restrictive development ordinances, and will enable such attempts to withstand court challenges.

V. The Cost Issue

The cost to government and individuals from poor development practices is staggering. The federal government bears a great deal of the financial burden in the aftermath of a major disaster. There are some practical and some political reasons for this. In practical terms, the federal government has more ready access to the large sums of money needed in a post disaster situation. Most localities and states would be unable to match the federal response. Politically, it is important that government officials show their concern for a distressed region through a massive and rapid injection of federal dollars. As the damaging flood waters recede, the flow of federal funds begins.

The Blizzard of 1978 shows the enormity of the federal contribution in a post disaster setting. The blizzard was a major storm that dumped 30 inches (and more) of snow in southern New England, accompanied by winds up to 90 miles per hour and record high tides, ten feet above normal. Record high water marks were attained in many Massachusetts and southern New Hampshire locations. The high tides and huge waves that pounded the coast were particularly devastating in those coastal areas that faced northeast, the

direction of the winds and waves (included in this area are the towns of Hull, Scituate, Marshfield, Plymouth, Revere, Lynn, Gloucester, Hampton and North Hampton, N.H.) Many of these communities were densely developed at the shoreline.

The Federal Disaster Assistance Administration (under FEMA) provided funding to municipal and state agencies for such purposes as debris clearance, protective measures, road systems, water control facilities, public buildings, public utilities and other needs. Total federal costs due to the blizzard are listed in Tables 4 and 5. The grand total is estimated at over $230 million.

Clearly the federal government has a great stake in assuring the sound development of coastal communities. Yet it is the localities and states (through their enabling legislative authority) that bear the greatest responsibility for local land use decisions. The failure of municipalities and states to more wisely regulate their coastal development is probably due to a variety of reasons. They are often not fully aware of the danger they face. A generation without a major storm can give residents a peace of mind that encourages development. Also, many beach home owners are willing to accept the risks of periodic obliteration as part of the price they pay for the amenity of seaside living, provided the period of time between damaging storms is sufficiently long. Local communities reap considerable tax revenues from seasonal homes that consume a minimum of mu-

Table 4

BLIZZARD OF 1978

Federal Agencies Cost and Loss Estimates

	Mass.	N.H.
A. Individual Assistance		
1. Housing and Urban Development		
Temporary Housing *	$12,500,000	$ 332,800
Federal Insurance Admin.	16,534,000	773,498
2. Small Business Administration		
Home and Personal Loans	80,657,000	1,623,900
Business Loans	67,716,000	2,897,500
3. Department of Labor		
Disaster Unemployment Insurance*	300,000	12,320
4. Department of Agriculture		
Food Stamps	4,377,263	0
Farmer's Home Administation	872,501	0
5. Federal Disaster Asst. Admin.		
Individual and Family Grants *	4,000,000	42,000
Crisis Counseling, Intervention*	461,526	0
6. Internal Revenue Service		
Casualty Loss	483,214	NA
7. Community Services Admin. Grants to Local Community Agencies for Food and Fuel	350,000	0
8. Health, Education and Welfare- Office on Aging Grants for Special Needs of Elderly	40,000	0
B. Public Assistance		
9. Federal Disaster Assistance Admin.*	20,023,203	250,070
C. Federal Agency Independent Authority		
10. Health Education and Welfare	5,000,000	0
11. Federal Highway Administration Federal Aid Roads and Highways	1,500,000	1,800,000

cont.

	Mass.	N.H.
12. U.S. Army, Corps of Engineers		
Operation and Maintenance	44,000	0
Emergency Rehabilitation of Flood Projects	0	395,000
13. Housing and Urban Development		
Community Development Block Grants	5,465,775	0
D. Office of the Federal Coordinating Officer		
14. Mission Assignment Costs*	50,000	22,000
TOTAL	$220,374,482	$8,149,088

*Funded by the President's Disaster Relief Fund

Source: Blizzard of '78 Coastal Storm Damage Study U.S. Army Corps of Engineers

Table 5

Additional Non-Allocatable Costs and Losses

U.S. Army, Massachusetts (entire state)	$ 885,852
Massachusetts National Guard (entire state)	2,254,243
Rockingham County Commission, N.H. (CETA)	75,000
Salvation Army (Revere, Hull Scituate,Marshfield)	52,000
Comm. of Mass. Disaster Recovery Team Operation and Coordination	10,000
U.S.Economic Development Administration Massachusetts Disaster Recovery Team	200,000
Mission Assignments, Mass. Reimbursed by FDAA	
U.S. Army Corps of Engineers	50,000
U.S. Army, New England Div., COE	200,000
Environmental Protection Agency	1,000
Federal Aviation Agency	2,500
Federal Highway Agency	25,000
General Services Administration	260,000
U.S. Coast Guard, Massachusetts Minor Aids to Navigation	150,000
Fishing Gear Lost off Mass, Cape Cod	50,000
Fishing Gear Lost off Mass, North Shore	400,000
Total Non Allocatable Costs and Losses	$4,615,595

Source: Blizzard of '78 Coastal Storm Damage Study.

nicipal services (no school children during the winter, for instance) but pay high taxes due to their expensive evaluations. It should also be pointed out that real estate development and construction interests frequently wield considerable weight in the local political scene. The ecological and flood protection benefits of such natural features as barrier beaches and coastal wetlands are often not considered by local officials when permitting development in these sensitive areas. In those states and localities that may wish to enact stricter regulation to prohibit unwise use of coastal property, the fear of lawsuits based on the taking issue, lack of proper enabling legislation, and inadequate proof of the potential dangers posed by flooding and erosion may inhibit the severity of their regulations.

The availability of federal disaster funds is also part of the issue. No one would suggest that a community blithely encourages growth in high hazard coastal areas knowing the federal government will pick up the pieces anyway. Communities suffer financial hardship in the aftermath of a disaster, and so (to a much lesser extent) do the states. But the federal government seems to bear an inordinate burden. State figures for Massachusetts for expenses incurred due to the 1978 blizzard are still being compiled,[33] but present indications are that the state totals will be far less than the federal ones. The extent to which state and local government could, through proper land use controls, mitigate their flood losses is unknown. The question is this: lacking

direct control over land use decisions, should the federal government support, to the extent that it has, local land use decisions that are an invitation to disaster? If a greater percentage of these were borne by the states, might that not serve to encourage the state (and through enabling legislation, municipalities) to pursue more active means of insuring wiser use of high hazard areas? Federal aid would still be provided to distressed areas, but more of it could be in the form of long term loans, payment of which might serve to remind state officials and taxpayers of the real cost of the disaster they have faced. Such a device might also serve to lengthen the notoriously short memory span of an area that has seen such a disaster.

The federal government is not entirely the hapless victim of this situation. Federal contributions to the development of sensitive coastal areas has already been noted. Some of this may be forgiveable to the extent that in the past many federal officials did not themselves understand the unique ecological and flood protection benefits of the coastal region. Often too, these funds were in response to expressed state and local desires and needs. The potential dangers posed by increased development of areas which, thanks to an influx of federal dollars, were now serviced by highways and sewers, were not adequately considered. And even today, the focus of federal funds in a post disaster situation is to clean up and rebuild, rather than to relocate and acquire. States and municipalities have generally encouraged this approach.

VI. Acquisition

1. Overview

Of all proposed solutions to the problems posed by development in coastal hazard areas, outright acquisition of property by government is the surest way of meeting varied conservation, recreation and flood protection goals. It involves no potential court battles over the taking issue as restrictive regulations do. Unfortunately, acquisition of coastal hazard area property is a very expensive alternative to the regulatory approach. With prime beach front property often costing $100,000 and more for a single acre, federal, state and local officials frequently discover that acquisition of large tracts of coastal land is a near impossible goal.

Even not considering the cost issue, acquisition of property brings out assorted other problems. There is often the issue of who is going to maintain the property once it has been purchased and who will pay the maintenance costs. The way in which property is acquired is a frequent stumbling block. Government officials have been extremely reluctant to use eminent domain in the acquisition of property for conservation and flood protection uses. The alternative to eminent domain can result in a checkerboard pat-

tern of acquired property from those willing to sell, dotted by those remaining property owners who choose not to. This can create management problems for the agency charged with the responsibility of maintaining and protecting a series of patchwork lots.

Frequently there is strong local opposition to attempts by state of federal government agencies to acquire property in their municipality. Lots to be acquired often are, or have the potential to be, important sources of tax revenues to localities. Purchase of such properties removes them from the tax rolls forever. More important perhaps is local opposition to outsiders, faceless bureaucrats owning property in their town. The prospect of acquired property being used for public recreation is an unpleasant one for many localities, bringing, as it inevitably does, an onslaught of people who "aren't like us" into a town and thereby changing its character.

The best time to acquire property is before it is developed, when property values are likely to be relatively low. The immediate aftermath of a disaster can also be an opportune time for acquisition. Presumably, more people would be willing to sell with the recent memory of a flooding disaster still fresh. Because of the destruction, acquisition cost could be limited to the value of the land itself, since the structure that sat on it is likely to be destroyed or severely damaged.

2. A Case Study in Massachusetts

Under the administration of Governor Dukakis, Massachusetts attempted to put a disaster acquisition plan into action, with less that successful results. The Massachusetts Coastal and Disaster Area Acquisition Loan Act of 1978 was an attempt to secure twenty million dollars (subsequently reduced to ten million) in state bonding authority to acquire storm damaged property in coastal communities. The stated purpose of the legislation was to reduce the risks to lives and property in the event of future storms and to provide for much needed additional conservation and recreation areas. The funds were to be used only where the Commonwealth and coastal communities jointly agreed that reconstruction of storm damaged areas would constitute a public safety risk and at the same time preclude an important recreational or conservation opportunity. Such acquisition would subsequently reduce the need for reconstruction of shoreline protection structures and other public works in a damaged area. These savings would offset some of the costs of acquisition.

The program was designed to operate as follows; at the request of a storm damaged community, the Massachusetts Department of Environmental Management or the Metropolitan District Commission would work with local officials to develop a conservation and recreation plan for affected areas. This plan would designate properties to be acquired and the

management requirements for such properties. Responsibilities for the management of these properties would be borne by either the state agency of by the locality. There was to be no use of eminent domain in the acquisition of properties.

The acquisition program was a forward looking attempt to provide an immediate and positive response by the Commonwealth to the varied needs of storm damaged communities (an approach not presently possible under federal programs for disaster relief and assistance). The quickness of government's response was absolutely crucial, since most homeowners begin rebuilding in the immediate aftermath of a disaster.

Needless to say, the program did not clear the state's legislature (in fact, it did not get out of committee). Some legislatorswere concerned that even though eminent domain was not to be invoked, that property owners would feel pressured into selling their land. Agencies that would have the responsibility for managing the newly acquired property were concerned about the problems associated with managing numerous small parcels arranged in a checkerboard pattern. Local communities voiced the loudest opposition. Many perceived the legislation as an attempt to "kick them when they were already down." They saw the legislation as added suffering being imposed upon them from above. Some local communities stood to lose valuable tax property revenues, particularly from summer homes that characteristically demand little in

the way of services. Localities also feared the influx of outsiders that added public recreation and conservation space would bring. This lost opportunity in Massachusetts to mitigate the effects of future floods and to provide citizens with greater access to the shore gives some indication of the problems other acquisition programs are likely to face, particularly where development (or redevelopment) interests are politically powerful, as they usually are. Any attempts by the federal government are likely to be met with even stiffer opposition.

3. Federal Acquisition Policy

There are several federal programs that contain authorization for acquisition of flood prone property (see Appendix B). The Office of Coastal Zone Management makes funds available to states for acquisition of estuarine sanctuaries under its Estuarine Sanctuary Program. Community Development Block Grants have been used for floodplain acquisition. The Department of the Interior has numerous programs under its Fish and Wildlife Service and the Heritage Conservation and Recreation Service. One HCRS program, the Land and Water Recreation Fund (1979 appropriation-$357 million)[34] provides funds for acquisition and easement purchase (usually a 50 per cent match for state or local funds) for outdoor recreation programs. The U.S.Army Corps

of Engineers is using its acquisition authority to acquire Charles River floodplain property in Massachusetts. Despite the number of programs, acquisition has yet to become a major factor in floodplain protection. There is no coherent federal policy to either acquire floodplain lands or to encourage state and local governments to do so.

Section 1362 of the National Flood Insurance Act could become an important vehicle for the acquisition of flood damaged property. The section states that property may be acquired if:

1. it was damaged substantially beyond repair (more than 50 per cent of it fair market value)
2. it incurred significant flood damage on not less than three previous occasions over a five-year period of time and on each occasion the cost of repair, on the average, equaled or exceeded 25 per centum of the value of the structure at the time of each flood event.
3. it has sustained damage as a result of a single causality of any nature under such circumstances that a statute, ordinance or regulation precludes its repair or restoration or permits repair or restoration only at a significantly increased construction cost.[35]

This section has never been implemented due to lack of funding. It had been scheduled for funding in the upcoming fiscal year (a $5.6 million authorization was expected) but current budget cutting policies are expected to delay implementation. Even so, $5.6 million is a very small sum for a national acquisition program (Massachusetts was considering a $20 million bond issue for acquisition in that state alone). Still, Section 1362 could become a key element in a comprehensive approach to coastal hazard mitigation, and could be particularly useful in areas that are chronic-

ally flooded.

Section 73 of the Water Resources Act of 1974 requires federal agencies to consider nonstructural alternatives in the survey, planning or design of any federal project affecting flood protection. Alternatives are to include:

> "acquisition of floodplain lands for recreation, fish and wildlife, and other public purposes; and relocation with a view for formulating the most economically, socially and environmentally acceptable means of reducing or preventing flood damages.[36]

Unfortunately, this provision has also yet to be implemented in any meaningful way. The act requires that complicated and time consuming cost/benefit analyses be performed for any prospective project. It has been extremely difficult to assign a particular benefit amount to open space uses.

A recent U.S. Water Resources Council draft report, Floodplain Acquisition: Issues and Options in Strengthening Federal Policy by Jon A. Kusler, raises some of the key issues of the acquisition question. He recommends that acquisition be placed on equal footing with other flood mitigation techniques (flood control works, flood insurance, disaster relief). Federal policy presently encourages flood control works by providing a 100 per cent subsidy for them, rather than acquisition strategies, which offer inconsistent levels of funding assistance. One of the largest acquisition funding sources, the Land and Water Conservation Fund, offers a 50 per cent match to local funds. The present lack of emphasis on acquisition as a flood mitigation technique may serve to encourage states and localities to seek

out structural flood control works because funding for these is more readily available.

A further recommendation suggests that the federal government should encourage states and localities to acquire flood hazard area property through grant and cost sharing programs. This would skirt the volatile political issue of outright federal acquisition of property. In certain situations however, federal acquisition may be called for. The focus of a community's attention and its willingness to spend already depleted funds do not normally inclued acquisition of flood damaged property in the aftermath of a natural disaster. In these situations (the type for which Section 1362 of the National Flood Insurance Act was designed) the federal government, with its greater resources and possibly higher level of objectivity, can have a significant impact. Mechanisms must be set in place to achieve a rapid response capability on the part of federal officials in post disaster situations. Section 1362 should become an integral part of the flood insurance program to complement the program's regulations.

Despite the many attractive features of acquisition, it is not without flaws. Acquired property must be carefully managed, preferably by state or local authorities rather than federal ones. Many localities may not desire public acquisition of prime shorefront property because of lost tax revenues. The use of eminent domain to acquire property from owners not willing to sell may be justified in certain instances from flood protection and property manage-

ment points of view, but will be very unpopular politically. Most importantly, acquisition is expensive, and the benefits of undeveloped flood buffer strips and recreation areas may be hard to measure against the known high cost of acquisition. The purchase of easements may lower the costs somewhat, but generally denies access to the public.

Still, if adequately funded and judiciously implemented, acquisition of coastal hazard property could break the cycle of destruction and rebuilding of sensitive coastal areas. A coherent federal acquisition strategy could help offset the effects of federal disaster assistance and flood insurance programs which, at present, can only require that the rebuilding that takes place meet certain standards, rather than discourage rebuilding altogether.

VII. Conclusions

In the past two decades, the United States has become increasingly aware of the need to protect the environment. This concern has manifested itself through various environmental legislation. Concern for the nation's coastline has become more pronounced as part of this overall environmental movement. As flood damages continue to rise and pressures for development consume more and more of the nation's precious coastline, Congress has responded with a variety of single issue legislative actions to deal with particular problems along the coast. These attempts are preferable to none at all, but it is becoming increasingly clear that they are not enough.

The most basic issue in the area of federal coastal policy is the need for Congress to clearly define which goals for the coast are the overriding ones. Although protection of the coast and wise development along it are stated goals, many programs funded by Congress have the exact opposite effect, even though this effect may not have been the program's original intent. Subsidy programs for highways, bridges, and sewers often fall under this category. Various loan and grant programs, along with disaster relief and

flood insurance can also have the same effect. It is important that sound environmental and flood protection practices become the dominant force in all programs relating to the coast. An appropriate mechanism must be set in place to achieve this. The reluctance of some federal departments to incorporate the directives of Executive Order 11988 indicates that the approach incorporated within the order is not desirable. What is needed is the designation of one agency as the clearinghouse through which all other departments whose programs deal solely or partially with the coast, must operate. The focus of this agency must be environmental preservation and flood protection of the coast. A clear directive from Congress will be required to accomplish this. Such an agency would require broad powers to veto or modify any project that would be detrimental to "sound coastal development practices." That phrase would undoubtably be subject to differences of interpretation as legislation for such an agency moved through Congressional approval and appropriation. The Rhode Island Coastal Resources Management Council, with its planning, management and coordination powers over the Rhode Island coastline is an example of the type of agency that should be created at the federal level. It must be realized however, that such an agency would face tremendous difficulties. Broadly speaking, the federal government is organized according to program and function, rather than by geographical area. The special problems of the coast may demand such an innovative approach.

A major goal of such an agency would be to incorporate flood protection and environmental protection considerations into disaster relief and recovery situations. The weeks immediately following a disaster are critical in determining an area's ability to withstand future storms.

In a recent report to the U.S. Water Resources Council, Options to Improve Federal Nonstructural Response to Floods, Rutherford Platt suggests that Hazard Mitigation Assessment Teams be formed in post disaster settings. "This team should be interagency, interdisciplinary, and involve state and local representatives from economics, planning, geography and other related fields."[37] Authorization for a hazard mitigation team is found in Sections 304 and 406 of the Disaster Relief Act of 1974. The former directs the President to form emergency support teams to assist the federal coordinating officer. The latter provides for assessment of natural hazards following a disaster. The team would quickly produce a report that will be used to guide post disaster assistance funding of various projects. This would be particularly helpful in guiding the Federal Disaster Assistance Administration's decisions in funding the public infrastructure repairs. Traditionally, funding is provided in response to local municipal and state needs rather than the needs of sound floodplain management goals.

The National Flood Insurance Program is often cited as a program in need of reform to become consistent with such goals. Many critics, especially in Rhode Island, have urged that the program be abolished altogether, feeling that flood

insurance has spurred building where it might otherwise not have taken place, to the detriment of natural systems. These claims have some validity in Rhode Island and perhaps elsewhere as well. Other critics cite the fact that the flood insurance program has no mechanism for forbidding construction on especially sensitive coastal areas such as barrier beaches, as grounds for the program's speedy end. But the demise of the flood insurance program would probably not be in the best interests of flood protection goals on a national scale. At present, flood insurance is the only program capable of imposing uniform building construction requirements for coastal areas across the U.S. Although it may be argued that the regulations and standards of flood insurance do not go far enough, to end the program now would be a step backwards. An end to the structural requirements of the flood insurance program would lead to an explosion of flimsy structures incapable of surviving a major storm and would cost the taxpayer even more dearly in an increased need for greater disaster assistance funds. It should also be pointed out that many communities across the United States had no standards at all for construction in flood prone areas before the Flood Insurance Program.

Certain changes are already in progress or being considered. The most important of these is the inclusion of storm surge into determination of the 100 year flood level. The remapping of the nation's coast that will result from this effort is essential for the 100 year flood line to be

taken seriously as a guage for coastal hazards. To ignore the effect of wave action on the exposed coastline is tantamount to ignoring the presence of water itself. Presently under consideration is a plan for direct federal inspection of all new or substantially rebuilt structures within the floodplain. This would help alleviate the problems caused by architects, engineers, and building inspectors who are either incompetant or are subject to construction or development interest pressures to not enforce flood insurance regulations adequately, particularly in areas where these restrictions are not welcome. Direct federal inspection would assure that new or rebuilt structures are properly elevated, anchored and floodproofed.

Other options may be possible for the flood insurance program to meet its potential as a major flood mitigation tool. The possibility of involving banks in the program should be examined. Banks are already involved to some extent - communities choosing not to join the program are denied federally backed mortgage money. Perhaps a similar concept could be used in regards to the interest rates charged by the banks in providing mortgage money. Since the availability of flood insurance has made coastal property an acceptable risk for banks, perhaps a method could be devised whereby a surcharge mortgage rate could be required for new structures depending upon the risk of their location. Tighter controls on mortgages in flood prone areas could have a dramatic effect on development practices in

sensitive coastal regions. It should be remembered that the barrier beaches in Rhode Island saw very little development before the advent of flood insurance when local banks denied mortgages for these areas because of their recent storm history.

A critical area of concern in the flood insurance program is the need for reliable data regarding coastal hazards. The availability of comparable data for reverine flooding has significantly reduced pressures to build along riverine floodplains. But coastal flooding is far less predictable than riverine flooding. Attempts by the flood insurance program to promulgate stricter regulations could depend on such data in the event of a court challenge. Particularly when adequate historical data is lacking, the process is a difficult one. Hazards posed by erosion are a particular problem, since the technical means for predicting erosion dangers are far from understood. While acquisition of the data should be an ongoing process, it should not deter flood insurance officials from making greater restrictions on insurability than presently exist. A strong case for denial of insurance can be made for areas within localities that are chronically flooded. According to unpublished data by H. Crane Miller, cited by R. Platt in Options to Improve Federal Nonstructural Response to Floods, 2,000 communities between January 1972 and August 1979 experienced flood disasters serious enough to be declared as disasters by the President on two or more occasions. 351 communities

experienced three or more major floods. In 1979 alone, Houston, Texas experienced three "100 year floods."[38] Places that are chronically flooded should pay increasing rates for each flood event and eventually be denied insurance altogether. A better solution would be to use Section 1362 to fund the acquisition of such areas. This would enable compensation by insurance to take the form of relocation out of the floodplain.

Barrier islands pose particular problems because of their generally unstable nature, their susceptibility to erosion as well as high wave levels, sibsidence and rising sea levels. The high danger posed by these factors should be reflected in the administration of flood insurance and disaster recovery programs. A basic step currently being undertaken by the Federal Insurance Administration is the mapping of all coastal floodplains. This mapping should include some sort of erosion setback requirements for barrier islands and other stretches of the coast subject to similar pressures. The Department of Interior Draft Environmental Report on Barrier Islands[39] suggests that actuarial rates for new construction on barrier islands should reflect the true risk of developing there. These rates are likely to be extremely high and may serve as a deterrant to development pressures. As a "high level" alternative for action, this report also recommends that the Flood Insurance Act be amended to deny federally subsidized flood insurance for areas designated as "coastal high hazard areas." This might

be used in areas where the risk is known to be extremely high or where, because of natural factors that make technical forecasting impossible, the true risk cannot be determined. It is important that the flood insurance building standards not be discarded in areas where, for reasons of risk, insurance coverage is denied. Such a relaxation would result in eventual greater damage on the island itself and inland (through the effects of battering debris) and would necessitate even larger disaster assistance subsidies.

Although flood insurance is a major program affecting the coast, it is not the only one, and it should not be expected to meet all demands for environmental protection of the coast that many of the program's critics seek. One should not lose sight of the program's goals - to provide affordable insurance in flood prone areas and to require floodplain management of member communities. These techniques can undoubtably be improved upon to incorporate greater non-structural flood protection and environmental protection measures than they presently do. But one program cannot secure the coast from development, particularly in the absence of a Congressional mandate requiring it to do so, and particularly in this instance where there are significant technical and legal issues involved.

The extent of federal support to development on barrier islands and other sensitive coastal areas has been documented earlier in this report. Well intentioned programs of undeniable benefit to the rest of the country have been

used in coastal high hazard areas,where their consequences have not been fully considered. Executive Order 11988 has addressed itself to the problem. The NOAA report currently nearing completion can be expected to further outline the extent of these unwise federal practices, which often fly in the face of stated policy objectives for floodplain protection, environmental quality, protection of life and property, and sound floodplain management techniques in general. Congressional action which clearly defines these latter goals as the dominant ones will be required to resolve the conflicts engendered by a variety of programs that work to the detriment of each other. A mechanism to assure that these goals are respected by all federal departments and agencies would be necessary to implement such a concept.

It has been pointed out that the federal government also supports unwise redevelopment practices through the distribution of disaster assistance funds for infrastructure repairs. Responding to the desire of localities to restore their communities to their pre-storm conditions, disaster assistance funding is in many circumstances, in clear conflict with numerous flood protection goals and Executive Order 11988. The taxpayers of the United States, through the federal government, should not be expected to support a community's unwise development practices. Federal funds should be forbidden for infrastructure repairs with a floodplain under most circumstances. It is here that the concept of a Hazard Mitigation Team (as advocated by Dr. Platt) in a

post disaster setting becomes important. Such a team could direct federal funds away from high hazard areas, leaving the community and its residents to more fully realize the expense of development in these dangerous zones. This would not be a popular position for the federal government to take. It runs counter to the "let's rebuild it better than before" spirit that generally infects a region after a disaster. In many cases, better than before might mean "don't rebuild it at all!" Fiscal and environmental responsibility over the long term must take the place of the emotional "man over nature" mentality of many post disaster situations.

Cost sharing of federal disaster relief payments has been mentioned as one way of reducing the cost of disasters to the federal government and of encouraging states and localities to assess their own responsibilities in regards to unwise development practices. For instance, a portion of disaster relief funds could be made in the form of long term loans to states and localities. Areas that are chronically flooded would soon realize that their locational policies in regards to development are imposing a greater and greater financial burden on the municipality. This would encourage the adoption of stronger land use controls. This approach would be particularly useful in areas where summer houses provide beneficial tax revenues to the city. Here local officials may begin to see that taxes generated by these houses are offset by disaster assistance loan paybacks. Such a realization may encourage localities to use their

own land use controls to prevent other areas from opening up to development. The goal of such a cost sharing program would be the cost effective use of federal funds. It is simply not cost effective for disaster relief funds to be used to support unwise local land use practices. It is unrealistic for municipalities to expect the federal government to do so, particularly as we enter an era of tighter federal budgetary policy.

The legal issues involved in the management of coastal floodplains are pervasive ones. The manner in which various courts respond to suite alleging over-regulation to the point of a taking is still unpredictable. So much involves the unique circumstances of each individual case. Some points are clear however. Courts have generally approved restrictive regulations in response to a community's desire to protect the health, safety and welfare of community residents. The crucial feature is that a community must show that construction along barrier beaches, for instance, does indeed imperil the health , safety, and welfare of people living there and other community residents. This latter group may suffer from the lost storm buffer benefits of a developed barrier beach, the effects of battering debris, or from safety risks imposed upon police, fire and other municipal personnel and volunteers involved in rescue operations. Historical flood damage data can be an important means of indicating the hazards of certain types of development in high hazard zones. Other technical data may also

be required to make a strong case for restrictive standards. Technical assistance in the form of studies performed by the flood insurance program and other federal agencies may also be valuable. From a local perspective however, many federal programs serve to work against any local attempts to provide more stringent regulations in dangerous zones. A town such as South Kingstown, Rhode Island which has used its zoning authority to severely limit development along its barrier beaches, receives little support in terms of precedent from federal programs tnat insure such structures, provide funding for sewer construction, and make them more accessible through provision of highway access. It should be pointed out that a town such as South Kingstown, while seeking to protect itself from storm damage, is also serving federal interests by mitigating future disaster damage. This will result in lower disaster assistance payments on the part of the federal government in the event of a future flood. The town has had to assume the legal costs of defending its case in court. The strong environmental and flood protection stand taken by South Kingstown should be supported by federal agencies. (An interesting sidelight to the So. Kingstown case is that, because of the restrictions that zoning has placed on the Flood Danger Zone properties, their value has decreased. A major landowner of barrier beach property wished to donate his property to the town for tax reasons, but found he could not do so in any manner beneficial to him because of the lower appraised

value his property now has).

Outright acquisition is the ultimate policy to achieve flood protection goals. Acquisition also serves other community and regional needs by providing areas for recreational and open space uses. There are two major hurdles to overcome in the acquisition question. First, costs are high and the effort to purchase land often involves federal assistance. Such aid is available through a variety of sources (Community Development Block Grants, the Land and Water Conservation Fund, the U.S. Army Corps of Engineers and various programs of the Department of the Interior). and with varying degrees of matching funds (a problem in itslef). Second the communities are often less than enthusiastic about acquisition programs, especially where the effort involves government involvement beyond their own jurisdiction. Even after a major storm event, local communities balk at acquisition programs (the Massachusetts attempt to do this, and the opposition in such heavily damaged areas as Scituate and Plymouth, is a case in point). Acquisition will be difficult to use as a national policy as its costs remain high and its level of acceptance low.

Federal policy in regards to coastal flood hazards simultaneously presents hopes for the future and frustrations with the present. The issue in an exceedingly complex one; a tangle of technical, legal, jurisdictional, and organizational problems. It is a topic that is geographically rather

than functionally specific, and, as such, goes against the entire organizational framework of the federal government. In the absence of clear goals on the issue, numerous federal programs have sprung up. They are frequently in conflict with each other and with the desires of states and localities as well.

Still, the situation is not entirely hopeless. The past decade or so has seen an increased awareness of the special problems of the United States coast. Flood Insurance, Coastal Zone Management, Executive Orders and reports and studies too numerous to mention are all part of this mounting concern with coastal issues. The President in particular has shown his awareness through executive orders and environmental messages to Congress. He has also expressed a willingness to sponsor legislation based on the upcoming NOAA report on federal coastal policy.

It is clear that the federal government should take the lead on a comprehensive policy to manage America's coastal resources. Financially, the federal government has a much greater stake than any other level of government to see to it that our coastline is carefully managed. The federal government is also far enough removed from local real estate development and political interests to maintain a higher level of objectivity in this highly emotional issue. Its greater resources can be tapped to deal with the complex technical issues of coastal flooding and erosion. The minimum requirements of flood insurance regulations and other

other federal programs tend to become the maximum regulations for states and localities. In such a situation, it is important that federal coastal policy be a clear and comprehensive guide for localities.

Although progress has been made over the last decade and awareness of the special nature of the coastal zone has been heightened, much more remains to be done. Yet it is the type of issue that often requires a particularly catastrophic event that serves as a catalyst for a quantum leap in policy formulation; something on the order of the destruction of Miami Beach may be needed to bring the issue of sound coastal management to the attention of decision makers; just as Hurricane Agnes put teeth into a dormant Flood Insurance Program in 1972. That day will come. The question is how far will the decision makers and the courts be willing to go.

FOOTNOTES

[1] Department of the Interior, Alternative Policies for Protecting Barrier Islands Along the Atlantic and Gulf Coasts of the U.S. and Draft Environmental Impact Statement Dec. 1979.

[2] Rutherford Platt,"Coastal Hazards and National Policy, A Jury Rig Approach" AIP Journal, April 1978, p. 171.

[3] John Sorenson and Kenneth Mitchell, Coastal Erosion in the United States: A Research Assessment, Institute of Behavioral Science, Univ. of Colorado Program on Technology, Environment, and Man monograph no. NSF-RA-E-75-016, 1975.

[4] Barrier Beaches and Islands, Volume 2, number 1, October, 1979.

[5] Disaster Relief Act of 1974 (PL93-288) Sec. 101.

[6] Ibid.

[7] H.Crane Miller, Coastal Hazards and the National Flood Insurance Program, Dept. of Housing and Urban Development, June 1977. PO 1442-77.

[8] John Lyons, Director of the Rhode Island Coastal Resources Management Council, person interview, Nov. 1979.

[9] National Hazards Observer, University of Colorado, Fall, 1979, p. 6.

[10] Edward Thomas, Federal Emergency Management Agency, Boston. Personal interview, Feb. 1980.

[11] Fact Sheet #14, Small Business Administration, Office of Public Information, October, 1975.

12 Jimmy Carter, Executive Order 11988 (Floodplain Management), May 1977.

13 Ibid.

14 conversation with Peter Holmes, National Resources Defense Council, May, 1980.

15 Wallace Kaufman and Orrin Pilkey, The Beaches Are Moving; The Drowning of America's Shoreline, Anchor Press Doubleday, 1979.

16 Coastal Zone Management Act of 1972, U.S. Code, Title 16, Sec. 1451-1464.

17 Comptroller General of the U.S. Summary, The Coastal Zone Management Program: An Uncertain Future, U.S. Government Printing Office, Dec. 10,1976.

18 Jimmy Carter, Environmental Message to Congress, Aug. 2, 1979.

19 Ibid.

20 Ibid.

21 Office of the White House Press Secretary, Detailed Fact Sheet for New Initiatives, The President's Second Environmental Message, Aug. 2, 1979.

22 Ibid.

23 Dept. of Interior,Alternative Policies for Protecting Barrier Islands... op. cit. p. iii.

24 Ibid. p. x.

25 Ibid. p. viii.

26 Ibid. p.viii.

27 U.S. Constitution, Article V.

28 Pennsylvania Coal Co. v. Mahon (260 U.S. 393)

29 U.S. Water Resources Council, Regulation of Flood Hazard Areas to Reduce Flood Losses, Vol II, 1976 p. 141.

30 Ibid. p. 142.

31 Turnpike Realty Company V. Town of Dedham, (284 N.E. 2d at 894).

32 Complaint for Declaratory Judgment Filed in Superior Court, W. Kingston R.I. Jan 14, 1976. From Annicelli v. Town of S. Kingstown, unpublished Master's Thesis by Anna Praeger, 1978.

33 States Disaster Recovery Team , within the Lieutenant Governor's Office will have figures compiled before it is disbanded in August, 1980.

34 U.S. Dept. of Housing and Urban Development, Neighborhood Oriented Programs of the Federal Government, A Compendium of Funding and Technical Assistance Resources for Neighborhood Organizations, Oct. 1979 HUD 542-NVACP

35 National Flood Insurance Act of 1968, as amended P.L.90-488. Section 1362.

36 Water Resources Act of 1974, Section 73.

37 Rutherford Platt, Options to Improve Federal Non-structural Response to Floods, consultant report to the U.S. Water Resources Council, Dec. 1979. p. 71.

38 Ibid. p. 10.

39 Department of Interior, Alternative Policies..ob, cit.

40 Anna Praeger, Town Planner, Town of S. Kingstown, Personal Interview, April, 1980.

BIBLIOGRAPHY

Carter, Jimmy, President Environmental Message to Congress and Accompanying Fact Sheet, 8/2/79.

Carter, Jimmy, President Executive Order 11988, Floodplain Management, May 1977.

Council on Environmental Quality, The Taking Issue, An Analysis of the Constitutional Limits of Land Use Control, 1973.

Department of the Interior, Alternative Policies for Protecting Barrier Islands Along the Atlantic and Gulf Coasts of the U.S. and Draft Environmental Statement, Dec. 1979.

Disaster Relief Act of 1974, Public Law 93-288.

Environmental Comment, Floodplain Management Issue, June 1977.

Federal Disaster Assistance Administration, Authorities and Regulations for the Federal Disaster Assistance Program, May, 1976.

Federal Emergency Management Agency, Questions and Answers on the National Flood Insurance Program, 1979.

Guyon, Janet, "Down the Drain: Critics Question Cost of Maintaining Costs in Storm Prone Areas" Wall Street Journal, November 23, 1979.

Helfand, Gloria You Lose if the National Flood Insurance Program Increases Flood Losses, National Resources Defense Council, May, 1978.

Hershman, Mark J. and Feldmann, James H. Coastal Management: Readings and Notes, Institute for Marine Studies Coastal Resources Program, University of Washington, Seattle January 1979.

Kaufman, Wallace and Pilkey, Orrin The Beaches Are Moving Anchor Press/Doubleday, Garden City N.Y. 1979.

Kusler, Jon A. Floodplain Acquisition: Issues and Options in Strengthening Federal Policy, U.S. Water Resources Council, October, 1979.

Livezey, Emilie T. Christian Science Monitor Articles re: Blizzard of '78, 3/2, 3/3, 3/6, 1978.

Lord, Peter"Beach Homes 'Protected' By Taxpayers", Providence Journal Bulletin Feburary, 1980.

Miller, H. Crane Coastal Flood Hazards and the National Flood Insurance Program, Department of Housing and Urban Development, June 1977.

Murphy, Evelyn, Executive Office of Environmental Affairs Coastal and Disaster Area Acquisition Loan Act of 1978 (memorandum re:) 1978.

National Flood Insurance Program
Flood Disaster Protection Act of 1973 (Public Law 93-234) 12/31/73.
Housing and Urban Development Act of 1969 (Public Law 91-152) 12/24/69.
Housing and Urban Development Act of 1968 (Public Law 90-448) 8/1/68.

National Oceanic and Atmospheric Adminstration, memorandum re: Public Meetings to Be Held as Part of the Federal Coastal Programs Review, January 25, 1980.

New England River Basins Commission Coastal Programs Division Dealing with Coastal Hazards: Implementing the Regional Policy Statement on Floodplain Management, January, 1979.

New England River Basins Commission, The Ocean's Reach: Digest of a Workshop on Identifying Coastal Flood Hazard Areas and Associated Risk Zones, Feburary, 1976.

New England River Basins Commission Task Force on Flood-Plain Management, Regional Policy Statement on Floodplain Management in New England, 1978.

Office of Disaster Relief and Recovery, Federal Emergency Management Agency, Digest of Federal Disaster Assistance Programs Second edition, October 1979.

Platt, Rutherford "Coastal Hazards and National Policy: A Jury-Rig Approach" AIP Journal April 1978.

Platt, Rutherford Options to Improve Federal Nonstructural Response to Floods U.S. Water Resources Council December 1979

Prager , Anna Annicelli v. South Kingstown, A Case Study Master's Thesis, University of Rhode Island, 1978.

Senate Report no. 92-753 U.S. Code; Congressional and Administrative News,1972, volume 2.

Shabman, Leonard Dr. Improved Formulation and Evaluation of Non-Structural Elements for Water Resources Plans in Flood Hazard Areas, U.S. Water Resources Council, 10/79.

U.S. Army Corps of Engineers, Blizzard of 1978 - Coastal Damage Study, February 1979.

U.S. Water Resources Council Floodplain Management Guidelines for Implementing Executive Order 11988, Federal Register of Friday, February 2, 1978.

U.S. Water Resources Council, Regulation of Flood Hazard Areas to Reduce Flood Losses, Volumes 1and 2, 1976.

U.S. Water Resources Council, A Unified National Program for Floodplain Management, July, 1976.

White, Dr. Gilbert F. Non-Structural Floodplain Management Study: An Overview U.S. Water Resources Council, October 1979.

INTERVIEWS

Edward Thomas, Federal Emergency Management Agency, Boston.

John Lyons, R.I.Coastal Resources Management Council, Prov.

Sewell Johnson, Federal Emergency Management Agency, Wash. D.C.

Anna Prager, Town Planner, Town of South Kingstown, R.I.

David Rohen, Disaster Recovery Team, Lt. Governor's Office Boston.

APPENDIX A

LIST OF KEY FEDERAL PROGRAMS

AGENCY ABBREVIATIONS USED IN LIST OF KEY FEDERAL PROGRAMS

Abbreviation	Agency
DOC	Department of Commerce
EDA	Economic Development Administration
MARAD	Maritime Administration
NOAA	National Oceanic & Atmospheric Administration
OCZM	Office of Coastal Zone Management
NMFS	National Marine Fisheries Service
NWS	National Weather Service
DOI	Department of Interior
BLM	Bureau of Land Management
FWS	Fish and Wildlife Service
HCRS	Heritage Conservation & Recreation Service
NPS	National Park Service
BurRec	Bureau of Reclamation
DOT	Department of Transportation
USCG	U. S. Coast Guard
OPS	Office of Pipeline Safety
FHWA	Federal Highway Administration
FAA	Federal Aviation Administration
UMTA	Urban Mass Transportation Administration
USDA	U. S. Department of Agriculture
SCS	Soil Conservation Service
REA	Rural Electrification Administration
FMHA	Farmers Home Administration
FS	Forest Service
ASCS	Agricultural Stabilization and Conservation Service

Abbreviation (Continued)	Agency
DOE	Department of Energy
FERC	Federal Energy Regulatory Commission
NRC	Nuclear Regulatory Commission
HUD	Department of Housing and Urban Development
COE	Army Corps of Engineers
EPA	Environmental Protection Agency
SBA	Small Business Administration
FEMA	Federal Emergency Management Administration
FIA	Flood Insurance Administration
CEQ	Council on Environmental Quality
WRC	Water Resources Council
MMC	Marine Mammal Commission

KEY PROGRAMS: INFRASTRUCTURE INVESTMENT

Agency	Citation	Program/Statute
USDA/Farmers Home Administration	7 USC 1926, 1932 1989	Water, sewer, business and industrial grants for rural development
USDA	7 USC 901-924	Rural Electrification Program/Electric generating facilities.
USDA	16 USC 1006a	Small Watershed Act (P1-566)/Rural flood control projects.
DOI/Bureau of Reclamation		Water Diversion projects.
DOC/Maritime Administration	46 USC 1151-61	Development and promotion of ports and intermodal transportation.
DOC/Economic Development Administration	42 USC 3121 et seq	Public Works projects; business and economic development assistance; planning assistance.
DOC/National Oceanic & Atmospheric Admin.	16 USC 1451 et seq	Coastal Energy Impact Program
DOD/Army Corps of Engineers	33 USC 426g, 577, 603a	Office of Water and Waste Management, construction grant program/Grants for planning, design and construction of wastewater treatment facilities.
Department of Housing and Urban Development	42 USC 5301-5317	Community Development Block Grants
	42 USC 5301-5317	Urban Development Action Grants
		Grants, Loans, Subsidies and Mortgage Guarantees for Housing.
DOT/Federal Highway Administration	Title 23 USC, as amended	Highway Construction Grants

KEY PROGRAMS: INFRASTRUCTURE INVESTMENT (Continued)

Agency	Citation	Program/Statute
DOT/Urban Mass Transportation Admin.	49 USC 1601 et seq	Mass Transit Development Grants and Loans.
DOT/Federal Aviation Administration	49 USC 1701, 1713	Airport Development and Planning Grants.
DOT/U.S. Coast Guard		Bridge permits, Deepwater ports.

KEY FEDERAL PROGRAMS: Development and Reconstruction Assistance in Coastal Hazard Areas

Agency	Citation	Program/Statute
Pre-Disaster Federal Hazard Reduction		
COE		Hurricane protection, flood control
		Beach erosion control projets
SCS		Watershed protection and flood preven
NWS		River and flood forecast and warning services
		National Hurricane Center
Technical and Planning Assistance		
FIA		State assistance
FEMA		State disaster preparedness grants
NWS		Community disaster preparedness
COE		Flood plain management services
		Planning assistance to States
HUD		Comprehensive planning assistance
WRC		Title III Grants
OCZM		CEIP planning grants
EPA		Water pollution coastal-state and areawide water quality management planning
Post-disaster relief and construction assistance		
FIA		National flood insurance program

KEY FEDERAL PROGRAMS: Development and Reconstruction Assistance in Coastal Hazard Areas (Continued)

Agency	Citation	Program/Statute
FEMA		Public assistance
		Individual assistance
EDA		"304" Grants under Title IX
COE		Restoration of Damaged Protective Works (P.L. 99)
SBA		Physical disaster loans
FHWA		Federal aid to highway repair
HUD		Community development block grants; discretionary, emergency
FMHA		Emergency loans
		Rural disaster housing loans
ASCS		Emergency conservation measure
Development assistance and regulation		
OCZM		Formula grants, loans and guarantees
HUD		Community development block grants; discretionary, emergency
SCS		Resource conservation and development
CG		Bridge permits
EPA		Construction grants

KEY FEDERAL PROGRAMS: Development and Reconstruction Assistance in Coastal Hazard Areas (Continued)

Agency	Citation	Program/Statute
Natural area protection		
OCZM		Estuarine sanctuaries and beach access
NPS		National seashore, park, and recreation area acquisition and management
HCRS		Acquisition, planning, and development grants for outdoor recreation
F&WS		Acquisition of wetlands and other wildlife refuges
		Fish and wildlife restoration
WRC		Executive order 11988 enforcement
OCZM		CEIP environmental grants
FS		National forest acquisition and management

KEY FEDERAL PROGRAMS: Public Access to the Shore

Agency	Citation	Program/Statute
DOD/ Army Corps of Engineers	33 USC 577, 603a	Navigation projects; Protection, clearing and straightening of channels
DOC/Economic Development Administration	42 USC 3131-3171	Business development assistance; public works projects; Special economic development and adjustment assistance program.
Maritime Administration	46 USC 1151-61	Development and promotion of ports and intermodal transportation.
National Oceanic & Atmospheric Administration	16 USC 1451 et seq	Coastal Energy Impact Program; Coastal Zone Management Program Administration Grants.
Community Services Administration	42 USC 298(1)(b)	Community Economic Development
Environmental Protection Agency	33 USC 1251 et seq	Federal Water Pollution Control Act -- State and areawide water quality planning; wastewater treatment facilities.
General Services Administration	40 USC 484 50 USC App. 1622(g) 42 USC 4638	Legacy of the parks program; Disposal of Federal Surplus Real Property.
Dept. of Housing & Urban Development	42 USC 5301-5317	Community development block grants.
	42 USC 1452 B	Housing Rehabilitation loans (Housing Act of 1964, as amended, Section 312).
	42 USC 5301-5317	Urban Development Action Grants
DOI/Bureau of Land Management	43 USC 869, 869-4	Public land for recreation, public purposes and historic monuments.

KEY FEDERAL PROGRAMS: Public Access to the Shore (Continued)

Agency	Citation	Program/Statute
DOI/Heritage Conservation & Recreation Service	40 USC 484	Disposal of Federal surplus real property for ports, recreation and historic monuments.
	16 USC 470, amended by PL 94-442	Historic Preservation Grants-in-Aid
	Title X of PL 95-625	Urban Park and Recreation Recovery Program (Urban Park and Recreation Recovery Act).
	16 USC 1-4 et seq	Outdoor Recreation -- Acquisition, Development and Planning.
DOI/Heritage Conservation & Recreation Service with the State Historic Preservation Officer and the National Trust for Historic Preservation	PL 89-665	Historic Preservation Fund (National Historic Preservation Act of 1966)
National Foundation on the Arts and Humanities - National Endowment for the Arts	20 USC 951 et seq	Design Arts Program
Small Business Administration	PL 93-386	Economic Opportunity Loans for Small Businesses.
DOT/Federal Highway Administration	Title 23 USC, as amended	Donation of idle right-of-way land to cities.
DOT/Urban Mass Transportation Administration	49 USC 1601 et seq	Acquisition, construction, reconstruction and improvements for mass transportation.

KEY FEDERAL PROGRAMS: Public Access to the Shore (Continued)

Agency

Many Federal agencies own land in the coastal zone. Following is a list of the principal land owning agencies:

Department of the Interior

Bureau of Land Management
Heritage Conservation and Recreation Service
Geological Survey -- Conservation Division
National Park Service
Fish and Wildlife Service
Bureau of Reclamation

Department of Agriculture

Forest Service
Soil Conservation Service

Department of Defense

General Services Administration

Federal Energy Regulatory Commission

KEY FEDERAL PROGRAMS: IMPROVED COORDINATION

Agency	Citation	Program/Statute
Planning and consultation programs		
EPA	42 USC 7401-7642	Clean Air Act as amended
	40 CFR 51, 52	State Implementation Plan
	33 USC 1251-1376	Federal Water Pollution Control Act as amended
	40 CFR 35, 130	Statewide & areawide Section 208 planning
DOI/FWS	16 USC 661-666c	Fish & Wildlife Coordination Act
DOC/NOAA	16 USC 1451-1464	Coastal Zone Management Act of 1972
	40 CFR 923	State programs
DOI/DOC	16 USC 1531-1543	Endangered Species Act
DOI/BLM	43 USC 1701-1782	Federal Land Policy & Management Act (FLPMA)
DOI/BLM	43 USC 1331-1343	Outer Continental Shelf Lands Act
DOE	42 USC 7101-7352	National Energy Plan
WRC	33 USC 1251-1376	Federal Water Pollution Control Act, as amended
		Level B Basin Plans

KEY FEDERAL PROGRAMS: IMPROVED COORDINATION (Continued)

Agency	Citation	Program/Statute
Regulatory/Regulatory Review Programs		
EPA	42 USC 7401-7642	Clean Air Act, as amended
	40 CFR 60	New Source Performance Standards
	40 CFR 61	National Emission standards for hazardous air pollutants
	40 CFR 51, 52	Prevention of significant deterioration of Air Quality
EPA/CEQ	40 CFR 1500	Review of proposed Federal legislation, regulations and EIS
EPA	33 USC 1251-1376	Federal Water Pollution Control Act, as amended
	40 CFR 230	National Pollution Discharge Elimination System (NPDES)
		Waiver of Secondary Treatment (Sec. 301(h))
	40 CFR 110, 112	Oil Discharges & Pollution Prevention
	40 CFR 116	Hazardous Substance Spill Regulation
	PL 89-90	Water Resources Planning Act 1965
		Consistency Requirement
		Guidelines for Implementing EO 11988 & 11990

KEY FEDERAL PROGRAMS: IMPROVED COORDINATION (Continued)

Agency	Citation	Program/Statute
Regulatory/Regulatory Review Programs (Continued)		
COE/EPA	33 USC 1251-1376	Federal Water Pollution Control Act, as amended
	33 CFR 323/ 40 CFR 230	Permits for discharges of dredged or fill materials into U.S. waters
DOT/USCG	33 USC 1001-1016	Oil Pollution Act of 1961
		Regulate oil discharges and tanker construction
	33 USC 1501-1524	Deepwater Ports Act of 1974
		Regulate Construction of offshore oil transportation facilities
DOC/NOAA	16 USC 1451-1464	Coastal Zone Management Act of 1972, as amended
	40 CFR 930	Federal Consistency Requirement
COE	33 CFR 322	Rivers and Harbors Act 1899
DOI/DOC	16 USC 1531-1543	Endangered Species Act
FERC	16 USC 791-828c	Federal Power Act
DOI/BLM	30 USC 185	Mineral Leasing Act of 1920
		Rights-of-Way for Pipelines through Federal Lands
	43 CFR 2850	Power Transmission Lines
	23 USC 107(d) & 317	Federal Highway Act

KEY FEDERAL PROGRAMS: IMPROVED COORDINATION (Continued)

Agency	Citation	Program/Statute
Regulatory/Regulatory Review Programs (Continued)		
FERC	15 USC 717-717W	Natural Gas Act
DOI/FWS	50 CFR 29	Rights-of-Way
DOT/OPS	49 USC 1671-1684	Natural Gas Pipeline Safety Act
NRC	42 USC 2011-2296	Atomic Energy Act of 1954
	42 USC 5801-5891	Energy Reorganization Act of 1974
DOI	16 USC 1271-1287	Wild and Scenic Rivers Act
DOI/BLM	43 USC 1761-1771	FLPMA
Grants and Loans Programs		
USDA/REA	7 USC 901-924	Rural Electrification Act of 1936
DOC/EDA		Planning Grants and Loan Programs
DOC/NOAA	16 USC 1451-1464	Coastal Zone Management Act of 1972, as amended
	40 CFR	Coastal Energy Impact Program

KEY FEDERAL PROGRAMS: Planning and Permit Coordination for Special Areas

Agency	Citation	Program/Statute
Planning Programs		
WRC	PL 92.500	Level B River Basin Commission Plans
		Clean Water Act of 1977 (Section 209)
EPA	PL 92.500/40CFR35, 130	Areawide water quality management plans - Section 208, FWPCA Amendments of 1972
COE		Dredged material research program
DOE		Urban studies program
COE		Wetland reviews
COE		Marina siting studies
COE		Shoreline erosion programs
BLM	PL 95.372	Intergovernmental planning program OCS Lands Act Amendments of 1978
SCS	PL 83.566	Small watershed program
EPA	40 CFR 51, 52	State Implementation Plans Section 110, Clean Air Act
HUD	PL 93.383/24CFR570	Community Development Block Grants Title I Housing and Community Development Act of 1974
HUD	PL 93.128/24CFR570.450	Urban Development Action Grants Title I Housing and Community Development Act of 1977

KEY FEDERAL: PROGRAMS: Planning and Permit Coordination for Special Areas (Continued)

Agency	Citation	Program/Statute
Regulatory/Regulatory Review Programs		
NMFS	PL 85.624/40CFR410	Fish and Wildlife Coordination Act
FWS	PL 91.190/40CFR1500	National Environmental Policy Act of 1969
COE	Several/33CFR320 plus 33CFR325	General Regulatory Policies and Processing of Permits of the COE
COE	33USC403/33CFR321	Permits for Dams and Pikes in Navigable Waters (Rivers and Harbors Act of 1899 - Section 9)
COE	33USC403/33CFR322	Permits for Structure or Work in or Affecting Navigable Waters (Section 10, River and Harbor Act of 1899)
COE/EPA	PL 92.500/33CFR323 40CFR230	Permits for Discharges of Dredged or Fill Materials into Waters of the U. S. (section 404, FWPCA)
EPA	PL 92.500	Interstate Cooperation and Uniform Laws (Clean Water Act - Section 103)
EPA	PL 92.500/40CFR230	National Pollution Discharge Elimination System (NPDES) (Section 402, Clean Water Act)
NMFS/MMC	PL 92.522	Marine Mammals Protection Act of 1972
NMFS/FWS	PL 93.205	Endangered Species Act of 1973

KEY FEDERAL PROGRAMS: Planning and Permit Coordination for Special Areas (Continued)

Agency	Citation	Program/Statute
Other Programs (Use Specific)		
DOT/USCG	PL 93.624	Deewpater Port Act of 1974
COE	PL 79.14	Protection, Cleaning and Straightening Channels ... (Section 3, Rivers and Harbors Act of 1899)
MARAD	PL 79.14	Development and Promotion Ports and Intermodal Transportation
HCRS	PL 89.665 PL 94-445	National Historic Preservation Act of 1966
HCRS	PL 88.578	Land and Water Conservation Fund Act of 1965
HCRS	PL 95.625	Urban Park and Recreation Recovery Program
NMFS	PL 94.265	Fishery Conservation and Management Act of 1976

Appendix B

Federal Acquisition Authority

There are many federal programs which may involve or authorize acquisition of wetlands and floodplains. The following list is intended merely to direct readers to programs of potential interest and to indicate the scope of acquisition authority of each egency. It is not a complete guide to federal programs which in some way affect the acquisition of wetlands and floodplains.

DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service

for further information, contact Larry Dunkeson, Land Acquisition Coordinator for Fish and Wildlife, U.S. Fish and Wildlife Service, Department of the Interior Building, Washington D.C. 20240. 202-294-3207

National Wildlife Refuge Administration Act
Migratory Bird Administration Act
Migratory Bird Hunting and Conservation Stamp Act
Wetlands Loan Act
Land and Water Conservation Fund
Refuge Recreation Act
Endangered Species Act
National Fish Hatchery Acts
Dingell-Johnson Act - provides for up to 75% of costs to states for wildlife management and recreation.
Pittman-Robinson Act - same as above.
Great Lakes Fisheries Act
Federal Water Project Recreation Act

Heritage Conservation and Recreation Service

for further information, contact John Tracht, Chief, Division of Federal Lands Planning, Heritage Conservation and Recreation Service, Department of the Interior, Washington D.C. 20240 202-343-7665.

Land and Water Conservation Fund Act - Provides funding for acquisition, in fee or of easements, of outdoor recreation areas, refuges, and other areas of ecological significance. Administered with Fish and Wildlife Service.
Wild and Scenic Rivers Act- Provides for acquisition of certain riverine areas.

DEPARTMENT OF COMMERCE
Office of Coastal Zone Management

for further information, contact JoAnn Chandler, Sanctuary Programs Office, OCZM, 3300 Whitehaven St. N.W. Washington D.C. 20235 202-634-1672.

Estuarine Sanctuary Program
Marine Research Protection and Sanctuaries Act

Appendix B (cont.)

Department of Housing and Urban Development

for further information, contact the Office of Community Planning and Program Coordination, U.S. Department of HUD, 451 7th St., S.W., Washington, D.C.20410 202-755-6226.

Housing and Community Development Act- Provides funds for community development and acquisition of open space, natural resources and scenic areas.

Federal Emergency Management Agency

for further information, contact Richard W. Krimm, Assistant Administrator for Flood Insurance, Federal Insurance Administration, FEMA, Washington, D.C. 20410.

National Flood Insurance Act- Section 1362 authorizes purchase of areas covered by flood insurance (not funded).

U.S. Army Corps of Engineers

for further information, contact Georgr Phippen, Office of the Chief of Engineers, Department of the Army, Washington, D.C. 20314, ATTN: DAEN-NWP-F; 202-693-1691.

Water Resources Development Act: Allows acquisition in fee or easements in floodplain areas.

Source: National Wetlands Newsletter, March 1979.