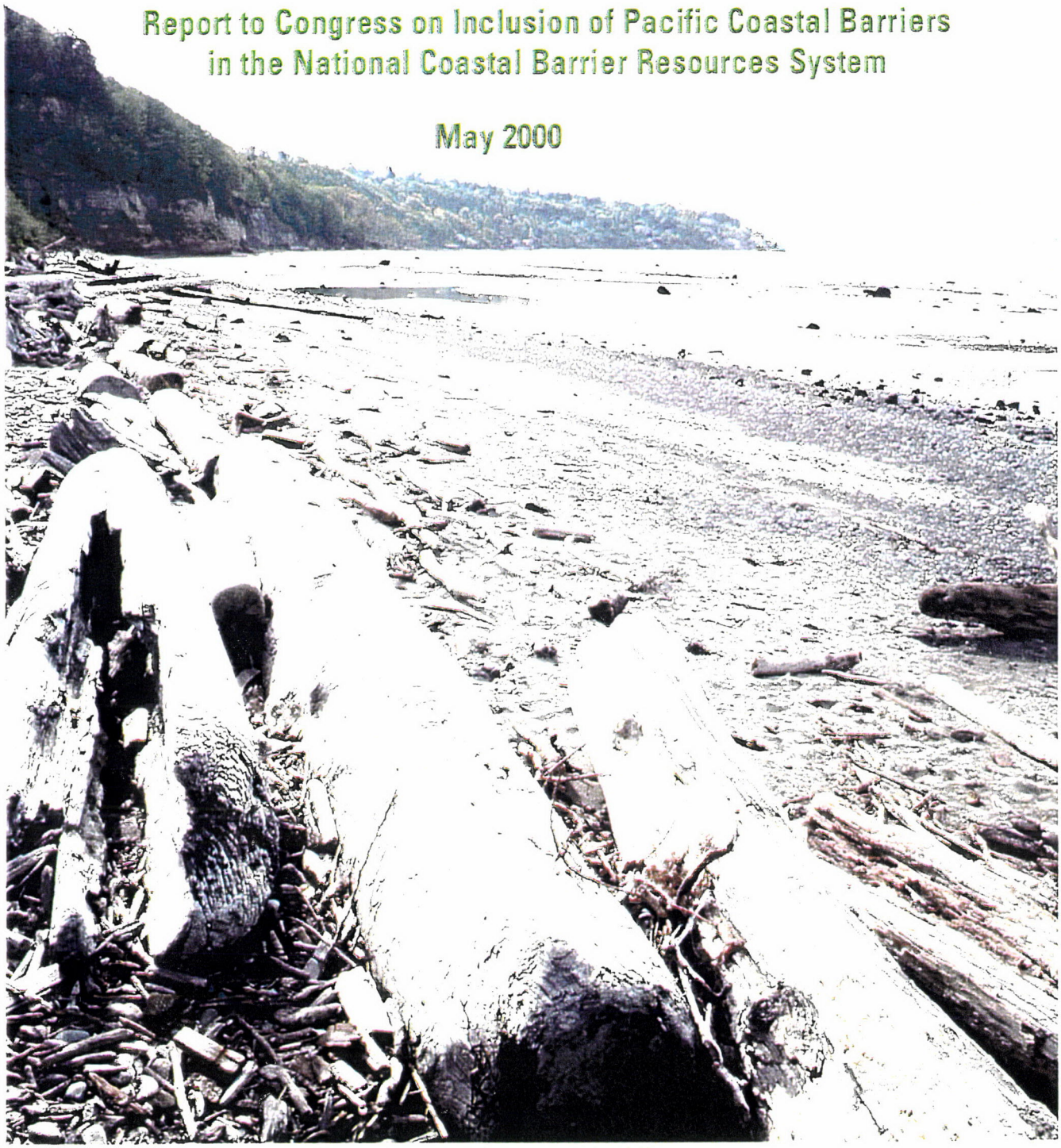
U.S. Fish and Wildlife Service

Coastal Barrier Improvement Act

Report to Congress on Inclusion of Pacific Coastal Barriers in the National Coastal Barrier Resources System

May 2000



Coastal Barrier Improvement Act

Report to Congress on Inclusion of Pacific Coastal Barriers in the National Coastal Barrier Resources System

As required by Section 6 of Public Law 101-591,
the Coastal Barrier Improvement Act of 1990

Prepared by the U.S. Fish & Wildlife Service

U.S. Department of the Interior
Washington, DC 20240

May 2000

EXECUTIVE SUMMARY

In 1990, the Coastal Barrier Improvement Act (Act), which amended the Coastal Barrier Resources Act of 1982, authorized the Department of the Interior (Department) to study the appropriateness of implementing the Act on the Pacific coast and U.S. territories south of 49 degrees north latitude. The Coastal Barrier Resources Act created the Coastal Barrier Resources System (System), which now includes undeveloped coastal barrier units along the Atlantic, Gulf of Mexico, and Great Lakes coasts. Most Federal expenditures in the System are prohibited by the Act, including development assistance, flood insurance, and disaster recovery.

In addition to expanding the System, the 1990 Act established Otherwise Protected Areas (OPAs), which are undeveloped coastal barriers protected by government or private interests. These areas are mapped similar to full System units, however, only Federal flood insurance is prohibited in OPAs. The intent of the Act was to reduce and eliminate Federal financial assistance for development in hazard-prone coastal barriers, thereby reducing (1) the potential for loss of human life, (2) the wasteful expenditure of Federal revenues, and (3) damage to fish, wildlife, and other natural resources.

The Act required that the Pacific coast study examine the degree to which inclusion of Pacific coastal barriers as full System units or OPAs would attain the intent of the Act, given:

1. The geologic differences of the Pacific coast compared to the Atlantic and Gulf coasts; and

2. The differences in extreme weather conditions along the Pacific coast compared to the Atlantic and Gulf coasts.

The Department directed the U.S. Fish and Wildlife Service (Service) to complete the study, map undeveloped coastal barriers on the Pacific coast, and make recommendations to Congress for protecting these areas. The Service mapped a total of 195 undeveloped coastal barriers in California, Hawaii, Oregon, and Washington. Alaska was excluded by Congress from the scope of the study. No areas were identified in any U.S. Pacific territories or possessions. The Service then examined whether inclusion of the eligible Pacific coastal barriers would meet the intent of the Act.

Unlike the Atlantic coast, the geological conditions of the Pacific coast limit the creation of landforms that meet the Act's technical definition of coastal barrier. Only about 6,300 acres of privately owned lands are eligible for inclusion in the System; about 1,800 acres of this total are fastland, which is considered developable. Another 99,000 acres are military lands or meet the definition of OPA. The dominant coastal features along the Pacific coast are cliffs and bluffs. Although cliffs and bluffs are susceptible to a significant proportion of the

Pacific's natural hazards, they are not eligible for inclusion as full System units or OPAs based on the criteria in the Act.

Pacific coastal barriers, unlike barriers on the Atlantic coast, do not bear the brunt of the region's predominant natural hazards. Hurricanes and tropical storms, the natural forces that cause devastation on the Atlantic coast, are rare along the Pacific coast. In contrast, erosion, seismic activity, and coastal riverine flooding are the primary threats to human life and property along the Pacific. Coastal barriers may be less susceptible to these natural hazards relative to other parts of the coastline.

To meet the objectives of Congress along the Pacific coast, the area of focus should expand beyond the Act's current definition of coastal barrier. The designation of the identified coastal barriers alone, without a comprehensive consideration of the full range of Pacific coastal hazards, would not demonstrably reduce the potential loss of human life, Federal expenditures for recovery, and damage to natural resources.

Given the significant geological and climatic differences between the Atlantic and Gulf coasts and the Pacific coast, the Service does not recommend including the eligible mapped coastal barriers in the System or as OPAs. The impetus of this decision is primarily the non-transferability of the current criteria established under the Act to the Pacific coast. The Service maintains that the intent of Congress under the Act to protect life, property, Federal tax dollars, and valuable fish and wildlife habitat is valid and appropriate for the Pacific coast; however, implementation of the existing law on the Pacific coast would produce limited benefits. To achieve the Act's desired effects along the Pacific coast, the legislation and defining criteria would need to be revised to address the Pacific coast's geologic, climatic, and biotic characteristics. Inclusion of the eligible coastal barriers alone will not significantly advance efforts to attain the objectives of Congress along the Pacific coast.

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1.0 Purpose of the Report to Congress

The purpose of this report is to recommend to Congress whether or not to implement the Coastal Barrier Resources Act of 1982 (P.L. 97-348) on the Pacific coast. The Act established the Coastal Barrier Resources System (System) on the Atlantic and Gulf coasts. The Coastal Barrier Improvement Act (Act) (P.L. 101-591), which amended the Coastal Barrier Resources Act in 1990, expanded the System to include coastal barriers along the Great Lakes and additional areas along the Atlantic and Gulf coasts. The 1990 Act also established Otherwise Protected Areas, which are undeveloped coastal barriers protected by government or private interests. Section 6 of the Act required the Department of the Interior (Department) to study the appropriateness of including undeveloped coastal barriers along the Pacific coast south of 49 degrees north latitude into the System. Congress excluded Alaska from the study.

Section 6 of the Act required:

- A study examining the need to protect undeveloped Pacific coastal barriers through inclusion in the System. (Completed in 1993 - Draft Pacific Coastal Barriers Study.)

- Maps identifying boundaries of undeveloped coastal barriers. (Drafted in 1993, with technical revisions completed in March 1994.)

- Recommendations to Congress as to which areas, if any, would be appropriate for inclusion in the System. (Study results are presented in this 1999 Report to Congress.)

The Act required the study to examine the potential for loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources given:

- The geologic differences between Pacific coastal barriers and those on the Atlantic and Gulf coasts; and

- The differences in extreme weather conditions along the Pacific coast compared to the Atlantic and Gulf coasts.

The U.S. Fish and Wildlife Service (Service), directed by the Department, conducted a study and mapped coastal barriers that fit the criteria established under the Act on the coasts of California, Hawaii, Oregon, and Washington (including Puget Sound). No areas that fit the Act's criteria were identified in other islands or U.S. possessions in the Pacific. This report summarizes the background information on the study and mapping of Pacific coastal barriers. It describes the physical, biological, social, and economic factors considered in evaluating the need to include undeveloped coastal barriers on the Pacific coast into the System. It describes the public involvement process and makes recommendations to Congress. The appendices to this report include the complete list and general location of the mapped areas, a summary of

public involvement activities, an environmental evaluation that contains more detailed information on the assessment of the Act's implementation, and a copy of the 1990 legislation.

2.0 Background

This chapter describes the history and current status of the Act, the mapping of Pacific coastal barriers, types of Pacific coastal barriers, and the public involvement process. More detailed information is available in Appendix B (Public Involvement Summary) and Appendix C (Environmental Evaluation), as well as the 1993 Draft Pacific Coastal Barrier Study, referred to as the 1993 Study (Service 1993), and technical reports on Pacific and Hawaiian coastal environments (Hedgpeth 1988, Holthus 1988). Information about Atlantic coastal references was obtained primarily from the Coastal Barrier Task Force Reports (Department 1983 and 1988).

2.1 History and Current Status of Coastal Barrier Legislation

Coastal barriers are unique landforms that protect diverse aquatic habitats and serve as the coast's first line of defense against coastal storms and erosion. This is especially significant along the Atlantic and Gulf coasts where coastal barriers are found along large portions of the coastline. Coastal barriers also occur in scattered locations along the Pacific coast. Most barriers consist entirely of unconsolidated sediment and are highly unstable areas on which to build. Nonetheless, coastal barriers have been subject to development pressures over the last several decades. This trend is expected to continue nationally because coastal areas include some of the most desirable areas for residential and commercial development.

Development on coastal barriers often results in adverse impacts to natural resources and creates threats to public safety and property from flooding, storms, tsunamis, erosion, and other natural catastrophes. The occurrence of hazards in these developed areas has led to large Federal expenditures for community disaster relief and individual flood insurance.

Congress recognized that the Federal government plays contradictory roles in managing coastal resources. The Federal government provides financial assistance through various programs that aid development, including cost-sharing programs for infrastructure improvements, federally assisted financing, and national flood insurance. These programs are generally available anywhere in the United States, including high-risk coastal barrier areas. As a result, the Federal government has been assisting in the development and post-storm recovery of environmentally sensitive coastal barriers. At the same time, however, the Federal government has taken an increasingly broad role in protecting natural resources and human life, including those in coastal settings.

Congress addressed this contradiction by passing the Coastal Barrier Resources Act in 1982 (P.L. 97-348). The intent of the Act is to minimize wasteful Federal expenditures, the risk of human loss of life and damage to property, and damage to natural resources. The Act established the Coastal Barrier Resources System, a set of identified undeveloped coastal barrier units on the Atlantic and Gulf of Mexico coasts, and prohibited the Federal government from

expending Federal funds, with certain exceptions, within these designated units. The coastal barrier units designated by Congress are depicted on a set of maps held by the Service.

Undeveloped coastal barriers are described in the Act as:

- A generally depositional geologic feature that: (1) is subject to wave, tidal, and wind energies; and (2) protects landward aquatic habitats from direct wave attack; and

- All associated aquatic habitats, including adjacent wetlands, marshes, estuaries, inlets, and near-shore waters, but only if such features and associated habitats contain few manmade structures and these structures, and associated human activities within such habitats, do not significantly impede geomorphic and ecological processes.

The Act imposed Federal financial restrictions, with certain exceptions, in all coastal barrier units in the System. These restrictions include, but are not limited to, loans, grants, insurance, and other cost-sharing subsidies. Federal funds can be provided for certain exempted activities including:

- Energy projects that can be carried out only on, in, or adjacent to coastal waters;
- Improvements to existing, but not construction of new, navigation channels;
- Existing road and utility maintenance, replacement, reconstruction, or repair;
- Military activities essential to national security; and
- Construction, maintenance, operations, and rehabilitation of U.S. Coast Guard facilities.

Discussions of these and other specific, limited exemptions are presented in Appendix B (Public Involvement Summary).

Under the Act, before any Federal agency can make an expenditure within a designated coastal barrier unit, that agency must first consult with the Service to obtain a boundary determination and comments regarding the project's consistency with the Act. The final determination, however, rests with the lead or financing agency, who will need to certify consistency with the Act as a compliance requirement.

In 1990, Congress amended the Coastal Barrier Resources Act with the passage of the Coastal Barrier Improvement Act (P.L. 101-591). The 1990 Act expanded the System to include units along the Great Lakes coast and added additional areas on the Atlantic and Gulf coasts. In addition, the Act prohibited the provision of Federal flood insurance to certain coastal barrier areas protected by Federal, state, local, or private interests for conservation purposes. These otherwise protected areas (OPAs) are identified on official maps held by the Service. The consideration of OPAs more than doubled the acreage of coastal resources affected by the Act.

Congress also perceived the need to explore the possibility of expanding the System to the Pacific coast. Section 6 of the Act directed the Department, through the Service, to examine the appropriateness of expanding the System to include undeveloped coastal barriers along the Pacific coast south of 49 degrees north latitude. This region excludes Alaska, but includes

California, Hawaii, Oregon, Washington, American Samoa, Guam, the Northern Mariana Islands, and all other U.S. territories and possessions in the Pacific Ocean. In 1993, the Service conducted a study of Pacific coastal barriers, mapped the areas, and submitted a draft report to Congress (1993 Study) (FWS 1993).

On the Pacific coast, 55 of the 195 mapped areas identified in the 1993 Study are composed entirely of OPA or military lands. In addition, 74 of the areas are OPAs with some private inholdings. Approximately 94 percent of the total area of mapped coastal barriers on the Pacific coast are OPA or military lands. Regardless of the high percentage of OPAs and the relatively small amount of privately held lands included in Pacific coastal barriers, the Service drafted a recommendation that all 195 mapped areas be included in the System (FWS 1993). This recommendation was inconsistent with the Act, as the System and OPAs are considered differently. Although OPAs are denied Federal flood insurance, they are not denied other forms of Federal financial assistance. It is assumed, however, that their protected status excludes them from normal development pressure, rendering the prohibition of other forms of Federal assistance unnecessary.

The controversy raised by this draft recommendation and other public concerns led the Service to prepare an environmental impact statement (EIS) under the National Environmental Policy Act (NEPA) to analyze the potential environmental impacts if this recommendation were to be implemented by Congress. During the NEPA public involvement process, the non-transferability of the current definition of coastal barrier to the Pacific coast became clear.

Both opponents and proponents of expanding the Act to the Pacific coast agreed that the criteria for undeveloped coastal barriers established for the Atlantic and Gulf coasts do not reflect the hazards, geology, morphology, and ecology of the Pacific coast. Supporters argued that landforms other than coastal barriers were at least as hazardous and critical along the Pacific coast, including headlands, bluffs, deflation plain wetlands, coral reefs, historical and restored Hawaiian fishponds, and anchialine pools, which are exposed groundwater pools in a specific substrate. Opponents stated that some of the mapped coastal barriers are not particularly hazardous locations relative to other coastal landforms in the same locale; therefore, inclusion of these landforms as full System units or OPAs was not prudent. It was suggested repeatedly that the criteria be modified to reflect: (1) the unique geology and weather patterns of the Pacific coast and (2) the landforms typically affected by coastal hazards. The current definition of coastal barrier does not appear to adequately reflect the portions of the Pacific coast where hazards predominate.

Based on this information, the Service determined that including the mapped Pacific barriers in the System or as OPAs would not adequately address the intent of Congress, which resulted in termination of the NEPA process. The information obtained in the scoping process was considered in the development of the recommendations found in Section 4.0. The Service prepared this report and its appendices to summarize the available information regarding Pacific coastal barriers.

2.2 Mapping Undeveloped Coastal Barriers

In mapping undeveloped coastal barriers, the Service considered the definitions and technical criteria provided in Section 2 of the Coastal Barrier Resources Act and the revised criteria published in the Federal Register on March 4, 1985 (50 FR 8698). In 1993, the Service mapped undeveloped coastal barriers that met the following criteria:

- Areas contained fewer than one structure per five acres of fastland;
- The shoreline of the barrier was at least 0.25 mile long;
- The barrier was generally depositional or the barrier consisted of fringing mangroves in association with coral reefs; and
- The barrier protected associated aquatic habitats (FWS 1993).

Each mapped area included all undeveloped coastal landforms that fit the criteria regardless of existing land use, ownership, or protection status. The Service made technical revisions to the proposed unit boundaries and prepared revised maps in 1994.

The Service identified and mapped 195 undeveloped coastal barriers that met the definitions described in the Act. Potential units were identified in California, Hawaii, Oregon, and Washington. No areas meeting the legislative definition of a coastal barrier were identified in American Samoa, Guam, the Northern Mariana Islands, or other U.S. territories and possessions in the Pacific. Most of the 195 coastal barriers contain lands designated for conservation purposes, such as national, state, or local parks or wildlife refuges, or private lands owned by a conservation organization such as The Nature Conservancy. Table 2-1 shows the breakdown of coastal barrier ownership.

2.3 Description of Pacific Coastal Barriers

According to the established criteria, Pacific coastal barriers can be categorized as one of the following: barrier spits, bay barriers, tombolos, sand dunes/beach barriers, and fringing mangroves. In comparison to the Atlantic coast, the Pacific coast generally lacks the more extensive depositional barrier feature types, such as barrier islands and cheniers. Pacific coastal barriers are usually relatively short spits near river mouths and beach barriers between the extensive rocky headlands and bluffs.

The coastal barriers and their associated aquatic habitat along the Pacific coastline are shaped by the common yet varying magnitudes of wind, waves, tides, currents, littoral drift, and river flow.

Table 2-1. Number and area of mapped coastal barrier units by State.

State/Unit Attributes	No. of Units	Fastland[1]			Associated Aquatic Habitat[2]			Total Area		
		Acres	Square Miles	Percent (of Total)	Acres	Square Miles	Percent (of Total)	Acres	Square Miles	Percent (of Total)
California										
Full OPA	24	1,773	2.77	4.7%	5,752	8.99	15.2%	7,525	11.76	19.9%
Full Military	5	769	1.20	2.0%	2,519	3.94	6.7%	3,288	5.14	8.7%
Mixed Ownership[3]	27	7,524	11.76	19.9%	19,103	29.85	50.5%	26,627	41.60	70.4%
Full Private	7	147	0.23	0.4%	251	0.39	0.7%	398	0.62	1.1%
Total	63	10,213	15.96	27.0%	27,625	43.16	73.0%	37,838	59.12	100.0%
Hawaii										
Full OPA	3	21	0.03	0.4%	273	0.43	5.1%	294	0.46	5.5%
Full Military	1	67	0.10	1.3%	360	0.56	6.8%	427	0.67	8.1%
Mixed Ownership[3]	14	298	0.47	5.6%	2,946	4.60	55.5%	3,244	5.07	61.2%
Full Private	17	317	0.50	6.0%	1,022	1.60	19.3%	1,339	2.09	25.2%
Total	35	703	1.10	13.3%	4,601	7.19	86.7%	5,304	8.29	100.0%
Oregon										
Full OPA	3	1,318	2.06	3.1%	4,453	6.96	10.5%	5,771	9.02	13.6%
Full Military	0	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
Mixed Ownership[3]	21	10,772	16.83	25.3%	25,238	39.43	59.4%	36,010	56.27	84.7%
Full Private	4	283	0.44	0.7%	443	0.69	1.0%	726	1.13	1.7%
Total	28	12,373	19.33	29.1%	30,134	47.08	70.9%	42,507	66.42	100.0%
Washington										
Full OPA	14	530	0.83	2.8%	3,109	4.86	16.2%	3,639	5.69	19.0%
Full Military	5	106	0.17	0.6%	470	0.73	2.5%	576	0.90	3.0%
Mixed Ownership[3]	12	3,322	5.19	17.3%	7,788	12.17	40.6%	11,110	17.36	58.0%
Full Private	38	1,042	1.63	5.4%	2,798	4.37	14.6%	3,840	6.00	20.0%
Total	69	5,000	7.81	26.1%	14,165	22.13	73.9%	19,165	29.95	100.0%
TOTALS										
Full OPA	44	3,642	5.69	3.5%	13,587	21.23	13.0%	17,229	26.92	16.4%
Full Military	11	942	1.47	0.9%	3,349	5.23	3.2%	4,291	6.70	4.1%
Mixed Ownership[3]	74	21,916	34.24	20.9%	55,075	86.05	52.5%	76,991	120.30	73.5%
Full Private	66	1,789	2.80	1.7%	4,514	7.05	4.3%	6,303	9.85	6.0%
Total	195	28,289	44.20	27.0%	76,525	119.57	73.0%	104,814	163.77	100.0%

Source: FWS files

[1]Fastland is non-wetland.

[2]Associated Aquatic Habitat includes open water and wetlands.

[3]Individual units of mixed ownership include OPA and/or Military lands, as well as private inholdings The acreage/sq miles of private inholdings in these units is unknown.

The sand dunes and beach barriers along the Pacific coast are formed from sediments primarily derived from eroded materials of cliffs, bluffs, and other coastal formations by wave attack, and from sediment accumulation from outflow of rivers (Cooper 1958, Hedgpeth 1988, Shipman and Canning 1993). Sediment is moved along the coast by littoral currents. As a spit is formed by sediment deposition, waves and tides carry sand and silt over and around the spit into the bay on the landward side of the barrier, developing wetlands. Where sufficient wind, tidal, and wave energies, and an adequate supply of sediment exist, secondary coastal barriers occasionally develop on the mainland side of large bays or lagoons behind coastal barrier systems. Secondary barriers often occur in large sheltered areas such as the Puget Sound of Washington.

The distribution and formation of Pacific coastal barriers are affected by a combination of geological and climatic factors. Major storm waves from winter and trans-Pacific storms are the primary forces that move sediment from one location to another. Another climatic pattern that uniquely affects the formation of Pacific coastal barriers is the occurrence of irregular strong El Nino-Southern Oscillations. These phenomena can increase shoreline erosion by moving sediment to the north over a several-year period (Phipps 1990, FWS 1993). Heavy rainfall combined with steep topography, low bedrock permeability, and extensive floodplains cause flooding and landslides in coastal areas, which erode coastal terraces and produce bluff retreat. Some of this sediment is then deposited on coastal barriers.

Long-term variations in sea level also play a role in the development and elimination of Pacific coastal barriers. The rise in water level since the last Ice Age has flooded offshore terraces at various elevations. Although this sea-level rise has slowed, scientists predict the sea level could rise from 0.7 to 11 feet by the year 2100 (Hecht 1990, DOI 1983). The increased sea level could lead to more coastal erosion, caused by increased storm frequency and severity. In comparison, sea-level rise on the shallower and broader Atlantic continental shelf often results in substantial landward horizontal migration of coastal barriers (DOI 1983). This is less likely on the Pacific coast, which has a narrow continental shelf and is bordered by steep bluffs and cliffs along much of the coastline. Instead, most barriers would be submerged by continued sea-level rise, eliminating beaches, coastal wetlands, and reefs (Titus 1985, Kana et al. 1986, FWS 1993).

When allowed to fluctuate naturally, the coastal dynamics described above ensure the continued formation and maintenance of the coastal barrier system. When humans alter these processes by developing directly on coastal barriers, undertaking shoreline protection and stabilization efforts, and constructing and maintaining navigation channels, ports, and dams on tributary rivers, they reduce the ability of coastal barriers to adjust to environmental forces. This can lead to the destruction of the structures on the barrier and the coastal barrier itself (CBSG 1988). Shoreline stabilization projects can result in armoring, beach erosion, and reduced sediment transport, which not only affect coastal barriers, but other coastal landforms as well (WDOE 1992, Canning and Shipman 1995).

Coastal barrier types differ significantly throughout the four states subject to the study. In Washington, within Puget Sound, the typical depositional features are much smaller than along the rest of the coast because of lower wave energy plus smaller island shorelines. The coastline

near the mouth of the Columbia River supports extensive beaches and dunes covering more than 50 miles (Phipps 1990, Hedgpeth 1988). Interspersed among the rocky headlands, pocket beaches, and river bay mouths of the Oregon coast are several series of coastal sand dunes and bluffs that protect inland freshwater lakes. In California, coastal plains with steep beaches and a series of lagoons at stream mouths are more common (Hedgpeth 1988).

In Hawaii, relatively few depositional coastal barriers exist, as nearly all barriers are located in now flooded stream-cut valleys that support wetlands and bay-mouth barriers (Holthus 1988). Biologically derived sediments produced from the calcareous skeletons of corals and other organisms also contribute to the production of coastal barriers (FWS 1993). A number of mapped undeveloped coastal barriers are included because they support fringing mangroves, a non-native species in Hawaii used to identify coastal barriers on some portions of the Atlantic and Gulf coasts. The issues associated with including fringing mangroves in the System are addressed in detail in Appendix C.

2.4 Public Involvement Process

This report was prepared after extensive agency consultation and public involvement. Approximately 700 comments from the public were received regarding the 1993 Study and maps, and 150 comments were received in response to a formal scoping process for preparation of an Environmental Impact Statement on the potential expansion of the Act to the Pacific coast. (The EIS is no longer being prepared; see Section 2.1.) The comments were received in response to two Federal Register notices and 1,300 newsletters mailed to individuals on the project mailing list (see Appendix B). The comments received from Federal, State, and local agencies, governors of the affected States, and the public during review periods for the 1993 Study and maps, as well as the formal scoping period in 1995, provided important information in preparing this report and its recommendations.

In addition to the public involvement process, the Service has coordinated closely with State Coastal Zone Management programs. The Public Involvement Summary (Appendix B) identifies issues raised by the public and Federal, State, and local agencies. Both supporters and proponents of expanding the System recognized the inadequacy of merely transferring the Atlantic and Gulf coast definition of coastal barrier to the Pacific. The key issues included:

- Adequacy of technical criteria used to map areas
- Area boundary discrepancies
- Treatment of OPAs
- Section 6 of the Act (Exceptions)
- Treatment of Tribal lands
- Community economic impacts

- Various other site-specific issues

The primary issues identified by Section 6 of the Act, as well as the issues identified above, are addressed in the appendices of this report.

3.0 Factors Affecting the Need to Protect Undeveloped Pacific Coastal Barriers

This section addresses the extent to which the mapped Pacific coastal barriers require additional protection by including them in the System or as OPAs. Three primary factors were considered in evaluating the need to extend the Act's protection to the Pacific coast: (1) anticipated development based on economic, population, and demographic trends; (2) existing regulations that would control, limit, or alter future development plans; and (3) the geologic and climatic conditions that would make development subject to hazards, thereby increasing the potential for loss of human life, wasteful expenditures of Federal revenues, and damage to fish, wildlife, and other natural resources.

3.1 Existing Development and Future Trends

This section discusses the existing development conditions for Pacific coastal barriers and anticipated future trends. Topics include ownership of coastal barriers, land use and development trends, and population and demographic trends.

3.1.1 Ownership of Coastal Barriers

Three types of ownership have been identified for coastal barriers: military, private, and otherwise protected areas (OPAs), which are lands designated for conservation use. (See Section 2.2 in Appendix C.) In many cases, the ownership of a particular area is mixed, including privately owned lands within lands owned by the military or an OPA.

The Pacific coast has substantially less privately owned fastland that fits the existing definition of coastal barrier, as compared with the Atlantic/Gulf coasts. About 1,800 acres of fastland in the mapped areas are privately owned and eligible for inclusion in the System. In contrast, the Atlantic and Gulf coasts have over 167,000 acres of private fastland currently included in full System units. This total does not include private inholdings within OPAs.

3.1.2 Land Use and Development Trends

By definition, the identified areas along the Pacific coast are undeveloped. A large percentage of the land included in these areas is under conservation status and used for parks, wildlife refuges, and other similar uses. In addition, much of the land is currently used by a branch of the United States military and is outside the normal cycle of development. (See table 2-1 of Appendix C.)

In general, coastal areas have been under increasing development pressure for several decades. Changes in the economies of the four States (California, Hawaii, Oregon, and Washington) have increased the importance of tourism, resulting in greater emphasis on tourism development such as recreational facilities, hotels, and second homes. The desirability of coastal locations, based

on their scenic amenities, is the primary impetus for this trend, which is fairly uniform throughout the Pacific coast and not limited to areas that constitute coastal barriers. In fact, much of the development is occurring on the extensive coastal bluffs and dunes, which are often geologically unstable and environmentally sensitive. Such bluffs and high dunes, however, do not meet the Act's definition of a coastal barrier. In contrast, along the Atlantic and Gulf coasts, long stretches of land are coastal barriers and development has focused on these areas.

3.1.3 Population and Demographic Trends

Population Changes

All four States have grown rapidly in recent decades with the combined total population increasing by about 20 percent between 1970 and 1980, and by 23 percent between 1980 and 1990 (U.S. Bureau of the Census 1992). During the same periods, total population in the United States as a whole increased by 11 percent and 10 percent, respectively. Thus, population growth in the four States is increasing at a much more rapid pace than that of the Nation as a whole.

Population in the counties that contain the proposed coastal barriers increased by 15 percent between 1970 and 1980 and by 20 percent between 1980 and 1990 -- rates less than the affected States as a whole, but still much higher than that of the Nation. This suggests that, in these States, development pressure is generally higher in non-coastal counties. While most individual coastal counties have grown rapidly over the past two decades, some counties have experienced lower rates of growth in recent years, and two counties (in Oregon and Washington) have experienced a decrease in population. Although many coastal counties are growing rapidly, the growth is generally spread throughout the counties and concentrated in existing urban or developed areas. No data exist that indicate the proposed Pacific coastal barriers are under exceptional population pressures. More detailed discussion of population growth by State appears in Appendix C.

Demographic Changes

In general, the demographic distribution of the Nation's population reflects increased percentages of older persons, with the number of retirees increasing. As a result, development patterns are changing, with an increase in development designed for retirees. As especially noted in portions of Washington and Oregon, the coastal areas are often highly valued for their amenities as retirement locations. Changes in household size also are affecting coastal development patterns. In general, average household size is decreasing. As a result, even in an area with low overall population growth, the number of individual households may still increase. Increased numbers of households create a greater demand for housing and, therefore, greater development pressure.

These demographic changes indicate that more development is likely in coastal counties. The increase in the populations of retired persons in coastal counties is particularly likely to increase development pressure on coastal locations. This development pressure, however, will likely be distributed along the entire coast wherever coastal amenities are available and not focused on the limited areas included in mapped coastal barrier units. High amenity values are available on a

wide variety of landforms that do not meet the definition of a coastal barrier. If current trends continue, development pressure in non-coastal counties will remain higher than in coastal counties.

3.2 Existing Regulations

Although no existing laws specifically apply to Pacific coastal barriers as defined in the Act, a wide range of Federal, State, and local regulations affect development and activities in coastal areas, including coastal barriers. These regulations typically limit development that is destructive to the environment, although certain developments are permitted if impacts can be mitigated.

Federal Laws and Regulations

Various Federal laws and regulations can affect development along the coast. For example, the Coastal Zone Management Act (1972) established a voluntary State program to develop and implement coastal zone management plans. All four affected States have federally approved plans. The National Environmental Policy Act (1970), the Clean Water Act (1972), the Rivers and Harbors Act (1899), and the Endangered Species Act (1973) are other examples of Federal laws that can affect development along the coast.

State and Local Laws and Regulations

The four States have a variety of regulations that affect development on coastal barriers. In addition to the State laws, coastal resources are often afforded additional protection at the county or city level (e.g., sensitive area ordinances). Most coastal management regulations are administered at the local level. More detailed information on the State laws and regulations affecting coastal barriers appears in Appendix C, Section 3.2.

Each of the four States has established programs to implement their coastal zone management plan. For example, the California Coastal Management Program is administered by the California Coastal Commission. Local government coastal programs implement the plan in coordination with the Commission. Other State laws mirror Federal laws, but incorporate regulations that address the concerns of individual States. For example, the Oregon Endangered Species Act regulates activities that may affect species of concern within the State. Washington's State Environmental Protection Act requires full disclosure and consideration of the environmental impacts of a project within the State. Other laws, like Hawaii's shoreline setback requirement, restrict development to a certain distance from the mean high-water tide line to protect structures and preserve beaches.

3.3 Differences Between Pacific and Atlantic/Gulf Coasts

The Pacific and Atlantic/Gulf coasts have significant differences in climate and geology, with implications regarding the hazards to coastal barriers. The coastal geography and topography of the Pacific coast, along with the volcanism of Hawaii, severely limit the distribution and extent

of coastal barrier areas that meet the Act's criteria, especially when compared to the expansive barrier system on the Atlantic and Gulf coasts.

3.3.1 Geological Hazard Differences

Two principal types of geological hazards could affect Pacific coastal areas: erosion and seismic activity. The most frequent is erosion or landslides caused by heavy precipitation and compounded by human development in river floodplains and on bluffs and coastal hillsides. While landslides typically do not pose direct hazards to coastal barriers, coastal erosion does play an important role in sediment supply for coastal barrier formation. In general, however, erosion on the Pacific coast is not as severe as erosion on the Atlantic and Gulf coasts. The U.S. Geological Survey, in their National Atlas, Shoreline Erosion, and Accretion map (USGS 1985), reported that most of the Pacific coast is experiencing moderate or low rates of erosion, while significant portions of the Atlantic and Gulf coasts have severe erosion problems. Although there are several sites along the Pacific coast that experience severe erosion, they are not included in the Pacific coastal barrier inventory because the existing criteria do not capture cliffs, bluffs, and other predominant Pacific coast landforms.

Seismic activity along the Pacific coast could result in coastal surges and tsunamis that pose significant hazards to development on coastal barriers and other areas near the coast. Seismic activity also causes ground shaking, subsidence, and liquefaction which can affect coastal and inland areas. Tsunamis are rare along the mainland (the last significant tsunami to hit the mainland was in 1964). Six tsunamis have hit Hawaii since 1946. Tsunamis have caused substantial damage well outside of coastal barriers.

3.3.2 Climatic Hazard Differences

Climatic hazards are much more pervasive on the Atlantic coast than on the Pacific coast. Hurricanes and "nor'easters" can result in flooding tidal surges and waves over 20 feet high that can cause substantial damage to coastal areas. Much of the Atlantic coast is hit with predictable frequency by hurricanes and tropical storms; Florida alone was hit by 57 hurricanes from 1900 through 1996 (National Oceanic and Atmospheric Administration, 1997). Overall, the Atlantic/Gulf coasts were hit by 158 hurricanes and tropical storms between 1900 and 1996. The repetitive occurrence of hurricanes and nor'easters has resulted in substantial Federal expenditures for disaster relief and rebuilding, which can reach several billion dollars for an individual storm. During this same period, Hawaii was hit by 12 and southern California by 5 severe storms.

The Pacific coast is typically most affected by winter storms called "Aleutian lows" that bring heavy rains, storm surges, and strong south to southwesterly winds. These Pacific coast storms have the capacity to cause substantial beach erosion/accretion, but do not cause the same amount of destruction as Atlantic storms. Freshwater flooding along coastal streams, however, is a relatively frequent problem and has resulted in property damage, loss of life, and degradation of natural ecosystems outside of the identified Pacific coastal barriers.

3.4 Effects of Implementing Coastal Barrier Legislation on the Pacific Coast

As summarized in Sections 1.0 and 2.0 of this report, the Coastal Barrier Improvement Act required the Department to study the potential effects of implementing the Act on the Pacific coast. The Act is non-regulatory and discourages coastal development by withholding Federal financial assistance rather than imposing direct restrictions. The operative scenario for determining potential effects assumes that the prohibition of Federal expenditures would affect the development process. By denying Federal financial assistance for development, such as assistance for road and bridge construction or wastewater treatment facilities, the costs of development would fall on other sources, either private developers, property owners, or State or local governments. The rationale assumes that neither State or local governments nor private interests would be willing or able to replace the full level of Federal financial assistance. Therefore, fewer developments on coastal barriers would occur.

The Act also denies access to Federal flood insurance, causing developers and/or private property owners to seek private flood insurance. It is assumed that without Federal flood insurance, few private financial institutions would be willing to extend financing, given the high risk of coastal development. As a result, financing for development on coastal barrier units would be more difficult and expensive to obtain or, in some cases, impossible to obtain. Presumably, the increased costs reduce development.

Evidence from System units on the Atlantic and Gulf coasts indicates that any future development that does occur is usually high-cost development by wealthy individuals or large developers who can afford the costs and risks associated with unassisted development and the lack of Federal flood insurance (DOI 1988). Furthermore, a study by the General Accounting Office (GAO) in 1992 that revisited several System units on the Atlantic and Gulf coasts discovered that, despite the prohibitions against Federal assistance, development continued on some units. The GAO also found that some units were not likely ever to be developed because of access problems and the lack of developable land (GAO 1992). This trend would likely occur on the Pacific coast if the System were expanded, so that some privately held units would remain undeveloped while development on others would be characterized by high-cost development.

The primary issue to be addressed is whether including the Pacific barriers in the System meets the Congressional intent of the Act:

- To reduce the potential for loss of human life;
- To reduce wasteful expenditure of Federal revenues; and
- To reduce damage to fish, wildlife, and other natural resources.

Each of these issues is addressed below.

3.4.1 Potential for Loss of Human Life

As noted above, Pacific coastal barriers are subject to a wide range of hazards that create the potential for the loss of human life, including storms, landslides, floods, earthquakes, and tsunamis. If the identified Pacific coastal barriers were developed, the property and residents of these areas would be subject to risks associated with Pacific coastal hazards. However, it is not clear that Pacific coastal barriers are more vulnerable than other parts of the coast. Other more predominant areas of the Pacific coast like cliffs and bluffs would remain subject to development; these areas may be as hazardous or possibly more hazardous than coastal barriers.

In addition, given the low amount of private fastland available and the existing regulations that prevent development in sensitive and unstable areas, the actual development prevented if the coastal barriers are included would be minimal. Based on available information, the potential for reducing public safety risks appears to be low. Implementation of the Act on the Pacific coast would have little impact on reducing loss of life.

This finding is different from the Atlantic and Gulf coasts. On those coasts, the primary threat is associated with frequent climatic events such as strong hurricanes and severe winter storms that flood large areas of developed coastal barriers and other low-lying areas. On the Pacific coast, however, the primary hazards are geologic in nature, such as erosion, landslides, earthquakes, or tsunamis, which can affect major portions of coastline and are not limited to coastal barriers.

3.4.2 Wasteful Expenditure of Federal Revenues

The types of Federal expenditures addressed by the Act generally relate to development assistance and disaster relief. Appendix C discusses several of the available Federal spending programs that would be affected.

The Federal Emergency Management Agency (FEMA) is responsible for distributing most Federal disaster relief funds. However, FEMA does not categorize its national flood insurance expenditures by geographic location beyond the county level. Disaster relief expenditures pursuant to the Stafford Act, a 1988 law that provides Federal funds to rebuild communities affected by national disasters, are categorized for each State by individual disaster event. The existing data do not indicate what amount of disaster relief was spent on coastal barriers versus other areas.

The magnitude of reduction in Federal expenditures to be realized by including Pacific coastal barriers in the System or as OPAs is unclear. Coastal barriers on the Atlantic and Gulf coasts are subject to periodic and repeated assaults by hurricanes. The destructive power of these storms is often focused on coastal barriers, many of which are highly developed. On the Pacific coast, however, the hazards are not necessarily focused on coastal barriers. Seismic disturbances, landslides, flooding, and other Pacific coast hazards occur over wide areas that may or may not include the mapped coastal barriers. Because only 1,800 acres of privately owned fastland are eligible for inclusion in the System, the Federal savings of extending the Act to the Pacific coast would be minimal.

3.4.3 Damage to Fish, Wildlife, and Other Natural Resources

The mapped coastal barriers support a diversity of natural ecosystems and biota (invertebrates, fish, wildlife, and plants) that may be adversely affected by development. The beach, estuarine and palustrine wetlands, and marine ecosystems, along with numerous species that use them, would benefit from the implementation of the Act on the Pacific coast. These benefits could also apply to some of the 93 wildlife and 62 plant species that are either federally listed under the Endangered Species Act, proposed to be listed, candidates for listing, or otherwise at risk that potentially occur in the mapped areas, especially those that heavily rely on habitats found in coastal barriers. (See Appendix C.) However, numerous other species that are situated along the majority of coastal landforms would not receive the same protection.

The relative effectiveness of the Act in minimizing impacts to these important resources would be marginal because of the following:

- Most of the sensitive sites in the mapped areas are either in OPA status or are within the purview of one or more Federal, State, or local regulations that would preclude most development. For example, development in wetlands or other aquatic habitat is regulated by Section 404 of the Clean Water Act; federally listed species and their habitats are protected by the Endangered Species Act; and shorelands are managed according to State Coastal Zone Management regulations and local zoning laws. Though no current legislation explicitly considers coastal barriers, existing policies afford some protection of natural resources associated with these landforms.

- Many of the existing threats to the integrity of mapped coastal barriers are caused by development outside of the areas, which would not be affected by the Act's implementation. Development on bluffs, cliffs, rivers and river floodplains, shoreline armoring, and other coastal engineering structures can substantially alter sediment availability and longshore drift, depriving coastal barriers of sediment and causing irreversible changes in ecosystems.

- Other landforms that support important fish and wildlife resources and that are geologically unstable or susceptible to coastal hazards are not protected by the Act. These include depositional barriers less than 0.25 mile long, dune systems higher than 20 feet above mean high water, bluffs, cliffs, Hawaiian lagoons and embayments protected by coral reefs without fringing mangroves, Hawaiian exposed groundwater pools, and coastal landforms such as sand beaches without landward associated aquatic habitat.

4.0 Recommendations

This section includes the recommendation to Congress regarding the appropriateness of implementing coastal barrier legislation on the Pacific coast. In addition, several other issues regarding coastal barrier protection and the reduction of wasteful Federal expenditures are discussed.

4.1 Recommendation Regarding the Act's Implementation

The Service recommends that Congress should not include the mapped Pacific coastal barriers within the Coastal Barrier Resources System (System) or as otherwise protected areas (OPAs) for the following reasons:

1. The existing criteria for designating coastal barriers reflect the geological and climatic characteristics of the Atlantic and Gulf coasts, as well as the Great Lakes coast, but do not adequately address the coastal landforms and physical processes found along the Pacific coast. As a result, comparatively few landforms with a relatively small area on the Pacific coast qualify as a coastal barrier eligible for inclusion in the System. The vast majority of sensitive, high-risk landforms do not meet the Act's definition of coastal barrier.

2. The hazards on the Pacific coast, unlike hazards that predominate along the Atlantic and Gulf coasts, are not necessarily concentrated, more frequent, or more severe in those limited areas where landforms meet the technical definition of a coastal barrier than on other Pacific coast landforms. Therefore, the potential for loss of life, wasteful expenditure of Federal revenues, and damage to natural resources would continue or increase in these sensitive areas outside of the areas affected by the Act.

The criteria used to delineate the proposed coastal barriers do not reflect the characteristics of the Pacific coast. Based on this determination, the addition of the mapped coastal barriers as full System units or OPAs is not expected to meet the Congressional intent of the law.

4.2 Other Issues for Consideration

The issues identified in Chapter 3 indicate that the Act would not be a particularly effective or appropriate strategy to employ on the Pacific coast. During the course of this process, several additional issues were identified that suggest appropriate means for future action. The following are issues that Congress may wish to consider.

Revise the technical criteria for identifying hazardous areas to reflect the geological and climatic conditions of the Pacific coast -- The geology and climate of the Pacific coast yield different types of coastal landforms and create different types of hazards than the Atlantic and Gulf coasts. However, the definition of a coastal barrier developed for the Atlantic and Gulf

coasts does not include many of these landforms. Developing criteria specific to the Pacific coast could meet Congressional intent and match State Coastal Zone Management goals.

Collaborate with State programs -- State agencies have a great deal of information and expertise regarding the geology and ecosystems of their coasts. Additional Federal coastal protective actions would be most effective if closely coordinated with the affected State agencies. Two primary areas for coordination are:

- The identification of potentially hazardous and environmentally sensitive areas; and
- The identification of the types and magnitude of coastal problems that individual States or regions are facing.

Consider addressing coastal development hazards through new legislation, not limited to coastal barrier resources -- Congress may wish to consider other methods of protecting coastal areas and avoiding public safety risks. The final supplemental environmental impact statement for proposed changes to the System (DOI 1988) noted several potential actions Congress may wish to consider that could protect hazardous coastal areas, such as changes in tax policies, land acquisition, or other stewardship programs. The Service has not explored the policy implications of any such methods, but recommends this type of study in the future.

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APPENDIX A

PACIFIC COASTAL BARRIERS

LISTS AND MAPS OF UNITS

Appendix A. Mapped Potential Coastal Barrier Resources System units in California, Hawaii, Oregon, and Washington.

County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
California							
Del Norte	CA-01	Smith River/Lake Earl	11.3	2,130	4,751	6,881	partial
Del Norte	CA-02	Whaler Island	2.7	95	152	236[c]	partial
Del Norte	CA-03	Klamath River	1.2	70	831	901	partial
Humbolt	CA-04	Fern Canyon	4.1	367	84	451	X
Humbolt	CA-05	Gold Bluffs	1.0	43	31	74	X
Humbolt	CA-06	Redwood Creek	0.6	52	124	174[d]	partial
Humbolt	CA-07	Freshwater Lagoon	0.9	61	243	304	X
Humbolt	CA-08	Stone Lagoon	0.9	66	619	685	X
Humbolt	CA-09	Dry Lagoon	0.4	21	66	87	X
Humbolt	CA-10	Big Lagoon	3.6	239	1,417	1,656	X
Humbolt	CA-11	Little River	0.6	49	34	83	partial
Humbolt	CA-12	Clam Beach/Mad River	12.6	1,022	366	1,388	partial
Humbolt	CA-13	North Spit	3.4	645	153	759[e]	partial
Humbolt	CA-14	South Spit	4.5	647	4,477	5,124	partial
Humbolt	CA-15	Eel River	9.1	781	2,783	3,564	partial
Humbolt	CA-16	Mattole Beach	1.1	46	177	223	partial
Mendocino	CA-17	Usal Creek	0.3	6	12	18	
Mendocino	CA-18	Ten Mile River	0.3	19	15	34	partial
Mendocino	CA-19	Inglenook	1.6	215	73	288	partial
Mendocino	CA-20	Navarro River	1.1	13	46	59	X
Mendocino	CA-21	Alder Creek	0.5	8	8	16	partial
Mendocino	CA-22	Manchester Beach S.P. (N)	0.4	29	8	37	X
Mendocino	CA-23	Manchester Beach S.P. (C)	0.7	81	103	184	X
Mendocino	CA-24	Manchester Beach S.P. (S)	0.8	128	108	236	partial
Mendocino/ Sonoma	CA-25	Gualala River	0.5	23	59	82	partial

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County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Sonoma	CA-26	Russian River	0.6	24	144	168	X
Sonoma	CA-27	Salmon Creek Beach	0.3	14	31	45	X
Sonoma	CA-28	Bodega Bay	0.9	51	571	622	partial
Marin	CA-29	Abbotts Lagoon	1.0	152	228	380	X
Marin	CA-30	Drakes Beach	0.3	17	35	52	X
Marin	CA-31	Drakes Estero	3.8	382	2,399	2,781	X
Marin	CA-32	Rodeo Cove	0.3	10	40	50	X
San Mateo	CA-33	Laguan Salada	0.4	31	21	52	X
San Mateo	CA-34	Elmar Beach	0.4	18	5	23	X
San Mateo	CA-35	Pescadero Creek	0.5	21	280	301	partial
Santa Cruz	CA-36	Waddell Creek	0.4	9	8	17	X
ıta Cruz	CA-37	Scott Creek	0.5	21	6	27	
anta Cruz	CA-38	Sunset State Beach	0.4	15	13	28	X
Santa Cruz/ Monterey	CA-39	Zmudowski Beach S.P.	3.3	248	206	454	partial
Monterey	CA-40	Moss Landing	1.2	78	46	124	X
Monterey	CA-41	Salinas River	1.6	120	268	388	partial
Monterey	CA-42	Little River	0.3	14	35	49	
Monterey	CA-43	La Cruz Rock	0.3	11	31	42	
San Luis Obispo	CA-44	Morro Bay S.P.	3.4	613	2,275	2,888	partial
San Luis Obispo	CA-45	Pismo State Beach (N)	1.1	155	82	237	partial
San Luis Obispo	CA-46	Pismo State Beach (S)	0.5	67	15	82	X
San Luis Obispo	CA-47	Oso Flaco Lake	0.6	150	179	329	partial
San Luis Obispo/ Santa Barbara	CA-48	Santa Maria River	1.0	77	281	358	partial
Santa Barbara	CA-49	Santa Ynez River	0.7	35	214	249	partial
Santa Barbara	CA-50	Coal Oil Point	0.3	8	57	65	
ta Barbara	CA-51	Goleta Beach C.P.	0.4	6	10	16	X
Ventura	CA-52	Santa Clara River	0.6	18	113	131	X

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County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Ventura	CA-53	McGrath Lake	0.6	31	27	58	
Ventura	CA-54	Ormond Beach	1.2	56	83	139	
Ventura	CA-55	Mugu Lagoon	5.9	462	1,403	1,865	X
Los Angeles	CA-56	Malibu Point	0.4	12	27	39	X
San Diego	CA-57	San Mateo Point	0.8	36	75	111	X
San Diego	CA-58	Las Flores Creek	0.5	19	19	38	X
San Diego	CA-59	Santa Margarita River	1.2	80	285	365	X
San Diego	CA-60	Aguq Hedionda	0.5	28	42	70	partial
San Diego	CA-61	Batiquitos Lagoon	0.4	23	25	48	partial
San Diego	CA-62	Silver Strand	1.2	172	737	909	X
San Diego	CA-63	Tijuana Slough	2.1	125	569	694	partial
California Totals			**104.1**	**10,265**	**27,625**	**37,838**	

[a]Fastland = a rough estimate of the area that is above the mean high tide line and/or non-wetlands. Fastland is a very general representation of potentially developable land.
[b]Associated Aquatic Habitat = a rough estimate of associated aquatic habitats, including adjacent wetlands, marshes, estuaries, and inlets.
[c]11 acres excluded from this unit.
[d]2 acres excluded from this unit.
[e]39 acres excluded from this unit.

Hawaii							
Hawaii	HI-01	Pololu Valley	0.4	24	54	78	partial
Hawaii	HI-02	Waimanu Bay	0.4	14	154	168	partial
Hawaii	HI-03	Waipio Bay	0.8	57	156	213	partial
Hawaii	HI-04	Waiopae Ponds	0.3	19	26	45	
Hawaii	HI-05	Honokohau Bay	0.3	7	24	31	X
Hawaii	HI-06	Kiholo Bay	0.6	10	23	33[c]	partial
Hawaii	HI-07	Makaiwa	0.5	8	13	21	
Maui	HI-08	Waihee	0.5	15	41	56	
Maui	HI-09	Paukukaio	0.4	7	15	22	
Maui	HI-10	Kanaha Pond	0.7	7	224	231[d]	X

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County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Maui	HI-11	Kealia Pond	2.4	100	588	688	partial
Molokai	HI-12	Pipio Fishpond	0.4	2	32	34	
Molokai	HI-13	Keawanui Fishpond	0.6	18	67	85	partial
Molokai	HI-14	Paialoa Fishpond	0.4	6	31	37	
Molokai	HI-15	Lepelepe	1.3	[c]	118	118	
Molokai	HI-16	Pahoa	0.6	[c]	27	27	partial
Molokai	HI-17	Pelekunu Bay	0.3	21	25	46	
Molokai	HI-18	Alii Fishpond	0.5	[c]	29	29	partial
Molokai	HI-19	Kamilōloa	0.6	[c]	39	39	
Molokai	HI-20	Kaunakakai	0.8	[c]	56	56	partial
Molokai	HI-21	Kahanui	6.6	[c]	1,277	1,277	partial
uai	HI-22	Wainiha Bay	0.3	16	12	28[f]	partial
auai	HI-23	Lumahai Beach	0.3	12	111	123	
Kauai	HI-24	Puu Poa Point Area	0.3	4	19	23	
Kauai	HI-25	Kilauea Bay	0.3	13	58	71	
Oahu	HI-26	Kii NWR	0.5	22	206	228	partial
Oahu	HI-27	Kahana Bay	0.4	12	152	164[g]	partial
Oahu	HI-28	Molii Pond	0.9	25	145	170[h]	partial
Oahu	HI-29	Waiahole Beach	1.1	7	25	32	X
Oahu	HI-30	Heeia	0.4	[c]	247	247	
Oahu	HI-31	Nuupia Pond	1.1	67	360	427	X
Nihau	HI-32	Leahi Point	0.3	12	22	34	
Nihau	HI-33	Nonopapa	0.7	111	148	259	
Nihau	HI-34	Kiekie	0.6	38	39	77	
Nihau	HI-35	Kaununui	0.5	49	38	87	
Hawaii Totals			**27.1**	**733**	**4,601**	**5,304**	

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County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
[a]Fastland = a rough estimate of the area that is above the mean high tide line and/or non-wetlands. Fastland is a very general representation of potentially developable land. [b]Associated Aquatic Habitat = a rough estimate of associated aquatic habitats, including adjacent wetlands, marshes, estuaries, and inlets. [c]2 acres excluded from this unit. [d]24 acres excluded from this unit. [e]Fastland acreage too small to delineate. [f]0.4 acres excluded from this unit. [g]2 acres excluded from this unit. [h]2 acres excluded from this unit.							
Oregon							
Clatsop	OR-01	Columbia River/ Clatsop Spit	8.8	820	1,852	2,672	X
Clatsop	OR-02	Necanicum River	0.8	87	221	308	partial
Clatsop	OR-03	Chapman Beach/ Ecola Creek	0.3	16	15	31	partial
Tillamook	OR-04	Nehalem Spit and Bay	2.5	430	2,227	2,657	partial
Tillamook	OR-05	Manhattan Beach	0.5	20	5	25	X
Tillamook	OR-06	Bayocean Peninsula/ Tillamook Bay	4.4	821	8,634	9,455	partial
Tillamook	OR-07	Netarts Spit and Bay	5.1	478	2,596	3,074	X
Tillamook	OR-08	Sand Lake Estuary	2.1	253	1,138	1,391	partial
Tillamook	OR-09	Nestucca Spit and Bay	2.5	343	778	1,121	partial
Tillamook	OR-10	Kiwanda Beach	1.3	117	194	311	
Tillamook/ Lincoln	OR-11	Salmon River Estuary	0.6	92	759	851	partial
Lincoln	OR-12	Salishan Spit/Siletz Bay	0.6	47	359	406	partial
Lincoln	OR-13	South Beach	1.5	151	107	258	partial
Lincoln	OR-14	Ona Beach/ Beaver Creek	0.5	22	28	50	partial
Lane	OR-15	Baker Beach	3.9	572	466	1,038	partial
Lane	OR-16	Heceta Beach	0.7	94	67	161	partial
Lane/Douglas	OR-17	Oregon Dunes	18.6	1,917	1,934	3,851	partial

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County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Douglas	OR-18	North Spit/ Umpqua River	5.5	1,972	3,443	5,415	partial
Coos	OR-19	North Spit and Coos Bay/Oregon Dunes	20.7	1,815	2,435	4,250	partial
Coos	OR-20	Bullards Beach/ Coquille River	4.5	711	988	1,699	partial
Coos/Curry	OR-21	New River	13.2	1,124	1,306	2,430	partial
Curry	OR-22	Sixes River	0.6	48	143	191	partial
Curry	OR-23	Elk River	2.0	103	143	246	
Curry	OR-24	Garrison Lake	0.8	62	131	193	partial
Curry	OR-25	Euchre Creek	0.8	50	67	117	
Curry	OR-26	Greggs Creek	0.7	29	19	48	partial
·y	OR-27	Hunter Creek	0.3	13	39	52	
·ry	OR-28	Pistol River	1.7	166	40	206	partial
Oregon Totals			**105.5**	**12,373**	**30,134**	**42,507**	

[a]Fastland = a rough estimate of the area that is above the mean high tide line and/or non-wetlands. Fastland is a very general representation of potentially developable land.

[b]Associated Aquatic Habitat = a rough estimate of associated aquatic habitats, including adjacent wetlands, marshes, estuaries, and inlets.

Washington							
San Juan	WA-01	Waldron Island	0.3	8	11	19	
San Juan	WA-02	Henry Island/ Nelson Bay	0.9	27	106	133	
San Juan	WA-03	Fisherman Bay North	0.7	15	65	80	
San Juan	WA-04	Fisherman Bay South	0.7	15	235	250	X
San Juan	WA-05	Low Point	0.2	2	4	6	
San Juan	WA-06	San Juan Island South	0.3	4	3	7	X
San Juan	WA-07	Mud Bay/Shoal Bight	0.8	7	79	86	
Juan	WA-08	Spencer Spit	0.7	8	12	20	X
San Juan	WA-09	Decatur Head	0.3	8	138	146	

Appendix A. Mapped Potential Coastal Barrier Resources System units in California, Hawaii, Oregon, and Washington.

County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Skagit	WA-10	Sinclair Island	0.3	4	9	13	
Skagit	WA-11	Guemes Island	0.5	16	14	30	
Skagit	WA-12	Ship Harbor	0.4	11	23	34	
Skagit	WA-13	Padilla Bay	0.7	8	36	44	
Island	WA-14	Ben Ure Spit	0.4	7	96	103	
Island	WA-15	Cranberry Lake	0.5	36	162	198	
Island	WA-16	South of Cranberry Lake	0.5	24	28	52	
Island	WA-17	Arrowhead Beach	0.3	7	6	13	
Island	WA-18	Polnell Point	1.1	12	4	16	X
Island	WA-19	Crescent Harbor Area	1.1	56	220	276	X
Island	WA-20	Oak Harbor Area	0.7	21	48	69	X
Island	WA-21	Whidbey Island NW	1.1	23	50	73	partial
Island	WA-22	Whidbey Island SW	0.8	29	26	55	partial
Island	WA-23	Crockett Lake	1.2	88	569	657	partial
Island	WA-24	Race Lagoon	0.9	16	38	54	
Island	WA-25	Whidbey Island East	0.5	8	13	21	
Island	WA-26	Lake Hancock	0.7	15	193	208	X
Island	WA-27	Useless Bay Area	0.5	9	23	32	
Island	WA-28	Cultus Bay	0.4	11	89	100	
Kitsap	WA-29	Battle Point	0.5	5	6	11	
King	WA-30	Point Heyer	0.4	5	7	12	
Pierce	WA-31	McNeil Island	0.6	3	4	7	X
Mason	WA-32	Buffingtonis Lagoon	0.3	3	4	7	
Pierce	WA-33	Vaughn Bay	0.4	5	163	168	
Pierce	WA-34	Henderson Bay Area	0.5	7	62	69	
Kitsop	WA-35	Stavis Bay	0.3	5	45	50	
Jefferson	WA-36	Zelatched Point	0.4	2	4	6	
Jefferson	WA-37	Tarboo Bay	1.3	33	291	324	partial

Appendix A. Mapped Potential Coastal Barrier Resources System units in California, Hawaii, Oregon, and Washington.

County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Jefferson	WA-38	Toandos Peninsula East	0.3	2	5	7	X
Jefferson	WA-39	Thorndyke Bay	0.4	9	91	100	
Jefferson	WA-40	Bywater Bay	0.7	7	150	157	X
Kitsap	WA-41	Fowlweather Bluff East	0.3	4	21	25	X
Kitsap	WA-42	Fowlweather Bluff	0.6	10	27	37	
Jefferson	WA-43	Oak Bay East	0.4	11	9	20	
Jefferson	WA-44	Oak Bay	0.6	10	27	37	X
Jefferson	WA-45	Oak Bay West	0.4	11	32	43	X
Jefferson	WA-46	Kilisut Harbor	0.9	25	542	567	X
Jefferson	WA-47	Kala Point	0.6	23	8	31	
Jefferson	WA-48	Port Discovery Area	0.4	8	9	17	
ıllam	WA-49	Thompson Spit	0.3	3	7	10	partial
Clallam	WA-50	Sequim Bay	1.9	70	959	1,029	X
Clallam	WA-51	Kilakala Point	0.8	33	254	287	
Clallam	WA-52	Dungeness Spit	5.2	261	2,960	3,221	partial
Clallam	WA-53	Crescent Bay	0.5	26	77	103	
Clallam	WA-54	Pysht River	1.1	15	298	313	
Clallam	WA-55	Clallam Bay	0.9	21	15	36	partial
Clallam	WA-56	Mouth Hoko River	0.4	9	12	21	
Grays Harbor	WA-57	Copalis River	1.9	211	121	332	
Grays Harbor	WA-58	Conner Creek	1.3	140	16	156[c]	
Grays Harbor	WA-59	Ocean Shores	6.6	440	145	585	partial
Grays Harbor	WA-60	Ocean Shores South	1.8	185	830	1,015	X
Grays Harbor	WA-61	Westport	1.6	327	126	453[d]	partial
Grays Harbor	WA-62	Grayland North	0.6	27	19	46	
Pacific	WA-63	Grayland Beach	1.0	93	34	127	partial
ific	WA-64	Grayland South	0.4	21	34	55	X
Pacific	WA-65	Empire Spit	3.4	264	626	890	

Appendix A. Mapped Potential Coastal Barrier Resources System units in California, Hawaii, Oregon, and Washington.

County	Unit Number	Unit Name	Shoreline (miles)	Fastland[a] (acres)	Associated Aquatic Habitat[b] (acres)	Total Area (acres)	OPA
Pacific	WA-66	North Beach Peninsula	6.3	1,473	3,380	4,853	partial
Pacific	WA-67	Jensen Point	1.0	9	192	201	X
Pacific	WA-68	Long Beach/Seaview	4.5	531	185	716[c]	partial
Pacific	WA-69	Cape Disappointment	1.5	158	68	226	X
Washington Totals			**70.8**	**5,000**	**14,165**	**19,165**	

[a]Fastland = a rough estimate of the area that is above the mean high tide line and/or non-wetlands. Fastland is a very general representation of potentially developable land.

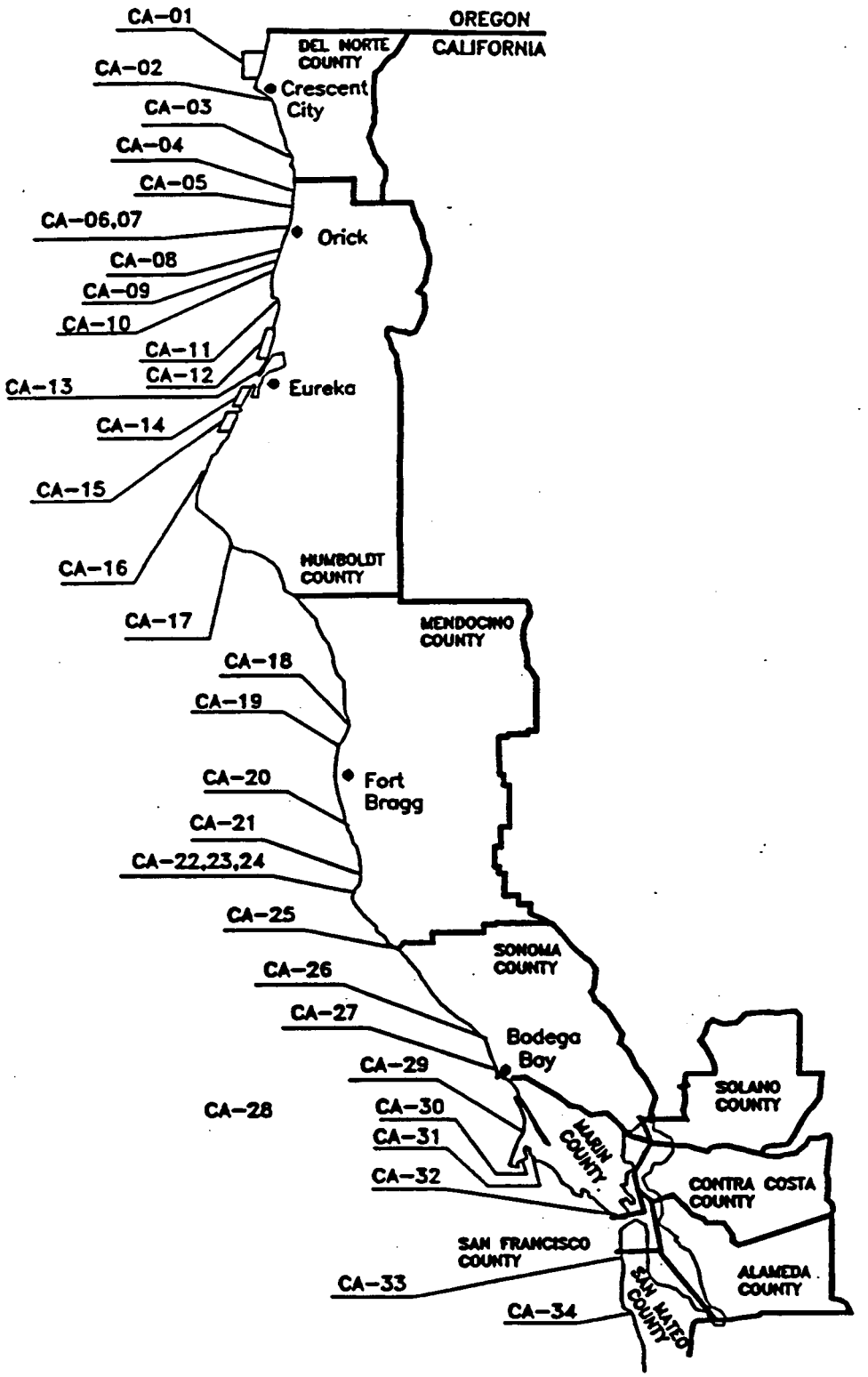
[b]Associated Aquatic Habitat = a rough estimate of associated aquatic habitats, including adjacent wetlands, marshes, estuaries, and inlets.

[c]6 acres excluded from this unit.

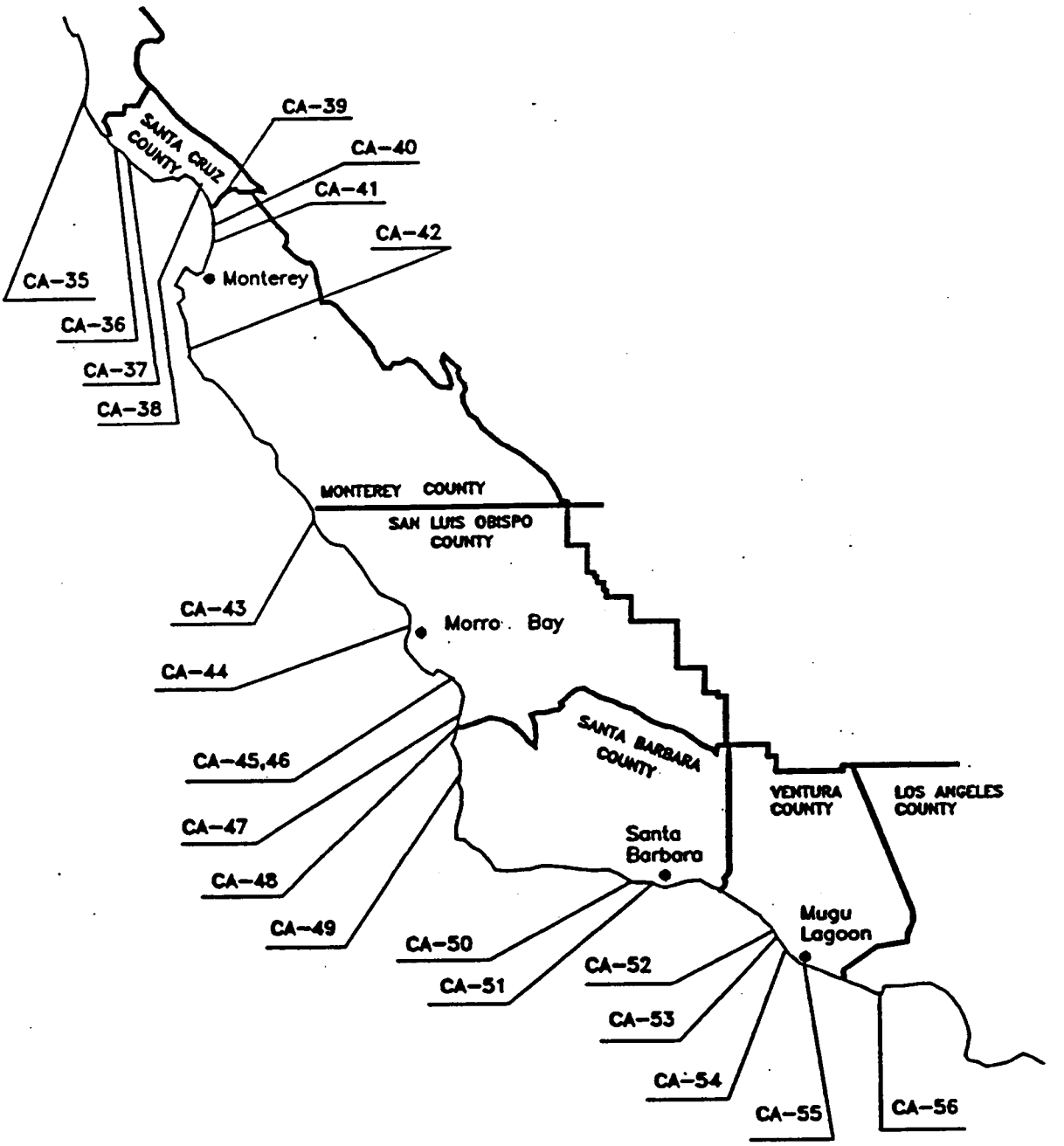
[d]23 acres excluded from this unit.

[e]0.7 acres excluded from this unit.

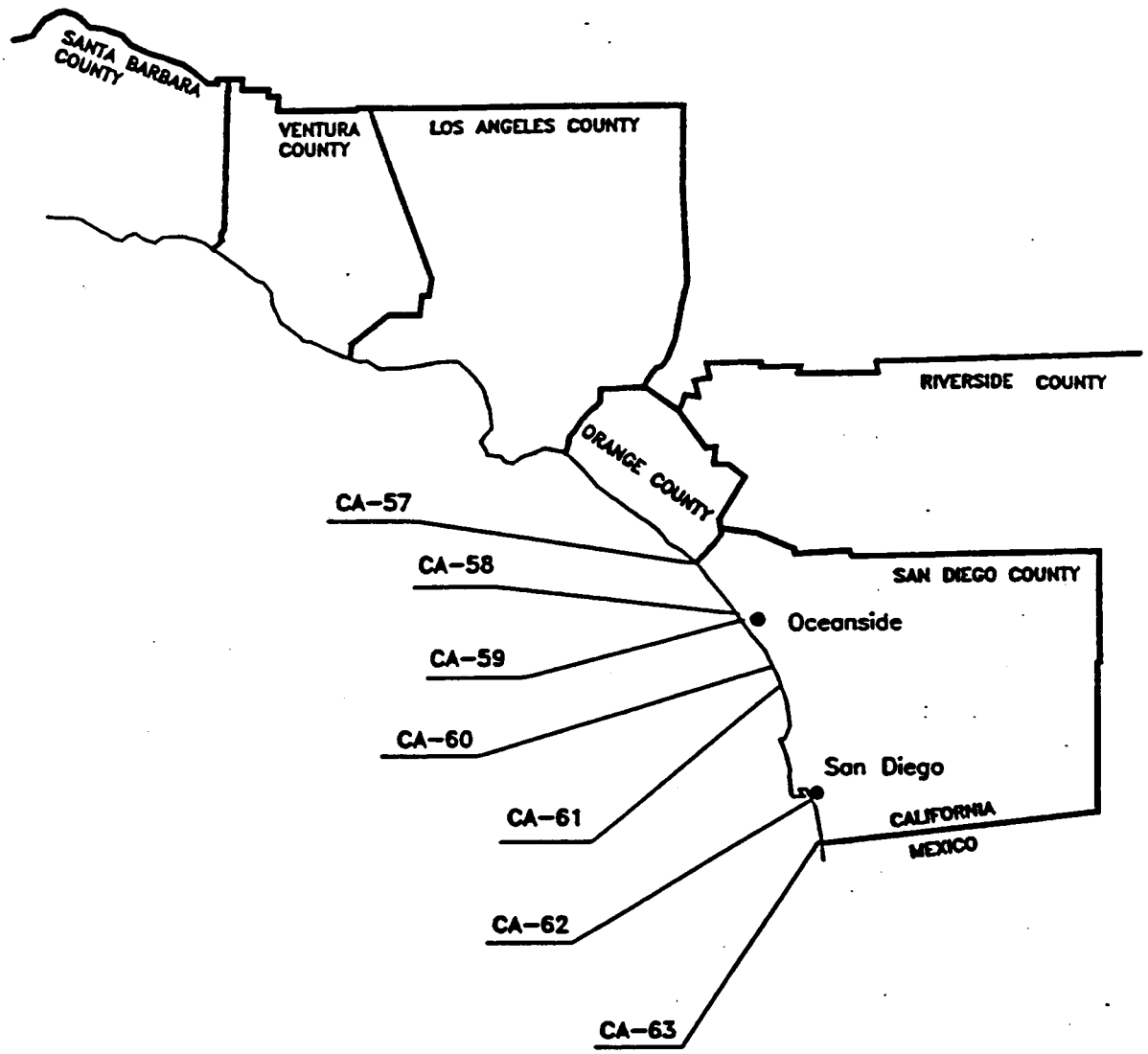
General locations of potential coastal barrier units in California



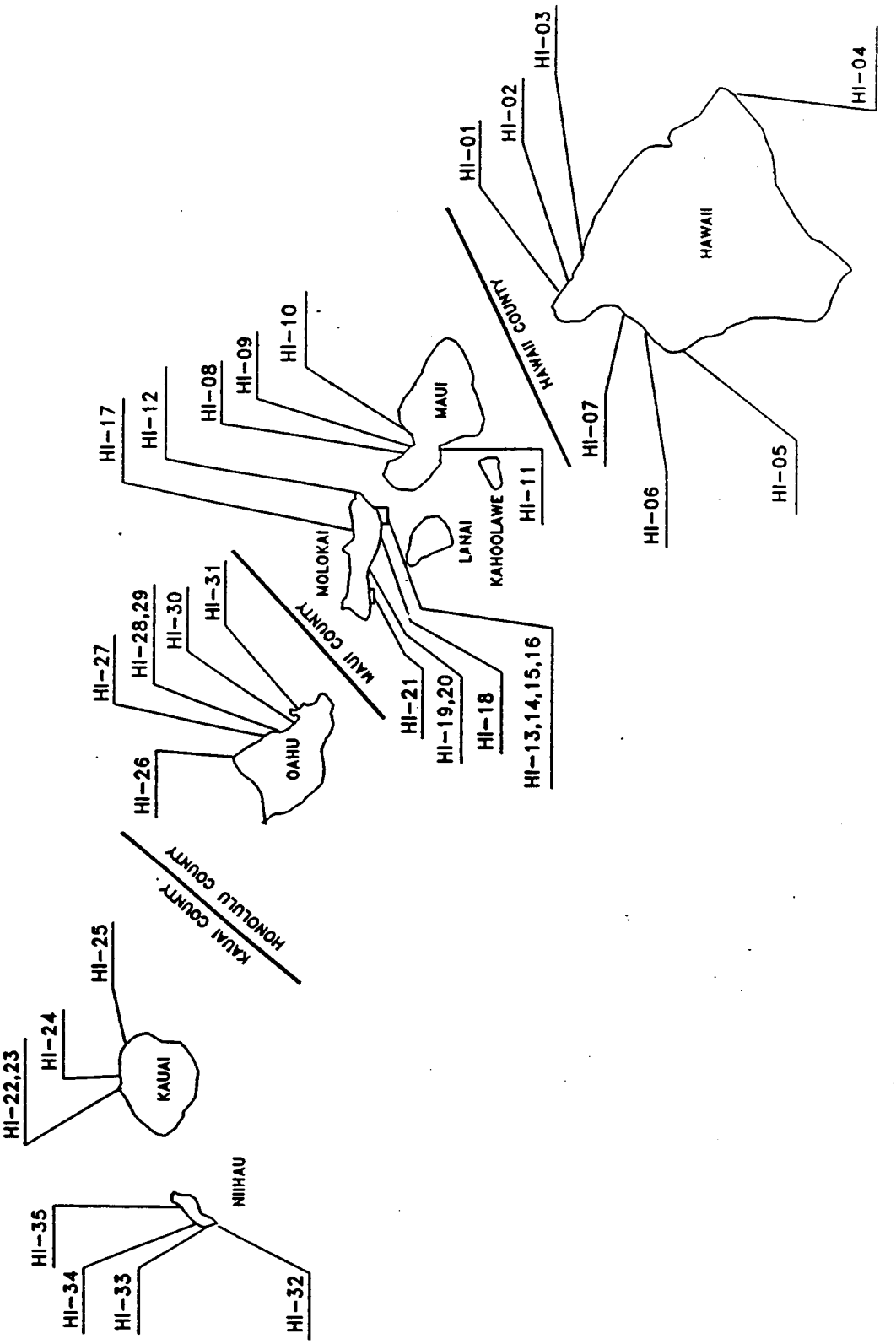
General locations of potential coastal barrier units in California.



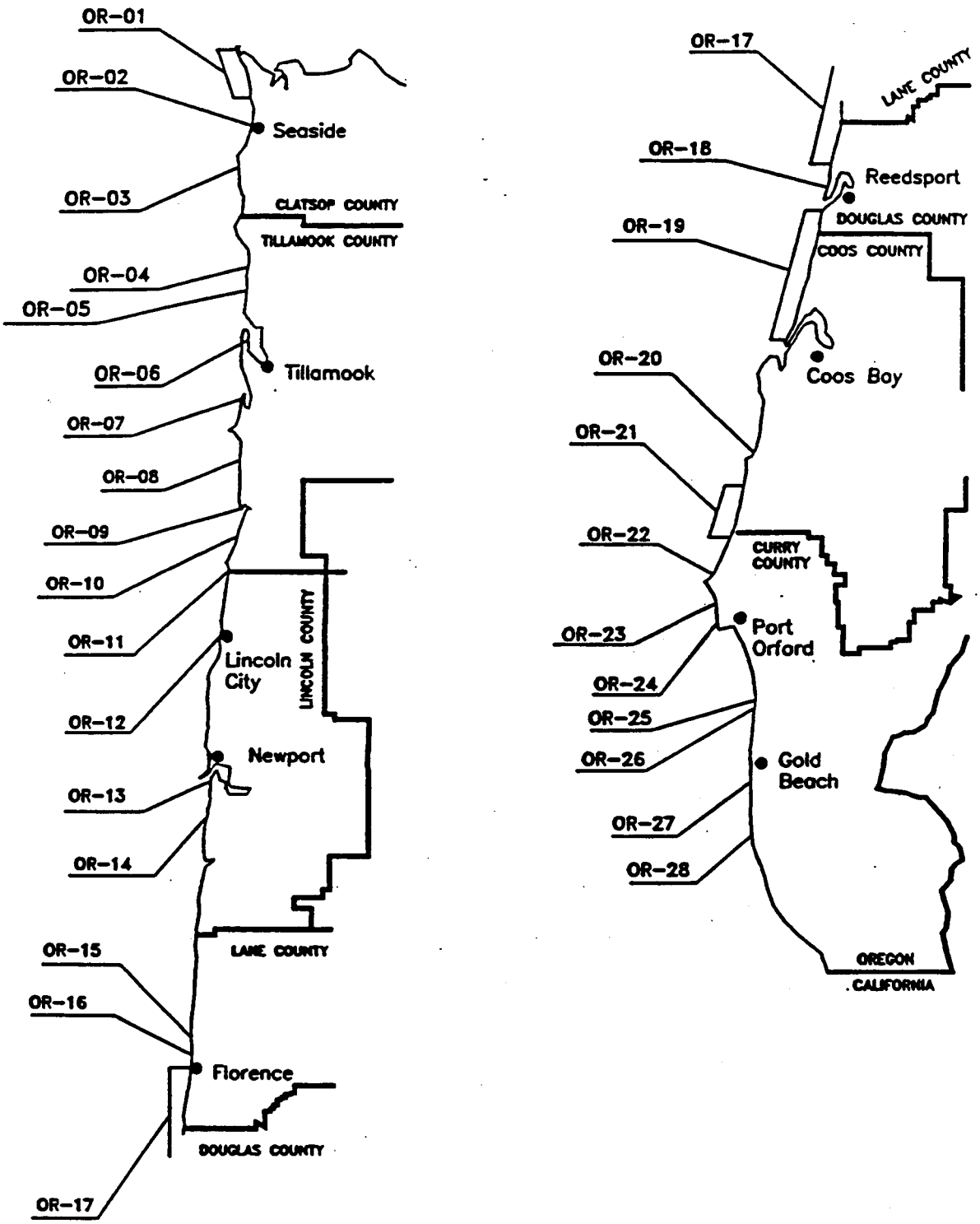
General locations of potential coastal barrier units in California.



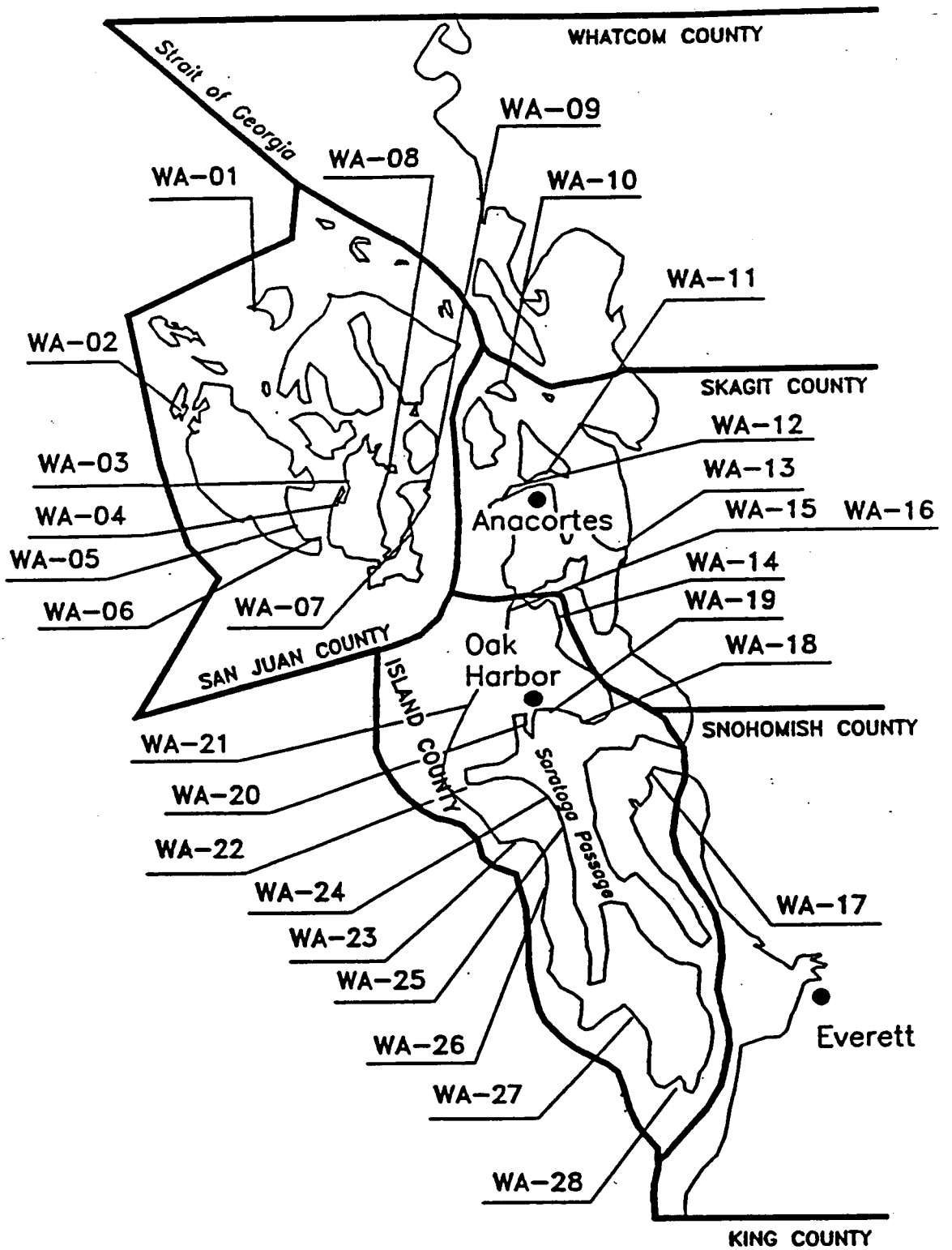
General locations of potential coastal barrier units in Hawaii.



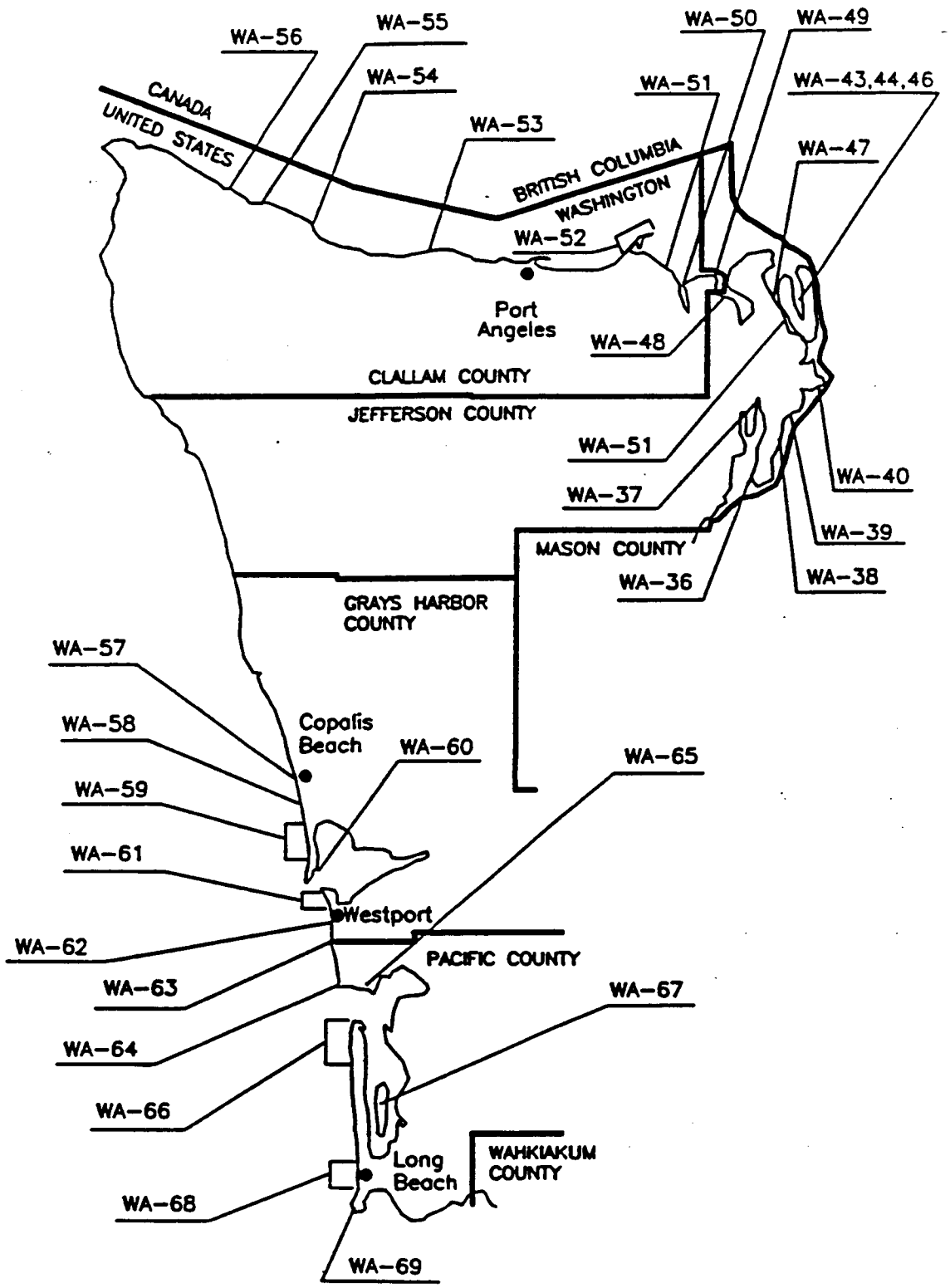
General locations of potential coastal barrier units in Oregon.



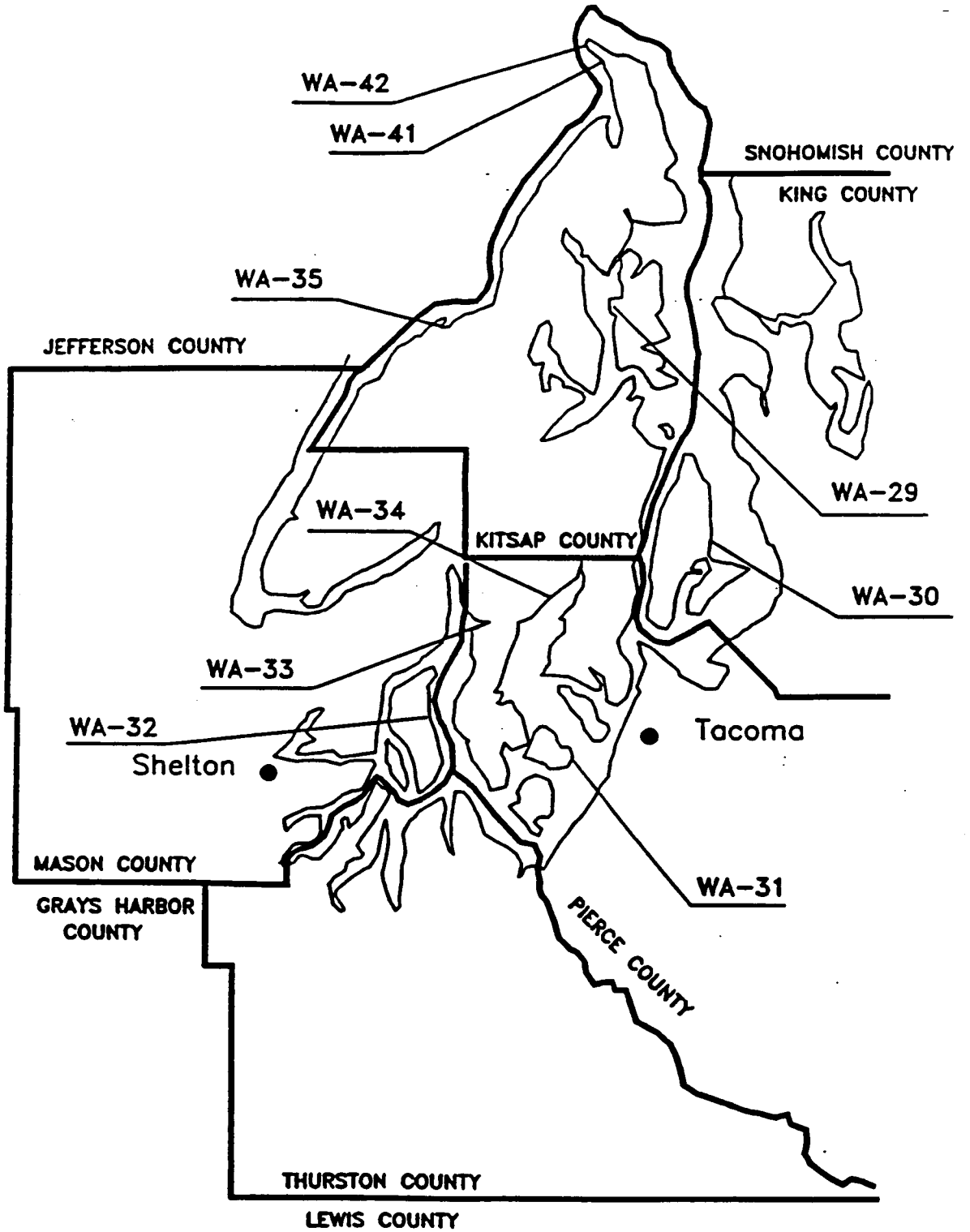
General locations of potential coastal barrier units in Washington.



General locations of potential coastal barrier units in Washington.



General locations of potential coastal barrier units in Washington.



APPENDIX B

PUBLIC INVOLVEMENT SUMMARY
Formerly the Scoping Report for the Pacific Coastal Barriers Environmental Impact Statement

prepared by:

EDAW, Inc.
Seattle, Washington

prepared for:

U.S. Fish and Wildlife Service
Region 1
Portland, Oregon

July 1995

Note: The following Public Involvement Summary was prepared as a Scoping Report intended to summarize public comment evaluated during the preparation of a Draft Environmental Impact Statement (EIS) addressing the expansion of the CBRS to the Pacific coast. As discussed in Section 2.1 of the Report to Congress, the FWS has determined that an EIS is not required since the 1993 recommendation to include all units regardless of ownership was inconsistent with CBRA and new recommendations were warranted. Thus, this Report to Congress and accompanying documentation was prepared instead. Nonetheless, the public comments were considered in evaluating the effect of CBRA implementation on the Pacific coast and are included here for the record.

CONTENTS

1.0 INTRODUCTION

The U.S. Fish and Wildlife Service (FWS) is currently preparing an environmental impact statement (EIS) examining a potential Federal action to identify undeveloped coastal barriers along the Pacific and Hawaiian coasts of the United States. The EIS will evaluate potential environmental, social, and economic impacts associated with a range of alternatives being considered to protect Pacific coastal barriers proposed for inclusion in the nation's Coastal Barrier Resources System (the System). The purpose of this scoping process is to gather information necessary to determine the scope and range of issues to be addressed in the EIS. The summary presented in this document is not intended to be a comprehensive analysis of all issues raised during scoping, nor a documentation of FWS responses to comments received.

The Federal action is the application of the Coastal Barriers Resources Act of 1982 (the Act) to the Pacific coast. In compliance with the National Environmental Policy Act (NEPA) and regulations specified in 40 CFR (Part 1500), the FWS held a public scoping period to help define the range of issues and scope of the EIS. Announced in the Federal Register on June 20, 1994 and February 8, 1995, the official 51-day scoping period occurred from February 8 to March 31, 1995 (see Appendix 1). In addition, the FWS distributed a newsletter (Project Update No. 1) announcing the scoping period to approximately 1,200 individuals having shown prior interest in this proposal. Project Update No. 2 is being prepared concurrently with this Scoping Report to keep the public informed of activities conducted to date. Update No. 2 will be distributed to all individuals on the project mailing list, and will include information on the availability of this Scoping Report.

This Scoping Report was prepared to document issues raised during scoping. It also defines the purpose and need for the project and describes opportunities for public involvement. In addition to comments received during the 1995 scoping period, this report summarizes public comments on the 1993 Draft Pacific Coastal Barriers Study (1993 Draft Study) and associated maps. The purpose of the 1993 Draft Study was to delineate undeveloped coastal barriers in California, Oregon, Washington, Hawaii, and U.S. territories in the Pacific Ocean, and to map those barriers potentially eligible for inclusion in the System. The 1993 Draft Study was also prepared for the purpose of evaluating the appropriateness of application of the Act to the Pacific coast.

2.0 PROJECT SUMMARY

2.1 Need for Action

This action is needed to minimize potential loss of human life and property, reduce unnecessary Federal expenditures, and reduce damage to natural resources from human development on coastal barriers.

2.2 Project Description

Coastal barriers are unique landforms that protect diverse aquatic habitats and serve as the mainland's first line of defense against the impacts of coastal storms and erosion. Most barriers are comprised of unconsolidated sediment (i.e., sand or gravel). Despite their natural instability due to geological composition and susceptibility to tide and coastal storms, many coastal barriers have been used for human development over the years. Some of this development has been facilitated by the availability of National Flood Insurance and other types of Federal financial assistance.

Congress recognized the development vulnerability of coastal barriers by passing the Act in 1982 (P.L. 97-348). By restricting Federal expenditures and financial assistance that facilitate human development of coastal barriers, Congress intended to minimize the loss of human life; wasteful expenditure of Federal revenues; and damage to fish, wildlife, and other natural resources associated with human development of coastal barriers.

The Act, while not prohibiting privately financed development, prohibits most new Federal financial assistance within the designated System. The System is comprised of units which delineate undeveloped coastal barriers and their associated aquatic habitats. Undeveloped coastal barriers along the Atlantic, Gulf of Mexico, and Great Lakes coasts have been identified and mapped by the Department of the Interior (DOI) and designated by Congress as units of the System.

In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA) (P.L. 101-591). The CBIA directed the Secretary of the of the Interior (Secretary) to prepare a study which examines the need to protect undeveloped coastal barriers along the Pacific, Hawaiian, and U.S. territory in the Pacific Ocean through their inclusion in the System. Maps identifying the boundaries of undeveloped coastal barriers along the Pacific, Hawaiian, and U.S. territory coasts were also to be prepared. The Secretary delegated the authority to develop the study and the accompanying maps to the FWS.

In 1993, the FWS produced a Draft Study and maps delineating undeveloped coastal barriers. A total of 195 units encompassing 104,814 acres and 307 miles of shoreline were identified in California, Oregon, Washington, and Hawaii as being eligible for inclusion in the System. No suitable units were identified in the U.S. territories of Guam, American Samoa, and Northern Marianas. The 1993 Draft Study and maps were

widely distributed for public review and comment. The FWS recommended inclusion of the Pacific coastal barriers in the System and application of the provisions of the Act, as amended. The DOI then directed FWS to comply with NEPA to evaluate the environmental, social, and economic impacts of the proposed Federal action. To achieve compliance, FWS is preparing an EIS; the Draft EIS (DEIS) will be released for public comment in the fall of 1995.

2.3 Programmatic Environmental Impact Statement (EIS)

Because the EIS is examining the impacts of proposed legislation with wide ranging geographic scope, a programmatic EIS is the only practicable approach to documenting impacts. This is consistent with NEPA documentation on previous Act efforts on other U.S. coasts. Larger issues about the physical, biological, social, and economic environments of the affected region will be addressed in aggregate.

The programmatic EIS is not intended to provide detailed, site-specific information. Detailed information is either not available or would require extended research to obtain and would not address the overall impacts of the legislation on the region. Individual environmental or economic impact assessment of each proposed coastal barrier unit would also require voluminous documentation at inordinate Federal expense and would most likely be a premature assessment. Therefore, site-by-site cost/benefit analyses, comparative evaluations of flood hazard potential, variable erosion or accretion patterns between sites, the precise economic impacts to individual investors, and similar issues will not be evaluated in detail in the EIS. Similarly, philosophical and other issues related to other human activities which are beyond the scope of the NEPA process or which do not pertain directly to the effects of the proposed legislation or alternatives will not be addressed in the EIS.

If the Act is implemented on the Pacific coast, the FWS authority would be limited to a consultation role to determine if potentially Federally funded activities are in compliance with the intent of the Act. The Federal financing agency would be required to comply with the FWS's determination.

The need for preparation of separate Environmental Assessments (EAs) addressing site-specific impacts would be determined on a case-by-case basis if development is proposed within a particular unit. Site-specific EAs would tier to this programmatic EIS.

3.0 THE DECISION MAKING PROCESS AND OPPORTUNITIES FOR PUBLIC INVOLVEMENT

The NEPA process ensures that interested agencies, organizations, and the general public have adequate opportunity to be involved in the study. Input from the public is formally sought over the course of the process to help define the scope of the study, to identify substantive issues to be addressed in the EIS, and to improve and/or select the preferred alternative. Mechanisms for informing and involving the public include Project Updates periodically mailed to individuals on the project mailing list, publication of notices in the Federal Register, local public workshops, informational meetings to present project information, press releases, and distribution of the project documents for formal review. Public involvement activities conducted to date, along with those planned for the future, are summarized below in relation to the project schedule. Table 3-1 at the end of this section summarizes the overall project schedule.

3.1 1993 Draft Study and Maps

In response to Section 6 of the CBIA, the FWS in 1991 inventoried coastal barriers south of 49 degrees north latitude. With publication of the December 17, 1993, Federal Register notice (58 FR 241; see Appendix 1), the FWS announced the availability of the 1993 Draft Study and accompanying maps for public review and comment. Press releases were issued and 15 informational meetings were held in central locations to inform affected communities. The 1993 Draft Study and maps were sent to key locations announced in the Federal Register and were available for public review (see Appendix 1). Individuals and agencies identified on mailing lists compiled with the assistance of the affected State Coastal Zone Management agencies were notified by letter. Copies of the 1993 Draft Study, maps, and other information packages were also provided to individuals requesting them. Information was also provided to county commissions, local and regional planning agencies, and Native American Tribal Councils.

The public review and comment period lasted 60 days with an additional 30 days for the Governors of the affected States to provide written recommendations. Based on requests received from the public and the Governors of California, Oregon, and Washington, the public and Governors' review periods were extended an additional 30 days. This extension was announced in the February 23, 1994, Federal Register notice (59 FR 36; see Appendix 1).

Prior to the end of the Governors' comment period, the DOI determined that an EIS on the proposed inclusion of Pacific coastal barriers in the System was required to comply with NEPA. The close of the comment period, March 25, 1994, was the cut-off date by which all technical corrections to the 1993 maps were made by the FWS. Technical corrections were made based on information which indicated inconsistencies of proposed units with the mapping criteria.

During the revision process, the FWS examined all documents supplied by property owners disputing proposed units, and determinations were made as to whether the information provided was sufficient to determine mapping consistency with the technical criteria in the Act. The information provided by individual property owners, county commissioners, local port districts, and others consisted of aerial photography, planning documents, building or utility permits, and other information indicating various levels of development on a site. The FWS was not able to visit all sites on the West coast and Hawaii upon request; however, the most current aerial photography available for all sites was examined as part of the mapping procedure and served as the primary information used to determine the need for technical changes. Although the FWS did visit some of the sites during the comment period, there were no formal criteria for determining eligibility for site visits. Additional site visits were made where insufficient data were available to determine if a technical error had been made. The 1994 version of the Draft Pacific coastal barrier maps is the current inventory and baseline to be addressed in the EIS.

Site changes, both natural and human imposed, continue to occur. However, because the 1994 inventory provides baseline information the EIS will address, requests to modify unit boundary lines or to add or delete proposed units were not completed during the scoping phase.

3.2 1995 EIS Scoping

A Federal Register notice was published Monday, June 20, 1994, announcing the FWS' intent to prepare an EIS on inclusion of Pacific coastal barriers into the System (see Appendix 1). The notice invited public comment on the scope and range of issues to be addressed in the EIS. It specified that all substantive comments received in response to the 1993 Draft Study would be considered in developing the EIS. The range of alternatives that will be presented in the EIS will serve to minimize duplication of effort by the Government agencies, to efficiently implement the Act, and to comprehensively protect Pacific coastal resources. Press releases were also issued but no comments were received.

A second Federal Register notice and press release were issued February 8, 1995, announcing the FWS' intent to prepare an EIS (see Appendix 1). At the same time, a Project Update about the status of the project explaining the process, map changes, locations where maps could be viewed, and again seeking public comment was sent to all individuals (approximately 1,300) on the project mailing list. The 1994 maps were not redistributed to the entire mailing list because the FWS was not seeking comment on the technical accuracy of the maps during this phase of the study. The maps were provided for informational purposes to numerous central locations such as libraries, local and county planning agencies, FWS field offices, State Coastal Zone Management Program offices, Native American Tribal Councils, Congressional representatives, and to individuals upon request.

Approximately 150 comment letters were received in 1995 regarding the scope of the EIS. Although comments received on the 1993 Draft Study are not officially part of the NEPA scoping process, their content is being considered in preparing the EIS. This Scoping Report was prepared to document issues raised during scoping. In addition, Project Update No. 2 is being prepared concurrently to keep the public informed of activities conducted to date. The Update will be distributed to all individuals on the mailing list, and will include information on the availability of this Scoping Report.

3.3 Preparation of the EIS

The DEIS is expected to be available for public review in fall 1995. This Scoping Report will be included as an appendix to the EIS. Project Update No. 3 will be distributed to the entire mailing list; the Update will summarize the contents of the DEIS and include information on how to obtain a copy of the entire DEIS.

Agencies and the public will have 60 days to comment on the contents of the DEIS and provide written comments to the FWS. At this time, no public information meetings, workshops, or hearings are planned. All comments received on the DEIS will be reviewed and analyzed in preparation for a Final EIS (FEIS).

Analysis of comments received from public review of the EIS will reveal necessary revisions of the DEIS. Potential revisions could include changing the range of alternatives addressed (including adding new alternatives), revising technical sections based on new data received, and addressing comments pertinent to the scope and context of the DEIS. The revised draft becomes the FEIS and identifies the FWS' preferred alternative. The FEIS will be distributed; the anticipated date for publication of the FEIS is March 1996. The FEIS will include an appendix with FWS responses to pertinent comments received during public review.

3.4 Final Decision Making

After completing the FEIS, the DOI will select an alternative to recommend for implementation. The decision to be made is which alternative or combination of elements from alternatives for including Pacific coastal barriers in the System will be enacted by Congress. The selected alternative would reflect the original intent of the Act and the CBIA.

Following the completion of the FEIS, which identifies FWS' preferred alternative, a separate report to Congress will be prepared with recommendations regarding the appropriateness of including Pacific coastal barriers in the System.

Table 3-1. Project Schedule Goals

Milestone	Projected Date
FWS distributes Project Update #2	July 1995
FWS distributes Scoping Report Summary	July 1995
FWS distributes Project Update #3	September 1995
FWS distributes DEIS Summary	September 1995
Public Comment on DEIS	September 8 to November 7 1995 (approximately)
FWS revises EIS	November 1995 to February 1996
FWS distributes Project Update #4	February 1996
FWS distributes FEIS and ROD	March 1996
Report to Congress	April 1996

4.0 SCOPING RESULTS - KEY ISSUES AND CONCERNS

Approximately 700 comment letters were received in response to the 1993 Draft Study, and approximately 150 comment letters were received in 1995 regarding the scope of the EIS. Appendix 2 lists all agencies, organizations, and individuals who provided comments. All letters received were considered in developing the scope of issues and alternatives the EIS would address.

Letters were received from State, local, and Federal government agencies and representatives; interest groups; the business community; educational facilities; tribal councils; port authorities; the media; and individuals. Comments received were grouped into approximately 30 categories or topics, as summarized in Section 4.4 of this report. Of the nearly 850 letters received, many were requests for future documents and requests to remain on the project mailing list. In addition, 494 of the comments received were in the form of petitions or form letters, as described in Sections 4.1 and 4.2. Approximately 50 of the letters received in 1995 were from individuals who also commented on the 1993 Draft Study. This chapter presents a narrative analysis of the substantive comments received.

4.1 Petitions Received

Four petitions were received in response to the 1993 Draft Study; 2 petitions were in support of inclusion of Pacific coastal barriers in the System, 1 opposed, and 1 in reference to a proposed development within a proposed coastal barrier unit (California Unit CA-40). These petitions represent a total of 494 individuals commenting on the various aspects of the CBIA. Brief discussions of the position and content of the petitions are presented below.

A total of 181 signatures were submitted to the FWS on behalf of the Cape Meares Advisory Committee, supporting the intent of the Act and, particularly, the inclusion of Oregon Unit OR-06 (Bayocean Peninsula/Tillamook Bay). The petitioners noted the each level of protection (Federal, State, and local) afforded to this area will help ensure that the historic, scenic, and natural integrity of the coast will be maintained. The petition also stated that there is no conflict between the National Estuary Project for Tillamook Bay, its goals, and those of the Act. A letter submitted by the Tillamook Bay National Estuary Project confirmed this statement. Additional support for expanding the System to the Pacific coast was noted in another petition signed by 7 individuals from various coastal/natural resources advocate agencies in California.

A petition signed by 226 individuals opposed the expansion of the Act to the Pacific coast, and particularly the inclusion of Washington units in Grays Harbor County (units WA-57 through WA-62). The petitioners maintain that the intent of the Act, while appropriate for the East coast, is inappropriate to the Pacific coast region as the degree and frequency of coastal devastation from storms is nominal in comparison.

Additionally, the petition stated that existing government regulations already provide adequate protection to the coastal resources and implementation of the Act on the Pacific coast will inhibit an already fragile economy from continued growth and recovery.

A petition signed by 80 individuals was submitted, requesting that the eastern boundary of California Unit CA-40 (Moss Landing) not be revised to accommodate the development of a marine laboratory. The proposed site of the marine lab (currently within the boundary of the unit) reportedly is an archaeological site of a 7,000-year old Indian village and burial site. Additionally, the petition reports that the area is known to support populations of Federally listed endangered plant species. The petitioners and the Moss Landing community acknowledged support for development of the marine lab in an alternate location.

4.2 Form Letters

Two form letters, comprising nearly half (341 of approximately 700) of the letters received in response to the 1993 Draft Study, were submitted to the FWS. One form letter with 305 submittals requested that California Unit CA-01 (Smith River/Lake Earl) be deleted from the inventory of units proposed for inclusion in the System. The respondents were all property owners (Pacific Shores Subdivision) concerned that inclusion of this unit in the System would prevent them from building on their property, as well as preventing other property owners who served in the Vietnam and Gulf wars from obtaining Federal Veteran's Administration loans for building.

The other form letter submitted by 38 individuals was in support of the Act, in general, and particularly supportive of including Washington Unit WA-68 (Long Beach/Seaview) in the System. The respondents reported wetlands and dunes in the unit that provide habitat for many wildlife species, including passerines (i.e., songbirds), pheasant, deer, and beaver.

4.3 Agency Consultation

Given the geographic scope of the EIS, numerous Federal, State, and local agencies and officials have a regulatory interest in the Pacific Coastal Barriers EIS. The following Federal government entities provided significant comments on either the 1993 Draft Study or during 1995 EIS scoping:

- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- Department of the Navy
- National Park Service (NPS)
- National Oceanic and Atmospheric Administration (NOAA)
- National Marine Fisheries Service (NMFS)
- U.S. Army Corps of Engineers (ACOE)
- FWS - Refuge Program

- U.S. Marine Corps
- U.S. House of Representatives members

Washington, Oregon, California, and Hawaii State agencies, including State Governor's offices, also provided substantive comments regarding the scope, policies, and technical criteria of the EIS. In addition, numerous local agencies including county commissioners and planning departments and city councils provided input to the 1993 Draft Study and 1995 EIS scoping (see Appendix 2).

Federal and State agencies were generally supportive of the intentions of the Act; however, concerns and requests for policy clarification were often noted. Conversely, local agencies were typically concerned with the impact that implementation of the Act would have on local economies. Comments received from government agencies are summarized in Section 4.4.

4.4 Key Issues and Concerns

Based on a preliminary review of comments received on the 1993 Draft Study and during the 1995 scoping, the FWS identified approximately 30 issues or topics that were frequently raised as key concerns. Comments received on these topics are summarized below. Where appropriate, background material is presented to provide context for comments received. This section summarizes the range of comments received on key issues; it is not intended as a comprehensive analysis of all comments received, nor does it document FWS responses. Information gathered during the scoping process is helping to define the range and scope of the EIS. These topics form the basis for issues and alternatives to be addressed in the EIS, and will be covered as appropriate in that portion of project.

A total of 282 letters specifically stating support for expanding the System to the Pacific coast were received in response to the 1993 Draft Study and 1995 EIS scoping. Approximately 18 letters specifically stated opposition to implementation of the Act on the Pacific coast; however, 437 commentors noted opposition to the inclusion of specific units in the System.

4.4.1 Technical Criteria

The Act defines an undeveloped coastal barrier as: (1) a depositional geologic feature that is subject to wave, tidal, and wind energies; and (2) protects landward associated aquatic habitats from direct wave attack. Associated aquatic habitats include adjacent wetlands, marshes, estuaries, inlets, and near shore water. This definition of coastal barriers encompasses several site features (topics) that were addressed in comment letters received regarding the 1993 Draft Study and during 1995 EIS scoping: geologic features, fish and wildlife habitat, development, and coastal hazards.

Comments and criticisms of the technical criteria and mapping conventions used to define and delineate undeveloped coastal barriers often focused on individual issues, such as the extent of wetlands or amount of development on a site. Brief descriptions of key site features are provided in the following sections along with the associated comments received.

Geologic Features

As defined in the Act, coastal barriers may be described generally with respect to their relationship to the mainland. Bay barriers, tombolos, barriers spits, barrier islands, fringing mangroves, and dune and barrier beaches were identified in the Act as coastal barriers. The types of geologic features identified in the statute that constitute coastal barriers cannot be altered through mapping conventions or an administrative process. Numerous comments were received on the 1993 Draft Study and during 1995 EIS _ scoping addressing the geologic features and other landforms constituting coastal barriers that technically do not qualify as a barrier under the Act. Of the 73 letters with comments on the technical criteria applicability of the proposed units, 43 of those letters addressed geologic features within the units.

A significant comment posed by both supporters and opponents of expanding the Act to the Pacific coast was that the definition of a coastal barrier was developed for the East and Gulf coasts, and that the criteria for geologic features constituting coastal barriers on the East and Gulf coasts do not reflect the geology, morphology, and ecology of the Pacific coast. Commentors suggested that the FWS inappropriately applied criteria for undeveloped coastal barriers from the East and Gulf coasts to the Pacific coast, thereby invalidating the proposed units. However, supporters of the Act maintained that although modifications to the legislation are needed to account for the distinct coastal features and landforms of the Pacific, the legislation is still applicable. Generally, supporters recommended that the technical criteria be modified to include landforms and their associated aquatic habitats that function as barriers but currently do not meet the technical criteria for inclusion in the System; these landforms and aquatic habitats include headlands, bluffs, deflation plain wetlands, coral reefs, and Hawaiian fishponds and anchialine pools.

Other comments regarding the technical criteria of geologic features of coastal barriers include:

- The minimum height requirement of coastal barriers should be modified in the technical criteria to better reflect the geology and topography of the Pacific and Hawaiian coasts.

- Coral reefs, and consolidated lava rock that protects anchialine pools should be included in the System.

- The designation (or exclusion) of fishponds needs to be consistent throughout the Hawaiian Islands.

The issue of including coral reefs and fishponds in coastal barriers of the Hawaiian Islands was discussed by several commentors on the 1993 Draft Study. Coral reefs and fishponds are sometimes associated with fringing mangroves; if fringing mangroves are present in association with coral reefs or fishponds and associated aquatic habitat, then the coral reefs and fishponds are included in the proposed Pacific coast System. However, controversy surrounds the issue of including fringing mangroves in the Pacific coast System. Commentors noted that in Hawaii, fringing mangroves are a non-native, invasive species currently subject to eradication efforts. Some commentors, however, support the inclusion of coral reefs and fishponds in the System, regardless of their association with mangroves, based on their ability to function as a barrier and their sensitive nature and habitat qualities. Questions were raised, however, as to how the Act would impact the Federal funds provided for the restoration and traditional use of fishponds and eradication of the mangroves, coral reefs, and fishponds are included.

Fish and Wildlife Habitat

A total of 54 comment letters were received on the 1993 Draft Study and 1995 EIS scoping addressing fish and wildlife resources and threatened and endangered species. One-third of those commentors (17) contend that certain units do not support wildlife resources and, therefore, do not need this Federal level of protection. The remaining letters provided observations of wildlife that occur on/near proposed coastal barrier units. Additionally, information regarding the occurrence of several threatened and endangered species, including the hawksbill turtle (*Eretmochelys imbricata*), green sea turtle (*Chelonia mydas*), Oregon silverspot butterfly (*Speyeria zerene hippolyta),* and western snowy plover (*Charadrius alexandrinus nivosus*), in the vicinity of proposed units was provided.

Twenty-seven letters were received that discussed wetlands in or near proposed units. Approximately one-half of the letters supported the Act and the additional protection that would be afforded to coastal wetlands. Detailed boundary modification recommendations were provided in some letters to include wetlands adjacent to, but outside, the proposed unit boundary. The other half of the letters requested that specific units not be included in the System because it was perceived that no wetlands are associated with the units and, therefore, additional protection at the Federal level is unnecessary.

Development

As defined in the Act, a coastal barrier is considered to be undeveloped when it contains few manmade structures and these structures, and man's activities on such features and within such habitats, do not significantly impede geomorphic and ecological processes. Potential features of development include:

- extensive shoreline manipulation or stabilization;
- pervasive canal construction and maintenance;
- major dredging projects and resulting sedimentary deposits; or
- intensive capital development projects, such as developments which effectively establish a commitment to stabilize an area even though there are few actual structures.

A total of 36 letters specifically addressed the amount of development within units proposed for the System. The letters requested that specific units not be added to the System due to the degree of development within the entire unit, or that the boundary be modified to exclude particular areas of development. Particularly controversial units include housing subdivisions in California and Washington planned for phased development; comments received on the 1993 Draft Study noted that these subdivisions contained utilities and roads and, therefore, should be excluded from the System due to the capital already invested in the land and the commitment for development completion by the landowners.

Other concerns were raised regarding potential ecological effects from the use of jetties and European beach grass to stabilize the spits of large estuaries in the Pacific Northwest.

Coastal Hazards

The intent of the Act is to minimize wasted Federal expenditures and loss of human life and property from development in areas subject to coastal hazards. Numerous commentors, both supporting and opposing implementation of the Act on the Pacific coast, noted that the 1982 criteria were written to reflect coastal hazards typically experienced by low-lying East and Gulf coastal areas. Therefore, it was suggested repeatedly that the criteria be modified to reflect: (1) the unique geology and weather patterns of the Pacific coast, and (2) the greater number of landforms impacted by coastal hazards.

A total of 57 letters were received on the 1993 Draft Study and during 1995 EIS scoping that addressed the topic of coastal hazards. Nearly half (26) of those letters requested that specific units be deleted from the list of proposed Pacific coast System units due to lack of documented losses of human life, wasteful Federal expenditures, and damage to natural resources from coastal storms, tides, tidal surges, flooding, and tsunamis. Additionally, it was noted that such damages and losses are more observable and have been documented in developed coastal areas not proposed for inclusion in the System. Conversely, the other half of commentors noted observations of hazards along the Pacific coast, and often at specific units, that justified their inclusion in the System.

The 1993 Draft Study noted that erosion is one of the most significant coastal hazards on the Pacific coast. An associated geomorphic process is accretion (the accumulation of sand), which is often exacerbated by jetties and other structures. Whereas evidence of

erosion was typically presented as a case for inclusion of a coastal barrier in the System, commentors questioned the applicability of including accreted lands in a unit.

Other comments received addressing this topic include:

- The suggestion that the FWS realistically assess the threat from tsunamis based on recent scientific studies of earthquake hazards and on the best available tsunami models for the region.

- Lands gained by accretion should be included in the System because deterioration or elimination of jetties or other structures would likely result in erosion of the accreted lands.

- All of Hawaii's coastlines are subject to storms and sea-level rise; this is not a unique characteristic of specified unit (of concern to the commentor) and, therefore, that unit should not qualify for inclusion.

- Sea level rise, tectonic movement, global warming, and seismic activity place all coastal areas at increased risk.

- The 500-year flood zone is probably a better designator for barrier boundaries than the 100-year flood zone, particularly given the recent flooding events on the Pacific coast.

4.4.2 Unit Boundaries

In 1992, the FWS identified and mapped all undeveloped coastal barriers of the Pacific coast in the states of Washington, Oregon, California, and Hawaii that met the Act's technical criteria, regardless of ownership. Coastal barriers of at least one-quarter mile in shoreline length and their associated aquatic habitats were delineated using primarily color infrared aerial photography, FWS National Wetland Inventory maps, and U.S. Geological Survey 7.5" quadrangle maps. The coastal barrier delineation was drawn perpendicular to the unprotected (seaward) side of the fastland and extends landward to include the protected aquatic habitat. For partially developed coastal barriers, the boundary was drawn at the break in development or the development was generally excluded from the unit.

The FWS conducted some site visits to proposed barrier units where appropriate placement of the boundaries was in question, but only where current maps and aerial photos were lacking and an overflight investigation proved inconclusive. The FWS did not intend, nor have the capability with available information and resources, to provide survey or assessors data, or the level of detail requested by private property owners for an inventory of this size. Mapping techniques used were consistent with those used for inventorying other U.S. coastal barriers. The boundary lines on the maps depict the general unit boundary for informational purposes. If the Act is implemented,

consultation for individual consistency determinations will require field verification to determine the exact location of the boundaries.

Following the 90-day comment period on the 1993 Draft Study, the FWS received 65 letters addressing the topic of unit boundaries. Boundary issues were presented both in letters of support and opposition to the Act—some letters requested that unit boundaries be extended to include adjacent areas, others requested that the boundaries be modified to exclude developed areas.

An additional 16 letters addressing the topic of boundaries were received during the 1995 EIS scoping period. Four of those letters contend that the location of a unit's boundary was inappropriately applied and, therefore, that unit should be deleted from the proposed Pacific coast System units. The remaining letters supported implementation of the Act and requested that unit boundaries be expanded to include additional lands.

4.4.3 Otherwise Protected Areas

Coastal barriers eligible for inclusion in the System were mapped without regard to ownership. Subsequent examination of the mapped areas found approximately 79 percent of the area proposed for the System is publicly owned lands. Publicly owned lands are typically subject to various land use/development restrictions at the local, State, and/or Federal level and are withdrawn from the normal cycle of private development, and are referred to as "Otherwise Protected Areas" (OPAs). OPAs extend beyond the "public" lands to include aquatic areas and adjacent uplands that do not constitute the barrier itself, but are included in the unit. OPAs were mapped and proposed for the System because of the possibility for future land use or ownership changes. That is, if public lands are surplused or the development status altered, inclusion in the System would restrict Federal expenditures for development.

Under the CBIA, OPAs on all other U.S. coasts were exempt from all restrictions except for the prohibition of Federal flood insurance. However, because of the high percentage of OPAs (79 percent) proposed for the System on the Pacific coast, the DOI concluded that exempting public land from all (or most) of the restrictions of the Act did not fulfill the purpose of the Act.

A total of 27 comment letters addressed the topic of OPAs; only 3 of these letters were received during the 1995 EIS scoping. Comment letters were received both supporting and opposing the Act, and/or inclusion of specific units with OPAs. Those commentors supporting the inclusion of OPAs in the System generally maintained that an additional level of protection for fragile and hazard-prone coastal lands would be beneficial.

Other comments received that support the inclusion of OPAs in the System include:

- OPAs should be subject to the full range of spending restrictions and exceptions.

- State and local land use plans are often subject to political and economic pressures that could be avoided through consistent Federal implementation of the Act.

- Although units proposed for inclusion in the System that contain National Parks are adequately protected, the National Park Service, Pacific Northwest Region had no objection to their inclusion in the System.

- The Oregon Department of Fish and Wildlife commented that the Act complements the Oregon coast management program by providing additional protection for State and Federal lands and high hazard areas. Furthermore, inclusion of OPAs will afford additional protection to freshwater wetlands adjacent to estuaries.

Commentors opposing the inclusion of specific barriers in the System often maintained that existing State and Federal restrictions offer adequate protection to OPAs and that inclusion in the System would add burdensome consultation requirements; others suggested that OPAs only be subject to provisions of the Act if the lands are surplused or development status changes. Another common argument against inclusion of an OPA in the System was that OPAs are not subject to the same development pressures as private lands.

Additional comments include:

- The Act may discourage State and local protection of important coastal resources by creating the impression that these resources are adequately protected at the Federal level.

- It is not equitable to designate OPAs as System units on the Pacific coast and not other U.S. coasts; OPAs on other coasts retain their status and are only denied Federal flood insurance.

- The Oregon Coastal Zone Management Program is strong enough to meet and/or exceed the goals of the CBIA. Additionally, 93 percent of the proposed units in Oregon are public lands and not subject to intense development pressures.

4.4.4 Section 6 Exemptions

Section 6 of the Act, as amended, allows the appropriate Federal officer, after consultation with the Secretary, to make Federal expenditures or financial assistance available within the System for a variety of coastal-related activities. A list of Section 6 exemptions was not provided in the 1993 Draft Study and, consequently, numerous comments were received questioning whether certain activities would be considered for

exemption. The comprehensive list of Section 6 exemptions is provided in this section. Comments received from the 1993 Draft Study and during the 1995 EIS scoping are presented immediately following the applicable exemption.

A consistent comment raised in letters addressing Section 6 exemptions was the need for clarification of activities that qualify for exemption and the review and approval process for proposed activities. Additionally, concerns were raised regarding the potential delays and administrative burdens that could result from the consultation process. Section 6 exemptions of the Act are as follows (exemptions are numbered; corresponding comments follow and are bulleted):

(1) Any use or facility necessary for the exploration, extraction, or transportation of energy resources which can be carried out only on, in, or adjacent to a coastal water area because the use or facility requires access to the coastal water body.

- Commentors noted concern over the high potential for inconsistent application of the exemption for facilities associated with energy resources and suggested that the DOI work with county planning and development departments during the consultation process, and determine if the exemption is consistent with State laws.

(2) The maintenance or construction of improvement of existing Federal navigation channels (including the Intracoastal Waterway) and related structures (e.g., jetties) including the disposal of dredge materials related to such maintenance or construction.

- While maintenance dredging is an exception, several coastal ports requested clarification whether or not all activities associated with dredging, particularly the disposal of dredged materials, are also exempted.

- The U.S. Army Corps of Engineers requested clarification of whether ongoing and potential actions associated with maintenance of existing projects qualified as a Section 6 exemption.

(3) The maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities that are essential links in a larger network or system.

- State Departments of Transportation commented that State highway corridors should either not be included in System units or they should be exempted from the Act since inclusion could constrain future transportation options.

- The Act may inhibit the use of Federal Transportation Enhancement Activity (FTEA) funds for projects in the System. It was suggested that projects under the FTEA program be listed as a Section 6 exemption.

(4) Military activities essential to national security.

- Three units in California - CA-57, CA-58, and CA-59 - are within the Marine Corps Base at Camp Pendleton. Camp Pendleton is the only military installation on the West coast where amphibious operations and training can be conducted. Because these activities would be exempt from the Act, the Marine Corps requested that the units be removed from the System, as the undeveloped nature of the units will not change and the administrative burden created from the consultation process for exemptions could prove detrimental to the Marine Corps.

(5) The construction, operation, maintenance, and rehabilitation of Coast Guard facilities and access thereto.

(6) Any of the following actions or projects, if a particular expenditure or the making available of particular assistance for the action or project is consistent with the purposes of the Act:

(a) Projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, including acquisition of fish and wildlife habitats and related lands; stabilization projects for fish and wildlife habitats; and recreation projects.

- Several commentors requested that the DOI further analyze the effect of System designation on the development of public facilities such as access sites and interpretive facilities in Federal, State, and local recreation areas, and that the DOI develop a consultation process for Federally funded recreation projects.

(b) Establishment, operation, and maintenance of air and water navigation aids and devices, and for access thereto.

(c) Projects under the Land and Water Conservation Fund (LWCF) of 1965 and the Coastal Zone Management Act (CZMA) of 1972.

(d) Scientific research, including aeronautical, atmospheric, space, geologic, marine, fish and wildlife, and other research, development, and applications.

(e) Assistance for emergency actions essential to the saving of lives and the protection of property and the public health and safety, if such actions are performed pursuant to Sections 402, 403, and 502 of the Disaster Relief Emergency Assistance Act and Section 1362 of the National Flood Insurance Act of 1968 and are limited to actions that are necessary to alleviate the emergency.

(f) Maintenance, replacement, reconstruction, or repair, but not the expansion (except with respect to U.S. Route 1 in the Florida Keys), of publicly owned operated roads, structures, and facilities.

- Certain State Departments of Transportation noted that bridge replacement and road upgrading may include adding or widening highway shoulders which should be interpreted as a repair/replacement activities, not expansion, and therefore exempt from the restrictions of the Act.

(g) Nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system.

- Questions were raised whether removal of sand materials from within a unit of the System for placement outside the unit for erosion control measures would qualify as a Section 6 exemption.

- The U.S. Army Corps of Engineers questioned how the Act will affect the "Dredge Material Program" which places clean dredged sand in nearshore littoral zones for erosion control and beach nourishment.

In addition to seeking clarification of the existing Section 6 exemptions, commentors provided suggestions of activities that should be considered for exemption from the Act.

- Questions were raised regarding the implications of the Act on block grants for recreational facilities, or water pollution control facilities required by other legislation.

- Commentors stated that ports should be encouraged to seek new and expanded revenue sources facilitated by marina expansion; failure to include marina expansion as an exemption could block any expansion that would utilize Federal funds.

- Several commentors suggested that Federal funds needed to restore native, historic Hawaiian fishponds be exempted from the Act; funding to eradicate invasive exotic species (i.e., fringing mangroves) from fish ponds should also be allowed.

4.4.5 Tribal Lands

Neither the Act nor the CBIA specifically reference or provide guidance regarding inclusion of lands owned by Native American Tribes or by individual Native Americans in the System. When the Pacific coast System was mapped in 1992, all lands, including Tribal lands, that met the coastal barrier criteria were included on the draft maps. At the request of several Native American Sovereign Nations, proposed coastal barrier units

which included known Tribal lands were deleted from the inventory when the 1993 draft maps were published. Following the release of the 1993 Draft Study and maps, the FWS met with natural resource planning staff of certain Tribes for additional coordination efforts. At that time, the FWS was informed that certain lands held in trust by the Tribes and lands or waters designated as usual and accustomed fishing, hunting, and gathering grounds may have been inadvertently included within the 1993 and revised 1994 maps. The Bureau of Indian Affairs (BIA) continues to maintain that all recognized Indian reservations and subsequent trust land transactions should be deleted from System consideration. Additionally, Indian allotment lands (private inholdings not within Congressionally designated reservation boundaries) should be treated in the same manner as reservations lands and, therefore, excluded from the System.

A total of 13 letters addressing the topic of Tribal lands were submitted to the FWS. With the exception of 2 letters from national environmental advocate groups, all letters requested that Tribal and allotment lands be removed entirely from the System. Some letters also questioned the effect of the Act on such Tribal activities as shellfish culturing and harvesting, and archaeological activities.

4.4.6 Federal Emergency Management Agency (FEMA)/Federal Funding

Numerous comment letters were received concerning the availability of Federal flood insurance and other Federal funds in undeveloped coastal barrier units. Several commentors supported the intentions of the Act (to discourage development in coastal barriers by prohibiting Federal funds) and those supporters contended that unwise development in hazardous areas should not be Federally subsidized. However, the majority of commentors opposed restrictions on Federal funds that would accompany implementation of the Act. Activities that typically receive Federal funding mentioned in letters included FEMA flood insurance, geographic surveys, hydraulic testing, economic diversity projects, Hawaiian fishpond restoration, Veteran's Administration funding for private development (305 of them were form letters), the National Estuary Program, and marina expansion and maintenance. Concern was also raised as to the inability to obtain local building permits or loans from private financing institutions because of policies requiring Federal flood insurance eligibility.

4.4.7 Community Economic Impacts

The potential impacts from implementation of the Act on community economies was a topic addressed in 48 comment letters. Most of those commentors voiced concern that restricting Federal funds would adversely affect the economic growth of their communities by discouraging private and commercial development, port and marina expansions, and recreation and tourism facilities.

4.4.8 Other Topics Addressed

In addition to the topics described above, other issues and concerns were revealed during the comment period on the 1993 Draft Study and 1995 EIS scoping. The following topics may also be addressed in the DEIS.

Public Notice/Requests for Additional Information

Twenty commentors criticized the FWS on the public notification process for the 1993 Draft Study. The commentors cited inadequate publication of public meetings and insufficient time to prepare responses to the 1993 Draft Study. Other commentors requested additional site-specific information and maps for review purposes.

Real Estate/Private Property Investment/Property Rights

A total of 351 letters that addressed the topic of private property investment/property rights were received in response to the 1993 Draft Study and 1995 EIS scoping; 305 of those comments were submitted as form letters opposing the inclusion of their property within a proposed housing subdivision into the System. The majority of the commentors addressing this issue were property owners who believe that implementation of the Act would result in "taking" of their property and some suggested that affected landowners be compensated for such losses

Administrative Burden/Duplication of Government Efforts

Potential administrative burdens and duplication of government efforts created by implementation of the Act were concerns raised by 79 commentors. Seventy-one commentors maintain that existing coastal management programs afford adequate protection to the coastal resources, and the consultation process required for Section 6 exemptions would be burdensome, time-consuming, and costly. For example, the U.S. Marine Corps noted that units containing Wildlife Management Areas and National Historical Properties, such as the Nu'upia Ponds, Hawaii (Unit HI-31), are already sufficiently protected; additional consultation requirements related to the Act would be burdensome and unnecessary. Conversely, 8 commentors supportive of the CBIA believe that additional protection will serve to further protect coastal resources.

Cultural Resources

Native Hawaiian fishponds and Native American archaeological and historical sites were the two cultural resources discussed in 16 letters (8 letters addressing each of the resources) received on the 1993 Draft Study and 1995 EIS scoping. Regarding fishponds, most commentors expressed concern about potential Federal funding restrictions for restoration efforts of the fishponds if the Act is implemented, and ultimately recommended deletion of units that contain fishponds from the System. Conversely, the 8 comment letters that discussed Native American archaeological and historical sites

supported inclusion of the units to protect these cultural resources from potential impacts caused by development.

National Estuary Program

The National Estuary Program (NEP), administered by the Environmental Protection Agency (EPA), was established by the Water Quality Act of 1987 to develop and promote long-term planning and management to protect the integrity of nationally significant estuaries threatened by pollution, development, and overuse. There are currently 21 NEPs in the United States. Tillamook Bay recently received NEP designation and funding; one of the proposed coastal barrier units in Oregon encompasses portions of the Tillamook Bay. Tillamook County representatives raised concerns about potential impacts to the Tillamook Bay NEP if the Act is implemented on the Pacific coast. Economic development is proposed by the Tillamook Bay Management Conference. There is concern about NEP activities which could potentially be impacted by the Act since the NEP relies on Federal funding. Commentors recommended the NEP for programmatic exclusion from the System. One comment letter, however, noted that the Act should not conflict with the NEP due to the intent of the Act and NEP and the public process employed in implementing the program.

APPENDIX 1

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similar basis, the health plan and contract health care provider must comply with all of the following four standards—

(A) The term of the agreement between the health plan and the contract health care provider must be for not less than one year;

(B) The agreement between the health plan and the contract health care provider must specify in advance the covered items and services to be furnished to enrollees, and the methodology for computing the payment to the contract health care provider;

(C) The health plan must fully and accurately report, on the applicable cost report or other claim form filed with the Department or the State health care program, the amount it has paid the contract health care provider under the agreement for the covered items and services furnished to enrollees; and

(D) The contract health care provider must not claim payment in any form from the Department or the State health care program for items or services furnished in accordance with the agreement except as approved by HCFA or the State health care program, or otherwise shift the burden of such an agreement onto Medicare, a State health care program, other payors, or individuals.

(ii) If the health plan is not described in paragraphs (m)(1)(i) or (m)(1)(ii) of this section, both the health plan and contract health care provider must comply with all of the following six standards—

(A) The term of the agreement between the health plan and the contract health care provider must be for not less than one year;

(B) The agreement between the health plan and the contract health care provider must specify in advance the covered items and services to be furnished to enrollees, which party is to file claims or requests for payment with Medicare or the State health care program for such items and services, and the schedule of fees the contract health care provider will charge for furnishing such items and services to enrollees;

(C) The fee schedule contained in the agreement between the health plan and the contract health care provider must remain in effect throughout the term of the agreement, unless a fee increase results directly from a payment update authorized by Medicare or the State health care program;

(D) The party submitting claims or requests for payment from Medicare or the State health care program for items and services furnished in accordance with the agreement must not claim or request payment for amounts in excess of the fee schedule;

(E) The contract health care provider and the health plan must fully and accurately report on any cost report filed with Medicare or a State health care program the fee schedule amounts charged in accordance with the agreement; and

(F) The party to the agreement, which does not have the responsibility under the agreement for filing claims or requests for payment, must not claim or request payment in any form from the Department of the State health care program for items or services furnished in accordance with the agreement, or otherwise shift the burden of such an agreement onto Medicare, a state health care program, other payors, or individuals.

(2) For purposes of this paragraph, the terms *contract health care provider, enrollee,* and *health plan* have the same meaning as in paragraph (l)(2) of this section.

Dated: August 12, 1992.

Bryan B. Mitchell,

Principal Deputy Inspector General.

Approved: October 6, 1992.

Louis W. Sullivan,

Secretary.

[FR Doc. 92-26802 Filed 11-4-92; 8:45 am]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

43 CFR Subtitle A

Coastal Barrier Improvement Act; Advisory Guidelines

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Rule-related notice and request for comments.

SUMMARY: The U.S. Fish and Wildlife Service (Service) is revising its rule-related document of October 6, 1983, to reflect changes in the Coastal Barrier Resources Act (CBRA), as amended by the Coastal Barrier Improvement Act of 1990 (CBIA). This document sets forth the Service's general statement of policy and advisory guidelines regarding the provisions of the CBIA that address limitations on Federal expenditures and financial assistance, and exceptions to the limitations.

DATES: Comments on this document will be accepted through January 4, 1993. The prohibitions on new Federal financial expenditures and assistance, including Federal flood insurance, were effective within new and expanded units of the Coastal Barrier Resources System upon enactment of CBIA on November 16, 1990. The ban on Federal flood insurance on "otherwise protected areas", as defined in the CBIA, went into effect on November 16, 1991.

ADDRESSES: Comments should be directed to U.S. Fish and Wildlife Service, Division of Habitat Conservation, 400 Arlington Square, Washington, DC 20240 (703-358-2201).

FOR FURTHER INFORMATION CONTACT: Linda Kelsey (703-358-2201).

SUPPLEMENTARY INFORMATION: On November 16, 1990, President Bush signed the Coastal Barrier Improvement Act (CBIA) into law (Pub. L. 101-591). The CBIA amends the Coastal Barrier Resources Act (CBRA) in several significant ways. It expanded the Coastal Barrier Resources System (System) from 183 to 560 units and from 143,000 acres to 1.25 million acres. The System now includes units in Puerto Rico, the U.S. Virgin Islands, Great Lakes States, New Jersey, Maryland, and the Florida Keys, as well as many new areas in States that already contained units within the System. The CBIA also established a new category identified as "otherwise protected areas" where Federal flood insurance for new construction not in conformance with the purposes of the area is banned. The Federal Emergency Management Agency is issuing revised Flood Insurance Rate Maps that reflect the changes. Separate codes are used on the maps depicting areas where the ban went into effect on October 18, 1983, November 16, 1990, and November 16, 1991.

These guidelines reiterate the guidance provided in 1983 on the definition of expenditures and financial assistance. Unless specified that the guidance has been modified by the CBIA, the requirements of CBRA remain unchanged since passage of the Act in 1982. The guidelines for consultation with the Fish and Wildlife Service (Service) are also outlined.

1. Environmental Effects

These guidelines describe the procedures Federal agencies should follow in consulting with the Service prior to making an expenditure or providing assistance to activities excepted under section 6 of CBRA, as amended by CBIA. Such activities generally continue the status quo, provide localized environmental benefits or localized emergency disaster assistance. Therefore, the Department of the Interior (Department) has

Secretary of the Interior before making any Federal expenditures or financial assistance available under the provisions of Section 6. The Secretary's consultation responsibilities have been delegated to the Service. Procedures for consultation follow the discussion of exceptions.

Expenditures Allowed for Specific Activities

(1) Energy projects (Section 6(a)(1)). Federal assistance may be made available for energy projects in or adjacent to coastal areas for any use or facility necessary for the exploration, extraction, or transportation of energy resources which can be carried out only on, in, or adjacent to coastal water areas because the use or facility requires access to the coastal water body. The legislative history (House Report 97–841) states that "this provision is intended to be read broadly in terms of energy projects. However, the provision should not be interpreted to allow assistance for projects primarily designed to encourage development which might be carried out in the guise of energy development."

(2) Navigation channel improvements (Section 6(a)(2)), as amended by CBIA section 6(b)]. The CBRA exception that allowed only maintenance of existing navigation channels was amended to allow maintenance or construction of improvements of existing Federal navigation channels and related structures (such as jetties). CBRA section 6(b) provides that for purposes of subsection (a)(2), a Federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System unit or part of the System unit was included within the System. The use of disposal sites for dredge materials is included under this exception, so long as the sites are related to, and necessary for, the maintenance or construction of an existing project. House Report 97–841 also stated, that because of the unstable nature of barrier islands, existing channels can be relocated periodically.

(3) Roads, Structures or Facilities (Section (6)(a)(3)) as amended by the CBIA in this subsection and section (6)(c) Maintenance, replacement, reconstruction, or repair, but not expansion (except for U.S. Highway 1 in the Florida Keys and highways in Michigan that run through System units) of publicly owned or publicly operated roads, structures, or facilities that are essential links in a larger network or system can continue. The legislative history indicates the Congressional intent to include drains, gutters, curbs and other related roadworks under this exception. The Service interprets "structures or facilities" to include public utilities. Section 6(a)(6)(F) is also applicable to public utilities that are not essential links in a larger system.

(4) Military activities (Section 6(a)(4)). Military activities essential to national security are excepted from the ban on Federal expenditures, but not from the requirement to consult. The Defense Department will be the judge of what is essential to national security, but, as stated in Conference Report 97–928, its "determination as to whether military activities are essential to national security must be made in accordance with existing law and procedures." The Defense Department still has the responsibility to consult with the Service with respect to any expenditures or financial assistance within the System.

(5) Coast Guard (Section 6(a)(5)). Expenditure of funds or provision of financial assistance for the construction, maintenance, operation and rehabilitation of Coast Guard facilities can continue.

Expenditures Allowed for Specific Activities if They Meet the Purposes of CBRA

(6) Conservation, navigation aids, recreation, scientific research, disaster relief, roads, shoreline stabilization (Section 6(a)(6)). The following actions or projects are excepted, providing the expenditure is consistent with the purposes of CBRA, which are detailed in Section 2(b) (i.e., to minimize loss of human life, wasteful Federal expenditures and damage to fish, wildlife, and other natural resources):

(A) Projects for the study, management, protection and enhancement of fish and wildlife resources and habitats, including, but not limited to, acquisition of fish and wildlife habitats and related lands, stabilization projects for fish and wildlife habitats, and recreational projects. The legislative history states: "This exception recognizes the value of System units as fish and wildlife habitats and is in complete conformity with the purposes of the legislation. It is intended that the full range of Federal financial assistance authorized for protecting and managing fish and wildlife habitats will continue to be available. This includes, where necessary, assistance for stabilization projects to protect valuable habitats. Federal funds for projects involving facilities for fish and wildlife-related recreation would also be allowed. It is intended by the Committee that any development of recreational facilities be consistent with the purposes of the legislation." (House Report 97–841.)

(B) The establishment, operation, and maintenance of air and water navigation aids and devices, and for access thereto. The legislative history indicates that, in almost every instance, placement and use of such aids and devices on undeveloped coastal barriers would be appropriate. (House Report 97–841.)

(C) Projects under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601–4 through 11) and the Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.). The legislative history applied to Section 6(a)(6)(A) would be generally applicable to this provision as well. Recreational use of System units should be encouraged so long as it is accomplished consistent with the purposes of CBRA.

(D) Scientific research, including but not limited to aeronautical, atmospheric, space, geologic, marine, fish and wildlife [illegible] applications.

(E) Assistance for emergency actions essential to the saving of lives and the protection of property and the public health and safety, if such actions are performed pursuant to sections 402, 403, and 502 of the Disaster Relief and Emergency Assistance Act and section 1362 of the National Flood Insurance Act of 1968 (42 U.S.C. 4103) and are limited to actions that are necessary to alleviate the emergency.

(F) The maintenance, replacement, reconstruction, or repair, but not the expansion of publicly owned or publicly operated roads, structures, or facilities. This exception is essentially moot since the Federal Highway Administration has determined that all highways on the Federal network are essential links in a larger network or system.

(G) Nonstructural projects for shoreline stabilization that are designed to mimic, enhance or restore natural stabilization systems. The legislative

Bureau of Reclamation

›posed Tongue River Dam Project/ ›rthern Cheyenne Indian Reserved Water Rights Settlement Act of 1992, Big Horn County, Montana

AGENCY: Bureau of Reclamation, Interior.

ACTION: Notice of intent to prepare a draft environmental impact statement.

SUMMARY: Pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, the Bureau of Reclamation (Reclamation), acting as lead Federal agency, will prepare a draft environmental impact statement (DEIS) on the Tongue River Dam Project portion of the Northern Cheyenne Indian Reserved Water Rights Settlement Act of 1992 (Settlement Act). As trustee for the Northern Cheyenne Indian Tribe (Tribe), the Federal Government has identified the following trust assets that may be affected by the implementation of the Tongue River Project aspects of the Settlement Act: (1) the Tribe's existing water supplies held in Tongue River Reservoir, (2) the safety of downstream tribal lands, and , (3) additional water for the Tribe's use in the Tongue River Basin. Taking ›nable actions necessary to protect › trust assets has been identified as ›› proposed action.

FOR FURTHER INFORMATION CONTACT: Mr. James Wedeward, Project Manager, Bureau of Reclamation, Montana Projects Office, Attention: MT–100, PO Box 30137, Billings MT 59107; telephone: (406) 657–6075.

SUPPLEMENTARY INFORMATION: Years of negotiations between the Federal Government (acting as trustee for the Tribe) and the State of Montana culminated in 1991 with the signing of a water rights compact. Subsequently, the compact was ratified by the Congress, and the Settlement Act was signed into law (Pub. L. 102–374). During the negotiations, an opportunity was identified to rehabilitate the presently unsafe State-owned Tongue River Dam and provide additional water to the Tribe by raising the dam. The following alternatives will be evaluated in the DEIS, along with others identified during the compliance process which address the stated trust asset protection and criteria for reasonableness:

(1) Repair and raise the dam;

(2) Repair the dam, without raising it, provide additional water through purchase from willing sellers;

(3) Repair the dam, without raising it, and provide additional water from alluvial ground water;

(4) Variations on repairing the dam, raising it an incremental amount, and providing the remainder of the additional water through purchase or from ground water; and

(5) No action.

The DEIS is expected to be completed and available for review and comment in mid-1994. The document is being prepared by Morrison-Maierle/CSSA under contract with the Montana Department of Natural Resources and Conservation. A decision on which alternative to implement will not be made until a final environmental impact statement is completed and reviewed.

During the process of negotiating the compact, the State of Montana and Reclamation hosted numerous public and agency informational meetings. More recently, public scoping meetings were held during March 1993 at the following locations in Montana: Busby, Lame Deer, Crow Agency, Birney, Birney Village, Ashland, Miles City, and Billings; and in Sheridan, Wyoming. Notification of the pending meetings was given in the Billings, Miles City, Hardin, Colstrip, Forsyth, and Sheridan newspapers a minimum of 2 weeks prior to the meeting. A scoping document containing the schedule for all meetings was mailed to approximately 2,100 individuals and entities on the Northern Cheyenne Indian Reservation and surrounding towns and cities. Additional scoping meetings may be held later to narrow significant issues. The results of the March scoping meetings have been compiled in a summary document. Anyone interested in obtaining a copy of that document, wanting more information relative to the study, or who has suggestions for other alternatives to be evaluated or for other significant environmental issues, should contact Mr. James Wedeward at the above address.

Dated: December 9, 1993.

Donald R. Glaser,

Deputy Commissioner.

[FR Doc. 93–30808 Filed 12–16–93; 8:45 am]

BILLING CODE 4310–94–M

Fish and Wildlife Service

Availability of Draft Pacific Coastal Barriers Study and Accompanying Maps of Areas Under Consideration for Inclusion in the Coastal Barrier Resources System

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice.

SUMMARY: Under the provisions of section 6 of the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3503), the Secretary of the Interior is required to provide to Congress a study which examines the need for protecting undeveloped coastal barriers along the Pacific coast of the United States and to prepare maps identifying the boundaries of those undeveloped coastal barriers bordering the Pacific Ocean south of 49 degrees north latitude which the Secretary and the appropriate Governor consider to be appropriate for inclusion in the Coastal Barrier Resources System. This notice is to announce the availability of the Draft Pacific Coastal Barriers Study and the accompanying maps of areas under consideration for inclusion in the Coastal Barrier Resources System.

DATES: Comments should be received from the appropriate Governors no later than March 17, 1994. Comments from all other interested parties should be received no later than February 15, 1994.

ADDRESSES: Written comments should be addressed to the Regional Director, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 97232–4181.

FOR FURTHER INFORMATION CONTACT: Paula Levin, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 97232–4181; (503) 231–2068.

SUPPLEMENTARY INFORMATION: On October 18, 1982, President Reagan signed the Coastal Barrier Resources Act (CBRA) into law (Pub. L. 97–348). Section 4 of CBRA establishes the Coastal Barrier Resources System (System) as referred to and adopted by Congress, and sections 5 and 6 prohibit all new Federal expenditures and financial assistance within the units of that System unless specifically excepted by the Act. Coastal barrier units were designated along the Atlantic and Gulf of Mexico coasts.

On November 16, 1990, President Bush signed the Coastal Barrier Improvement Act of 1990 (CBIA) into law (Pub. L. 101–591). The CBIA greatly expanded the size of the System by adding coastal barriers of the Great Lakes, as well as additional areas along the Atlantic and Gulf of Mexico coasts. The CBIA amended section 1321 of the National Flood Insurance Act of 1968 to prohibit the issuance of new Federal flood insurance within "otherwise protected areas" identified on the maps referred to in the CBIA.

Section 6 of the CBIA directed the Secretary of the Interior to prepare a study which examines the need for protecting undeveloped coastal barriers

Hawaii Office of State Planning, State Coastal Zone Management, 1177 Alakea Street, 2nd Floor, Honolulu, Hawaii 96813, telephone: 808–587–2880

California

Carlsbad Field Office, U.S. Fish and Wildlife Service, 2730 Loker Avenue West, Carlsbad, California 92008, telephone: 619–431–9440

Ventura Field Office, U.S. Fish and Wildlife Service, 2140 Eastman Avenue, suite 100, Ventura, California 93003, telephone: 805–644–1766

Sacramento Field Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, room E–1803, Sacramento, California 95825, telephone: 916–978–4613

San Francisco Bay National Wildlife Refuge, U.S. Fish and Wildlife Service, 1 Marshlands Road, Fremont, California 94536, telephone: 510–792–0222

Humboldt Bay National Wildlife Refuge, U.S. Fish and Wildlife Service, 1020 Ranch Road, Loleta, California 95551, telephone: 707–733–5406

California Coastal Commission, 45 Fremont, suite 2000, San Francisco, California 94105–2219, telephone: 415–904–5280

Oregon

Portland Field Office, U.S. Fish and Wildlife Service, 2600 S.E. 98th Avenue, suite 100, Portland, Oregon 97266, telephone: 503–231–6179

Oregon Coastal Refuges, U.S. Fish and Wildlife Service, 2030 Marine Science Drive, Newport, Oregon 97365–5296, telephone: 503–867–4550

Oregon Coastal/Ocean Management Program, Department of Land and Conservation Development, 1175 Court Street NE, Salem, Oregon 97310–0590, telephone: 503–373–0092

Bandon Public Library, P.O. Box 128, Bandon, Oregon 97411, telephone: 503–347–3221, located in the Bandon City Hall on Highway 101

Seaside Public Library, 60 N. Roosevelt Boulevard, Seaside, Oregon 97138, telephone: 503–738–6742

Hatfield Marine Science Center, Guin Library, 2030 Marine Science Drive, Newport, Oregon 97365, telephone: 503–867–0249

North Bend Public Library, 1800 Sherman Avenue, North Bend, Oregon 97459, telephone: 503–756–0400

Washington

Olympia Field Office, U.S. Fish and Wildlife Service, 3704 Griffin Lane SE., suite 102, Olympia, Washington 98501–2192, telephone: 206–753–9440

Willapa National Wildlife Refuge, U.S. Fish and Wildlife Service, HC 01, Box 910, Ilwaco, Washington 98624–9797, telephone: 206–484–3482

Nisqually National Wildlife Refuge, U.S. Fish and Wildlife Service, 100 Brown Farm Road, Olympia, Washington 98506, telephone: 206–753–9467

Washington Coastal Refuges, U.S. Fish and Wildlife Service, 1638 Barr Road South, Port Angeles, Washington 98382, telephone: 206–457–8451

Washington Department of Ecology, Shorelands and Coastal Management Program, Baran Hall, St. Martins College, Lacey, Washington 98504, telephone: 206–459–6784

In addition to the above locations copies of the accompanying maps may be reviewed at the county planning and zoning offices for all coastal counties in each state.

Appendix A—Proposed Washington Coastal Barrier Resources System Units

County	Unit No.	Unit name
Whatcom	WA–01	Semiahmoo Spit/Drayton Harbor.
Skagit	WA–04	Sinclair Island.
San Juan	WA–05	Waldron Island.
San Juan	WA–06	Henry Island/ Nelson Bay.
San Juan	WA–07	Fisherman Bay North.
San Juan	WA–08	Fisherman Bay South.
San Juan	WA–09	Low Point.
San Juan	WA–10	San Juan Island South.
San Juan	WA–11	Mud Bay/Shoal Bight.
San Juan	WA–12	Spencer Spit.
San Juan	WA–13	Decatur Head.
Skagit	WA–14	Guemes Island.
Skagit	WA–15	Padilla Bay.
Skagit	WA–15A	Ship Harbor.
Island	WA–17	Ben Ure Spit.
Island	WA–18	Cranberry Lake.
Island	WA–19	South of Cranberry Lake.
Island	WA–20	Arrowhead Beach.
Island	WA–21	Polnell Point.
Island	WA–22	Crescent Harbor Area.
Island	WA–23	Oak Harbor Area.
Island	WA–24	Whidbey Island NW.
Island	WA–25	Whidbey Island SW.
Island	WA–26	Crockett Lake.
Island	WA–27	Race Lagoon.
Island	WA–28	Whidbey Island East.
Island	WA–29	Lake Hancock.
Island	WA–30	Useless Bay Area.
Island	WA–31	Cultus Bay.
Kitsap	WA–33	Battle Point.
King	WA–34	Point Heyer.
Pierce	WA–35	McNeil Island.
Mason	WA–37	Buffingtonis Lagoon.
Pierce	WA–38	Vaughn Bay.
Pierce	WA–39	Henderson Bay Area.
Kitsap	WA–40	Stavis Bay.
Jefferson	WA–41	Zelatched Point.
Jefferson	WA–42	Tarboo Bay.
Jefferson	WA–43	Toandos Peninsula East.
Jefferson	WA–44	Thorndyke Bay.
Jefferson	WA–46	Bywater Bay.
Kitsap	WA–47	Fowlweather Bluff East.
Kitsap	WA–48	Fowlweather Bluff.
Jefferson	WA–49	Oak Bay East.
Jefferson	WA–50	Oak Bay.
Jefferson	WA–51	Oak Bay West.
Jefferson	WA–52	Kilisut Harbor.
Jefferson	WA–53	Kala Point.
Jefferson	WA–54	Port Discovery Area.
Clallam	WA–55	Thompson Sp
	WA–56	Sequim Bay
		Klaklah Point
		Dungeness Spit
Clallam	WA–60	Crescent Bay.
Clallam	WA–61	Pysht River.
Clallam	WA–62	Clallam Bay.
Clallam	WA–63	Mouth Hoko River.
Grays Harbor	WA–69	Copalis River.
Grays Harbor	WA–70	Conner Creek.
Grays Harbor	WA–71	Ocean Shores.
Grays Harbor	WA–72	Ocean Shores South.
Grays Harbor	WA–73	Westport.
Grays Harbor	WA–74	Grayland North.
Pacific	WA–75	Grayland Beach.
Pacific	WA–75A	Grayland South.
Pacific	WA–76	Empire Spit.
Pacific	WA–77	North Beach Peninsula.
Pacific	WA–78	Jensen Point.
Pacific	WA–79	Long Beach/ Seaview.
Pacific	WA–80	Cape Disappointment.

Appendix B—Proposed Oregon Coastal Barrier Resources System Units

County	Unit No.	Unit name
Clatsop	OR–01	Columbia R./Clatsop Spit.
Clatsop	OR–02	Necanicum River.

Management is proposing to reinstate lease WYW111438 effective June 1, 1993, subject to the original terms and conditions of the lease and the increased rental and royalty rates cited above.

Victoria B. Jerome,

Acting Supervisory Land Law Examiner.

[FR Doc. 94-4034 Filed 2-22-94; 8:45 am]

BILLING CODE 4310-22-M

[WY-920-41-5700; WYW111476]

Proposed Reinstatement of Terminated Oil and Gas Lease

February 10, 1994.

Pursuant to the provisions of 30 U.S.C. 188 (d) and (e), and 43 CFR 3108.2-3 (a) and (b)(1), a petition for reinstatement of oil and gas lease WYW111476 for lands in Fremont County, Wyoming, was timely filed and was accompanied by all the required rentals accruing from the date of termination.

The lessee has agreed to the amended lease terms for rentals and royalties at rates of $5.00 per acre, or fraction thereof, per year and 16⅔ percent, respectively.

The lessee has paid the required $500 administrative fee and $125 to reimburse the Department for the cost of this Federal Register notice. The lessee has met all the requirements for reinstatement of the lease as set out in section 31 (d) and (e) of the Mineral Lands Leasing Act of 1920 (30 U.S.C. 188), and the Bureau of Land Management is proposing to reinstate lease WYW111476 effective June 1, 1993, subject to the original terms and conditions of the lease and the increased rental and royalty rates cited above.

Victoria B. Jerome,

Acting Supervisory Land Law Examiner.

[FR Doc. 94-4035 Filed 2-22-94; 8:45 am]

BILLING CODE 4310-22-M

[WY-920-41-5700; WYW111519]

Notice of Proposed Reinstatement of Terminated Oil and Gas Lease

February 10, 1994.

Pursuant to the provisions of 30 U.S.C. 188 (d) and (e), and 43 CFR 3108.2-3 (a) and (b)(1), a petition for reinstatement of oil and gas lease WYW111519 for lands in Park County, Wyoming, was timely filed and was accompanied by all the required rentals accruing from the date of termination.

The lessee has agreed to the amended lease terms for rentals and royalties at rates of $5.00 per acre, or fraction thereof, per year and 16⅔ percent, respectively.

The lessee has paid the required $500 administrative fee and $125 to reimburse the Department for the cost of this Federal Register notice. The lessee has met all the requirements for reinstatement of the lease as set out in section 31 (d) and (e) of the Mineral Lands Leasing Act of 1920 (30 U.S.C. 188), and the Bureau of Land Management is proposing to reinstate lease WYW111519 effective June 1, 1993, subject to the original terms and conditions of the lease and the increased rental and royalty rates cited above.

Victoria B. Jerome,

Acting Supervisory Land Law Examiner.

[FR Doc. 94-4036 Filed 2-22-94; 8:45 am]

BILLING CODE 4310-22-M

Fish and Wildlife Service

Extension of Public Comment Period on the Draft Pacific Coastal Barriers Study and Accompanying Maps of Areas Under Consideration for Inclusion in the Coastal Barrier Resources System

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of extension of time period for public comment.

SUMMARY: The U.S. Fish and Wildlife Service (Service), is extending the comment period for review of the Draft Pacific Coastal Barriers Study and accompanying maps, prepared pursuant to the Coastal Barriers Improvement Act of 1990 (Act). The notice of availability for the Draft Study and maps was published on December 17, 1993. Public information meetings were held in the four affected States. Based on requests received from the public and the Governors of California, Oregon, and Washington during the initial public comment period, the Service determined an extended review period is necessary to allow interested parties additional time to submit written comments on the proposal.

DATES: Comments should be received from the appropriate Governors no later than April 25, 1994. Comments from all other interested parties should be received no later than March 25, 1994.

ADDRESSES: Written comments should be addressed to the Regional Director, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 97232-4181.

FOR FURTHER INFORMATION CONTACT: Paula Levin, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 97232-4181, (503) 231-2068. Copies of the Draft Study and accompanying maps are available for public inspection, during normal business hours, at the locations listed under supplementary information.

SUPPLEMENTARY INFORMATION: Reference December 17, 1993, Federal Register notice of availability of the Draft Pacific Coastal Barriers Study and Accompanying Maps of Areas Under consideration for Inclusion in the Coastal Barriers Resources System.

On October 18, 1982, President Reagan signed the Coastal Barrier Resources Act (CBRA) into law (Pub. L. 97-348). Section 4 of CBRA establishes the Coastal Barrier Resources System (System) as referred to and adopted by Congress, and sections 5 and 6 prohibit all new Federal expenditures and financial assistance within the units of that System unless specifically excepted by the Act. Coastal barrier units were designated along the Atlantic and Gulf of Mexico coasts.

On November 16, 1990, President Bush signed the Coastal Barrier Improvement Act of 1990 (CBIA) into law (Pub. L. 101-591). The CBIA greatly expanded the size of the System by adding coastal barriers of the Great Lakes, as well as additional areas along the Atlantic and Gulf of Mexico coasts. The CBIA amended section 1321 of the National Flood Insurance Act of 1968 to prohibit the issuance of new Federal flood insurance within "otherwise protected areas" identified on the maps referred to in the CBIA.

Section 6 of the CBIA directed the Secretary of the Interior to prepare a study which examines the need for protecting undeveloped coastal barriers along the Pacific coast of the United States and to prepare maps identifying undeveloped coastal barriers bordering the Pacific Ocean south of 49 degrees north latitude (approximately the Canada-Washington State boundary) which the Secretary and the appropriate Governor consider to be appropriate for inclusion in the System. Furthermore, the study is to examine:

(A) The potential for loss of human life and damage to fish, wildlife, and other natural resources, and the potential for the wasteful expenditure of Federal revenues given the geologic differences of the coastal barriers along the Pacific coast as opposed to those found along the Atlantic and Gulf coasts; and

(B) The differences in extreme weather conditions which exist along the Pacific coast as opposed to those found along the Atlantic and Gulf coasts.

In 1992, The Fish and Wildlife Service (Service) identified and mapped all undeveloped coastal barriers of the Pacific coast which meet the definition

Appendix A—Proposed Washington Coastal Barrier Resources System Units

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Whatcom	WA–01	Semiahmoo Spit/Drayton Harbor.
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San Juan	WA–07	Fisherman Bay North.
San Juan	WA–08	Fisherman Bay South.
San Juan	WA–09	Low Point.
San Juan	WA–10	San Juan Island South.
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San Juan	WA–12	Spencer Spit.
San Juan	WA–13	Decatur Head.
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Skagit	WA–15	Padilla Bay.
Skagit	WA–15A	Ship Harbor.
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Island	WA–19	South of Cranberry Lake.
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Island	WA–21	Polnell Point.
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Island	WA–23	Oak Harbor Area.
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Island	WA–25	Whidbey Island SW.
Island	WA–26	Crockett Lake.
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Island	WA–28	Whidbey Island East.
Island	WA–29	Lake Hancock.
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Jefferson	WA–54	Port Discovery Area.
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Clallam	WA–62	Clallam Bay.
Clallam	WA–63	Mouth Hoko River.
Grays Harbor.	WA–69	Copalis River.
Grays Harbor.	WA–70	Conner Creek.
Grays Harbor.	WA–71	Ocean Shores.
Grays Harbor.	WA–72	Ocean Shores South.
Grays Harbor.	WA–73	Westport.
Grays Harbor.	WA–74	Grayland North.
Pacific	WA–75	Grayland Beach.
Pacific	WA–75A	Grayland South.
Pacific	WA–76	Empire Spit.
Pacific	WA–77	North Beach Peninsula.
Pacific	WA–78	Jensen Point.
Pacific	WA–79	Long Beach/Seaview.
Pacific	WA–80	Cape Disappointment.

Appendix B—Proposed Oregon Coastal Barrier Resources System Units

County	Unit No.	Unit name
Clatsop	OR–01	Columbia R./Clatsop Spit.
Clatsop	OR–02	Necanicum River.
Clatsop	OR–03	Chapman Beach/Ecola Creek.
Tillamook	OR–04	Nehalem Spit & Bay.
Tillamook	OR–05	Manhattan Beach.
Tillamook	OR–06	Bayocean Peninsula/Tillamook Bay.
Tillamook	OR–07	Netarts Spit & Bay.
Tillamook	OR–08	Sand Lake Estuary.
Tillamook	OR–09	Nestucca Spit & Bay.
Tillamook	OR–10	Kiwanda Beach.
Tillamook/Lincoln.	OR–11	Salmon River Estuary.
Lincoln	OR–12	Salishan Spit/Siletz Bay.
Lincoln	OR–13	South Beach.
Lincoln	OR–14	Ona Beach/Beaver Creek.
Lane	OR–15	Baker Beach.
Lane	OR–16	Heceta Beach.
Lane/Douglas.	OR–17	Oregon Dunes.
Douglas	OR–18	North Spit/Umpqua R.
Coos	OR–19	North Spit & Coos Bay/Oregon Dunes.
Coos	OR–20	Bullards Beach/Coquille River.
Coos/Curry	OR–21	New River.
Curry	OR–22	Sixes River.
Curry	OR–23	Elk River.
Curry	OR–24	Garrison Lake.
Curry	OR–25	Euchre Creek.
Curry	OR–26	Greggs Creek.
Curry	OR–27	Hunter Creek.
Curry	OR–28	Pistol River.

Appendix C—Proposed California Coastal Barrier Resources Systems Units

County	Unit No.	Unit name
Del Norte	CA–01	Smith River/Lake Earl.
Del Norte	CA–02	Whaler Island.
Del Norte	CA–03	Klamath River.
Humboldt	CA–04	Fern Canyon.
Humboldt	CA–05	Gold Bluffs.
Humboldt	CA–06	Redwood Creek.
Humboldt	CA–07	Freshwater Lagoon.
Humboldt	CA–08	Stone Lagoon.
Humboldt	CA–09	Dry Lagoon.
Humboldt	CA–10	Big Lagoon.
Humboldt	CA–11	Little River.
Humboldt	CA–12	Clam Beach/Mad River.
Humboldt	CA–13A	North Spit.
Humboldt	CA–14	South Spit.
Humboldt	CA–15	Eel River.
Humboldt	CA–16	Mattole Beach.
Mendocino	CA–17	Usal Creek.
Mendocino	CA–18	Ten Mile River.
Mendocino	CA–18A	Inglenook.
Mendocino	CA–19	Navarro River.
Mendocino	CA–20	Alder Creek.
Mendocino	CA–21	Manchester Beach S.P. (north).
Mendocino	CA–22	Manchester Beach S.P. (center).
Mendocino	CA–23	Manchester Beach S.P. (south).
Mendocino/Sonoma.	CA–24	Gualala River.
Sonoma	CA–25	Russian River.
Sonoma	CA–26	Salmon Creek Beach.
Marin	CA–27	Abbotts Lagoon.
Marin	CA–27A	Drakes Beach.
Marin	CA–28	Drakes Estero.
Marin	CA–29	Rodeo Cove.
San Mateo	CA–30	Laguna Salada.
San Mateo	CA–31	Elmar Beach.
San Mateo	CA–32	Pescadero Creek.
Santa Cruz	CA–33	Waddell Creek.
Santa Cruz	CA–34	Scott Creek.
Santa Cruz	CA–35	Sunset State Beach.
Santa Cruz/Monterey.	CA–36	Zmudowski Beach S.P.
Monterey	CA–37	Moss Landing.
Monterey	CA–38	Salinas River.
Monterey	CA–39	Little River.
Monterey	CA–40	La Cruz Rock.
San Luis Obispo.	CA–41	Morro Bay S.P.
San Luis Obispo.	CA–42	Pismo State Beach (north).
San Luis Obispo.	CA–43	Pismo State Beach (south).
San Luis Obispo.	CA–44	Oso Flaco Lake.
San Luis Obispo/Santa Barbara.	CA–45	Santa Maria River.
Santa Barbara.	CA–46	Santa Ynez River.
Santa Barbara.	CA–47	Goleta Beach C.P.
Santa Barbara.	CA–47A	Coal Oil Point.
Ventura	CA–48	Santa Clara River.
Ventura	CA–49	Mcgrath Lake.

One hundred and ninety-five (195) units encompassing 104,814 acres and 707 miles of shoreline on the Pacific Coast are proposed for inclusion in the System. Of this acreage, approximately 28,400 acres consist of fastland (non-wetland area above the mean high tide line) and 76,414 acres consist of wetlands and other associated aquatic habitats.

The proposal to add 195 units to the System is the result of the CBIA's requiring the Secretary of the Interior (Secretary) to prepare a study that examines the need for protecting undeveloped coastal barriers along the Pacific coast of the United States, through inclusion in the System. This area includes the States of California, Hawaii, Oregon, and Washington, American Samoa, Guam, the Northern Marianas, and all Pacific Ocean territories and possessions of the United States. In addition, the Secretary was directed to prepare maps identifying the boundaries of undeveloped coastal barriers within this area. The Secretary delegated the authority to develop the Study and accompanying maps of undeveloped coastal barriers of the Pacific coast to the U.S. Fish and Wildlife Service (FWS).

Notices of availability of FWS-developed Draft Coastal Barrier Maps were published in the **Federal Register** on April 23, 1992 (57 FR 14846) for Oregon, May 29, 1992 (57 FR 22821) for Washington, July 7, 1992 (57 FR 29883) for California, and August 14, 1992 (57 FR 36668) for Hawaii. Following the 90-day public comment period, FWS revised the draft maps to correct any technical errors noted during the comment period. The revised draft maps, and all comments received, were forwarded to appropriate State Governors for review and comment.

The FWS developed the required Draft Study and revised draft maps of areas under consideration for inclusion in the Coastal Barrier Resources System in 1993. The FWS made the Draft Study and maps available for a 60-day public review and comment period on December 17, 1993 (58 FR 66016). Appropriate State Governors were afforded an additional 30 days for review and comment. On February 23, 1994, the FWS extended the public comment period until March 25, 1994, and for State Governors until April 25, 1994. Between January 5, 1994, and January 18, 1994, 15 public meetings were held in Oregon, Washington, California, and Hawaii regarding the draft study and accompanying maps. Press releases were issued in all affected areas. Mailings of the draft maps and Study were provided to individuals and central locations on FWS mailing lists, supplemented by mailings lists provided by State Coastal Zone Management program managers. Announcements of availability and central locations for review of the maps and Study were also widely distributed.

Coastal barrier units that occur on Tribal lands were included on the 1991 draft maps but deleted from the 1993 draft maps at the request of the Tribal sovereign nations. Neither the CBRA nor the CBIA provides guidance regarding the inclusion of Tribal lands in the System. Recognizing the sovereignty of the Native American nations, the Department of the Interior (Department) solicited recommendations from each affected Tribe. These Tribal recommendations will be submitted to Congress with the Department's final EIS recommendations.

A Draft Environmental Impact Statement (DEIS) will be available for public for review and comment when complete. A summary of alternatives currently proposed for evaluation in the EIS include:

1. No action Alternative: current circumstances projected into the future.
2. Implement the Act with stipulations:
   (a) Apply Section 4(d) CBIA provision to:
   (1) Federal lands undergoing disposal following inclusion of the Pacific coastal barriers in the System, providing the disposal has not yet been completed.
   (2) otherwise protected areas (and private inholdings) not in Federal or State ownership if changes in their status may result in their development.
   (b) Engage in appropriate Government to Government coordination before considering incorporation of Tribal lands including reservations, allotment lands, and usual and accustomed treaty areas in the System.

Other alternatives may be explored if responses to scoping and further analysis show the necessity.

Locations of Maps

All States

U.S. Fish and Wildlife Service, Ecological Services, 911 N.E. 11th Avenue, Portland, Oregon 97232-4181; Phone: (503) 231-2068
U.S. Fish and Wildlife Service, Ecological Services, 4401 N. Fairfax Drive, Room 400, Arlington, Virginia 22203; Phone: (703) 358-2201

Hawaii

Pacific Islands Office, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 6307, Honolulu, Hawaii 96813; Phone: (808) 541-2749
Hawaii Office of State Planning, State Coastal Zone Management, 1177 Alakea Street, 2nd Floor, Honolulu, Hawaii 96813; Phone: (808) 587-2880
Kauai National Wildlife Refuge Complex, U.S. Fish and Wildlife Service, Kilauea, Kauai, Hawaii 96754; Phone: (808) 828-1413
Hakalau Forest National Wildlife Refuge, U.S. Fish and Wildlife Service, 154 Waianuenue Avenue, Room 219, Hilo, Hawaii 96720; Phone: (808) 969-9909
Maui County Planning Office, Parks and Recreation, 1580-C Kaahumanu Avenue, Wailuku, Maui, Hawaii 96793; Phone: (808) 243-7931
Kahului Public Library, 20 School Street, Kahului, Hawaii 96793; Phone: (808) 877-5048
Mitchell Paole Center, 90 Inoa Street, Kaunakakai, Molokai 96748; Phone: (808) 553-3204

California

Carlsbad Field Office, U.S. Fish and Wildlife Service, 2730 Loker Avenue West, Carlsbad, California 92008; Phone: (619) 431-9440
Ventura Field Office, U.S. Fish and Wildlife Service, 2140 Eastman Avenue, Suite 100, Ventura, California 93003; Phone: (805) 644-1766
Sacramento Field Office, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room E-1803, Sacramento, California 95825; Phone: (916) 979-2116
San Francisco Bay National Wildlife Refuge, U.S. Fish and Wildlife Service, 1 Marshlands Road, Fremont, California 94536; Phone: (510) 792-0222
Humboldt Bay National Wildlife Refuge, U.S. Fish and Wildlife Service, 1020 Ranch Road, Loleta, California 95551; Phone: (707) 733-5406
California Coastal Commission, 45 Fremont, Suite 2000, San Francisco, California 94105-2219; Phone: (415) 904-5280
California Coastal Commission Legislative Office, 921 11th Street, Room 1200, Sacramento, California 95814; Phone: (916) 445-6067
State of California, The Resources Agency, 1416 9th Street, Suite 1311, Sacramento, California 95814; Phone: (916) 654-2506

Oregon

Portland Field Office, U.S. Fish and Wildlife Service, 2600 S.E. 98th Avenue, Suite 100, Portland, Oregon 97266; Phone: (503) 231-6179
Oregon Coastal Refuges, U.S. Fish and Wildlife Service, 2030 Marine Science

VerDate 21-JAN-95 18:38 Feb 07, 1995 Jkt 156997 PO 00000 Frm 00065 Fmt 4703 Sfmt 4703 E:\FR\FM\P08FE3.PT1 pfrm03

Drive, Newport, Oregon 97365–5296; Phone: (503) 867–4550

Oregon Coastal/Ocean Management Program, Dept. of Land and Conservation Development, 1175 Court Street NE, Salem, Oregon 97310–0590; Phone: (503) 373–0092

Bandon Public Library, P.O. Box 128, Bandon, Oregon 97411 (located in the Bandon City Hall on Highway 101); Phone: (503) 347–3221

Tillamook Public Library, 210 Ivy Avenue, Tillamook, Oregon 97141; Phone: (503) 842–4792

Seaside Public Library, 60 N. Roosevelt Boulevard, Seaside, Oregon 97138; Phone: (503) 738–6742

Hatfield Marine Science Center, Guin Library, 2030 Marine Science Drive, Newport, Oregon 97365; Phone: (503) 867–0249

North Bend Public Library, 1800 Sherman Avenue, North Bend, Oregon 97459; Phone: (503) 756–0400

Washington

Olympia Field Office, U.S. Fish and Wildlife Service, 3704 Griffin Lane SE, Suite 102, Olympia, Washington 98501–2192; Phone: (206) 753–9440

Willapa National Wildlife Refuge, U.S. Fish and Wildlife Service, HC 01, Box 910, Ilwaco, Washington 98624–9797; Phone: (206) 484–3482

Nisqually National Wildlife Refuge, U.S. Fish and Wildlife Service, 100 Brown Farm Road, Olympia, Washington 98506; Phone: (206) 753–9467

Washington Coastal Refuges, U.S. Fish and Wildlife Service, 1638 Barr Road South, Port Angeles, Washington 98382; Phone: (206) 457–8451

Washington Department of Ecology, Shorelands and Coastal Management Program, 300 Desmond Drive, Olympia, Washington 98504; Phone: (206) 407–7250

Dated: January 31, 1995.

Thomas Dwyer,

Acting Regional Director.

TABLE A—1994 PACIFIC COASTAL BARRIER UNIT CHANGES

[Old=1993; New=1994]

State/county	Unit No. (old/new)	Unit name	Action
California:			
Sonoma	N/A / CA–28	Bodega Bay	Added unit.
San Luis Obispo	CA–44/CA–47	Oso Flaco Lake	Extended southeast boundary to include associated aquatic habitat. Added 24 acres of wetland.
Oregon:			
Clatsop	OR–02/OR–02	Necanicum River	Expansion in northeast corner of unit to include associated aquatic habitat. Added 25 acres of wetland.
Tillamook	OR–04/OR–04	Nehalem Spit and Bay	Expansion in northeast corner of unit to include associated aquatic habitat. Added 19 acres of wetland.
Tillamook	OR–10/OR–10	Kiwanda Beach	Expansion of southeast corner to include associated aquatic habitat. Added 114 acres of wetland.
Lincoln	OR–11/OR–11	Salmon River Estuary	Expansion to include associated aquatic habitat along Salmon River. Added 562 acres of wetland.
Lane	OR–15/OR–15	Baker Beach	Expanded northern boundary to include barrier and associated aquatic habitat. Added 0.5 miles of shoreline, 39 acres of fastland, and 9 acres of wetland.
Coos	OR–19/OR–19	North Spit and Coos Bay/Oregon Dunes	Excluded industrial waste ponds and relocated inland boundary of entire unit to wetland/upland interface at foredune. Removed 1,066 acres of fastland and 3,256 acres of wetland.
Curry	OR–25/OR–25	Euchre Creek	Extended northern boundary. Added 0.1 miles of shoreline, 6 acres of fastland, and 6 acres of wetland.
Curry	OR–26/OR–26	Greggs Creek	Extended southern boundary. Added 0.3 miles of shoreline, 16 acres of fastland, and 4 acres of wetland.
Washington:			
Whatcom	WA–01/Deleted	Semiahmoo Spit/Drayton Harbor	Site visit and documentation provided by property owners indicated site is developed and does not meet criteria.
Clallam	WA–57/WA–51	Kilakala Point	Extended southwest edge to include associated aquatic habitat at Grays Marsh Creek. Added 25 acres of wetland.
Grays Harbor	WA–70/WA–58	Conner Creek	Added an exclusion for a structure and removed developed portion (R.V. parking/campground area). Removed 3 acres of fastland and 1 acre of wetland.
Grays Harbor	WA–71/WA–59	Ocean Shores	Removed a developed portion near Oyhut. Added 0.1 miles of shoreline and removed 2 acres of fastland and 2 acres of wetland.
Grays Harbor	WA–72/WA–60	Ocean Shores South	Redelineated to make eastern edge more reflective of actual barrier and extended into aquatic habitat to the north. Removed 0.15 miles of shoreline and added 583 acres of wetland.
Grays Harbor	WA–73/WA–61	Westport	Added exclusion for parking lot and structure off of Ocean Avenue and removed additional developed area which extended into barrier unit. Removed 0.6 miles of shoreline, 16 acres of fastland, and 5 acres of wetland.
Pacific	WA–79/WA–68	Long Beach/Seaview	Removed several developed areas which extended into barrier unit. Removed 3 acres of fastland and 6 acres of wetland.

and remediation activities. Mitigation under the proposed action would nhance California gnatcatcher and actus wren conservation through the acquisition, restoration, and management of 1126 acres of habitat important for the conservation of the California gnatcatcher, cactus wren, and other sensitive and declining species. Under the no-take alternative, the permit would not be issued, Shell oil field remediation and project potentially would not occur, and MWD potentially would not be allowed to maintain the structural integrity of its facility. In addition to presenting public health and safety problems, no restoration or management would occur, and the existing habitat will remain vulnerable to fire and unregulated use. Under the no-project alternative, oil field remediation would occur without subsequent development. Additionally, an alternative including both residential and commercial development, but without the golf course was considered. Analysis of other alternatives included oil field remediation, but with the residential, commercial, and golf course developments being located elsewhere.

Dated: June 14, 1994.

Thomas Dwyer,

ing Regional Director, Region 1, U.S. Fish Wildlife Service.

R Doc. 94–14907 Filed 6–17–94; 8:45 am]

BILLING CODE 4310–65–M

Intent To Prepare an Environmental Impact Statement on the Draft Pacific Coastal Barriers Study

AGENCY: Fish and Wildlife Service, Department of the Interior.

ACTION: Notice.

SUMMARY: This notice advises the public that the Fish and Wildlife Service (FWS) intends to gather information necessary for the preparation of an Environmental Impact Statement (EIS) for the Pacific Coastal Barriers Study and accompanying maps (Study) that have been mandated by the Coastal Barriers Improvement Act of 1990. This notice is being furnished as required by the National Environmental Policy Act (NEPA) Regulations (40 CFR 1501.7) to inform other agencies and the public on the scope of issues to be addressed in the EIS. Comments and participation in scoping process were solicited by WS from other agencies and the ic during the preparation of the raft Study. All previous public comments received by the FWS during the review of the Draft Study are being reviewed and will be considered part of the scoping process for the preparation of this EIS.

DATES: Written comments should be received by July 20, 1994.

ADDRESSES: Comments should be addressed to: Regional Director, U.S. Fish and Wildlife Service, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181.

FOR FURTHER INFORMATION CONTACT: Paula Levin, U.S. Fish and Wildlife Service, 911 N.E. 11th Avenue, Portland, Oregon 97232–4181, (503) 231–2068.

SUPPLEMENTARY INFORMATION: Ronald Singer is the primary author of this document.

Coastal barriers are unique landforms which provide protection for diverse aquatic habitats and serve as the mainland's first line of defense against the impacts of coastal storms and erosion.

Congress recognized the vulnerability of coastal barriers to development by passing the Coastal Barriers Resource Act in 1982 (CBRA). CBRA (Public Law 97–348) established the Coastal Barriers Resources System (System) that prohibits all new Federal expenditures and financial assistance within the units of that system unless specifically excepted by the CBRA. This action was taken because Federal expenditures and financial assistance have the effect of encouraging development of coastal barriers. By restricting these Federal expenditures, Congress intended to minimize the loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources associated with coastal barriers along the Atlantic and Gulf of Mexico coasts.

In 1990 Congress passed the Coastal Barrier Improvement Act (CBIA). The CBIA (Public Law 101–591) tripled the size of the system by adding coastal barriers of the Great Lakes as well as additional areas along the Atlantic and Gulf of Mexico coasts. The coastal barrier system currently includes 560 units, comprising almost 1.3 million acres and about 1,200 shoreline miles.

The CBIA also directed the Secretary of the Interior (Secretary) to prepare a study which examines the need for protecting undeveloped coastal barriers along the Pacific coast of the United States south of 49 degrees north latitude through inclusion in the system. This area includes the States of California, Hawaii, Oregon, and Washington; American Samoa; Guam; the Northern Marianas; and all other Pacific Ocean territories and possessions of the United States. In addition, the Secretary was directed to prepare maps identifying the boundaries of undeveloped coastal barriers within this area. The Secretary delegated the authority to develop the Study and accompanying maps of undeveloped coastal barriers of the Pacific Coast to the U.S. Fish and Wildlife Service (FWS).

Notices of availability of FWS-developed Draft Coastal Barrier Maps were published in the Federal Register on April 23, 1992 (57 FR 14846) for Oregon; May 29, 1992 (57 FR 22821) for Washington; July 7, 1992 (57 FR 29883) for California; and August 14, 1992 (57 FR 36668) for Hawaii. Following the 90 day public comment period, the draft maps were revised to address any technical errors noted during the comment period. The revised draft maps, and all comments received, were forwarded to appropriate State Governors for their review and use in formulation of recommendations as to which State areas should be included in the System.

The FWS developed the required Draft Study and revised draft maps of areas under consideration for inclusion in the Coastal Barrier Resources System in 1993. The FWS made the Draft Study and maps available for a 60 day public review and comment period on December 17, 1993 (58 F.R. 66016). Appropriate State Governors were afforded an additional 30 days for review and comment. On February 23, 1994, the FWS extended the public comment period until March 25, 1994, and for appropriate State Governors until April 25, 1994. Between January 5, 1994, and January 18, 1994, a total of 15 public meetings were held in Oregon, Washington, California, and Hawaii regarding the draft study and accompanying maps. Press releases were issued in all affected areas. Mailings of the draft maps and Study were provided to individuals and central locations on FWS mailing lists, supplemented by mailing lists provided by State Coastal Zone Management program managers. Announcements of availability of the maps and Study were also widely disseminated.

Coastal barrier units which occur on Tribal lands were included on the 1991 draft maps but deleted from the 1993 study maps at the request of the Tribal sovereign nations. Neither the CBRA nor the CBIA provide guidance regarding the inclusion of Tribal lands in the System. However, inclusion of coastal barrier units which occur on Tribal lands in the System would meet the purposes of the Act, particularly given the sensitive living resources associated with these areas. Recognizing the sovereignty of the Native American nations, the Department of the Interior (Department) solicited the input and

interested agencies, organizations, and individuals to provide comments on the issues which should be addressed in the EIS.

DATES: Written comments regarding the scope of the EIS should be received on or before March 10, 1995. A scoping workshop will be held on February 22, 1995.

ADDRESSES: Written comments should be addressed to Mr. Curt Smitch; U.S. Fish and Wildlife Service; 3773 Martin Way East; Building C, Suite 101; Olympia, Washington 98501. Comments received will be available for public inspection by appointment during normal business hours (8:00 a.m. to 5:00 p.m., Monday through Friday). A scoping workshop will be held from 6:00–9:00 p.m. at the Bellevue Red Lion Hotel; Overlake Room; 300 112th Avenue S.E.; Bellevue, Washington 98004.

FOR FURTHER INFORMATION CONTACT: William Vogel, Wildlife Biologist; U.S. Fish and Wildlife Service; 3773 Martin Way East; Building C, Suite 101; Olympia, Washington 98501, (360) 534–9330.

SUPPLEMENTARY INFORMATION: The applicant has launched an effort to address species conservation and ecosystem management on approximately 171,000 acres of private land in the Cascade Mountains of Washington. The subject ownership occurs in a "checkerboard" pattern in an area commonly referred to as the I–90 Corridor. The term "checkerboard" refers to alternate sections of public and private land. This effort will include the development of a Habitat Conservation Plan (HCP) and application for an incidental take permit as authorized under section 10 of the Act. The applicant intends to request permits for the incidental take of the northern spotted owl (*Strix occidentalis caurina*) which would occur as a result of timber harvest within a portion of the owl sites present on the subject property. There are currently more than 100 owl sites present within the larger 419,000-acre planning area.

The applicant plans to avoid the take of marbled murrelets (*Brachyramphus marmoratus marmoratus*), but will likely include murrelets in the incidental take permit application in the event take occurs accidentally. The applicant also plans to include grizzly bear (*Ursus arctos = U.a. horribilis*) and gray wolf (*Canis lupus*) in the permit application to cover circumstances where these species may occur on the subject property in the future and may at some point be subject to disturbance. The applicant is also addressing numerous other species in the HCP and intends to request an unlisted species agreement.

As a further opportunity for interested persons to comment on these and other issues associated with this planning effort, a scoping workshop is scheduled for 6:00–9:00 p.m. on February 22, 1995. The workshop location will be the Overlake Room of the Bellevue Red Lion Hotel, 300 112th Avenue S.E.; Bellevue, Washington 98004.

Interested parties may contact the Service at the address listed above to receive additional information, including a map for the workshop location.

Dated: February 1, 1995.

Thomas Dwyer,

Deputy Regional Director.

[FR Doc. 95–3079 Filed 2–7–95; 8:45 am]

BILLING CODE 4310–65–P

Intent To Prepare a Programmatic Environmental Impact Statement for the Application of the Coastal Barrier Resources Act to the Pacific Coast

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice.

SUMMARY: This notice advises the public that the Fish and Wildlife Service (FWS) intends to gather information to prepare a programmatic Environmental Impact Statement (EIS) on the application of the Coastal Barrier Resources Act (CBRA) on the Pacific coast. The National Environmental Policy Act (NEPA) Regulations (40 CFR 1501.7) require publication of a notice to inform other agencies and the public on the scope of issues to be addressed and identified in the EIS. All previous public comments received by the FWS during the review of the 1993 Draft Coastal Barriers Study, conducted according to Section 6 of the Coastal Barrier Improvement Act of 1990, will be considered part of the information gathering process for this EIS.

Changes to individual mapped coastal barrier unit boundaries that would depict new development or structural changes are not within the scope of this programmatic EIS. All major issues raised during the public review of the 1993 Draft Coastal Barriers Study and maps regarding technical criteria used in mapping the units have been considered and will be addressed in the EIS. Any future changes to individual units in the current inventory will require the recommendation of the Governors or Congressional representatives of the affected States.

Please submit recommendations or comments on the scope of issues to be addressed in this EIS by 45 days after the publication of this notice.

DATES: Written comments should be received by March 27, 1995.

ADDRESSES: Comments should be addressed to: CBRA EIS Team Leader, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 97232–4181.

FOR FURTHER INFORMATION CONTACT: Paula Levin, U.S. Fish and Wildlife Service, 911 NE. 11th Avenue, Portland, Oregon 9732–4181, (503) 231–2068. Table "A" provides a summary of technical changes on the 1993 Draft Coastal Barrier Maps of California, Oregon, and Washington. No unit boundary changes were made in Hawaii, however, the EIS will address the applicability of the technical criteria to the coastal barriers in Hawaii, the Pacific Islands and the other affected States. The 1994 draft Coastal Barrier maps can be viewed at the central locations listed in this notice. The maps are being provided for informational purposes at the locations listed and only to county planning offices in those counties where unit boundaries were changed.

SUPPLEMENTARY INFORMATION: Coastal barriers are unique landforms that provide protection for diverse aquatic habitats and are the mainland's first line of defense against the impacts of coastal storms and erosion. Congress recognized the vulnerability of coastal barriers to development by passing the Coastal Barriers Resource Act in 1982 (CBRA). CBRA (Pub. L. 97–348) established the Coastal Barriers Resources System (System) that prohibits all new Federal expenditures and financial assistance within the units of that System unless specifically excepted by the Act. Congress took this action because Federal expenditures and financial assistance have the effect of encouraging development of coastal barriers. By restricting these Federal expenditures, Congress intended to minimize the loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources associated with coastal barriers along the Atlantic and Gulf of Mexico coasts.

In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA). The CBIA (Pub. L. 101–591) tripled the size of the System by adding coastal barriers of the Great Lakes and additional areas along the Atlantic and Gulf of Mexico coasts. The System currently includes 560 units, comprising almost 1.3 million acres and about 1,200 shoreline miles.

APPENDIX 2

FEDERAL, STATE, AND LOCAL AGENCIES; INTEREST GROUP; AND OTHERS THAT COMMENTED ON THE 1993 DRAFT STUDY AND/OR 1995 EIS SCOPING

Appendix 2. List of Federal and State representatives; Federal, State, and local agencies; interest groups, and others that commented on the 1993 Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
Educational Facilities			
MARINE RESOURCE MANAGEMENT	HOBGOOD	NICK	
OREGON STATE UNIVERSITY	CHARLAND	JAMES W.	
	GARTZ	R.G.	
UNIVERSITY OF HAWAII AT MANOA	MILLER	JACQUELIN N.	ASSOC. ENVIRON. COORDIN.
State and Federal Representatives			
U.S. HOUSE OF REPRESENTATIVES	MINK	PATSY	MEMBER OF CONGRESS
WA STATE HOUSE OF REPRESENTATIVES	JOHNSON	ROB	STATE REPRESENTATIVE
HAWAII HOUSE OF REPRESENTATIVES	BEIRNE	D. ULULANI	STATE REPRESENTATIVE
WA STATE HOUSE OF REPRESENTATIVES	KREMEN	PETE	STATE REPRESENTATIVE
Federal Agencies			
AMERICAN SOMOA GOVERNMENT	PEAU	LELEI	
BUREAU OF INDIAN AFFAIRS - PORTLAND AREA OFFICE			ACTING PORTLAND AREA DIRECTOR
BUREAU OF LAND MANAGEMENT -	ALBISTON	DARYL L.	AREA MANAGER
COOS BAY DISTRICT			
DEPARTMENT OF THE NAVY	PERDUE	MITCHELL	SOIL CONSERVATIONIST
NATIONAL PARK SERVICE	ALBRIGHT	STANLEY T.	
NATIONAL PARK SERVICE -	WINTERS	RICHARD	ASSOC. REGIONAL DIRECTOR
PACIFIC NORTHWEST REGION			
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIO	UEBER	EDWARD	
MAUI OFFICE			
NATIONAL MARINE FISHERIES	BYBEE	JAMES R.	ENVIRONMENTAL COORDINATOR
NATIONAL MARINE SANCTUARY			
U.S. ARMY CORPS OF ENGINEERS -	GEIGER	DAVID A.	ACTING DIRECTOR
PORTLAND DISTRICT	BRAUN	ERIC	BIOLOGIST
SEATTLE DISTRICT	NORTHUP	KAREN S.	ENVIRON. RESOURCE

Appendix ist of Federal and State representatives; Federal, State, and . agencies; interest groups, and others that commented on the 19
Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
U.S. FISH AND WILDLIFE SERVICE - REGION 1, DIVISION OF REALITY	MATTHES	PAMELA	REGIONAL SUPERVISOR
U.S. MARINE CORPS			COMMANDING OFFICER
	CRAWFORD	R.R.	COLONEL
	RANNALS	L.D.	COMMANDER OF PLANNING & LIAISON
Interest Groups/Orgainzations			
AMERICAN ASSOCIATION OF RETIRED PERSONS	BALMER	FRED & JOANN	
AUDUBON SOCIETY	DORMAN	WALLACE D.	
BATTELLE, PACIFIC NORTHWEST DIVISION	ECKER	RICHARD M.	MANAGER
BEACHES DUNES AND WETLANDS	TERNYIK	WILBUR E.	
BOLSA CHICA LAND TRUST	BOARDMAN	CONNIE	BOARD MEMBER
BOTTORFF HABITAT PLANNING	BOTTORFF	JIM	WILDLIFE BIOLOGIST
CAPE MEARES ADVISORY COMMITTEE	STONE	BETTY	SECRETARY
CITIZENS FOR RESPONSIVE GOVERNMENT	PRYTHERCH	RICHARD C.	
CNMI DIVISION OF FISH & WILDLIFE	GILMAN	ERIC	
COAST ALLIANCE	SAGUN	MELISSA	
COAST ENVIRONMENTAL TASK FORCE	HOLMES	JEAN	CHAIR
COASTAL ADVOCATES	VAN VELSOR	KATHLEEN	EXECUTIVE DIRECTOR
COOS CURRY DOUGLAS DEVLP CORP	ROSS	GORDON	CHAIR
CRESCENT CITY BOARD OF REALTORS	WESTENHAVER	CONNIE	
DEL NORTE TAXPAYERS' LEAGUE	BRICKWEDEL	FRANK	PRESIDENT
DIVISION OF AQUATIC AND WILDLIFE RESOURCES	LUJAN	RUFO J.	CHIEF
EAST-WEST CENTER	MARAGOS	JAMES E,	SENIOR FELLOW
ENTRIX	LEBEDNIK	PHILLIP	SENIOR CONSULTANT
ENVIRONMENTAL DEFENSE CENTER	CHYTILO	MARC	
EUGENE NATIONAL HISTORY SOCIETY	MCCONNAUGHEY	EVELYN	PRESIDENT
FOURTH CORNER ECONOMIC DEVELOPMENT GROUP	BELL	DAVID	EXECUTIVE DIRECTOR
FRIENDS OF DEL NORTE	COOPER	EILEEN	VICE PRESIDENT
FRIENDS OF NESKOWIN, INC.	KOSTERLITZ	RICHARD H.	PRESIDENT
GEO-MARINE, INC.	INGRAM	CHRIS	VICE PRESIDENT
GRAYS HARBOR AUDUBON SOCIETY	SCHWICKERATH	DEAN	
GRAYS HARBOR ECONOMIC DEVEL COUNCIL	FORCUM	GARY	PRESIDENT
GREENEN & GREENEN LAW FIRM	GREENEN	RONALD W.	

Appendix 2. List of Federal and State representatives; Federal, State, and local agencies; interest groups, and others that commented on the 1993 Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
GULF OF FARALLONES NAT. MARINE SANCTUARY	ROLETTO	JAN	RESEARCH COORDINATOR
HAWAII'S THOUSAND FRIENDS	WONG	DONNA	EXECUTIVE DIRECTOR
ILWACO MERCHANTS-PACIFIC SALMON CHARTERS	GUDGELL	MILTON	OWNER
JOSSELSON, POTTER & ROBERTS	DERR	LAWRENCE R.	
KAHUKU FLOOD RELIEF TASK FORCE	SPENCER	RICHARD B.	PROJECT COORDINATOR
KALMIOPSIS AUDUBON SOCIETY	WARRING	ELLEN	CONSERVATION CHAIR
	ANDREWS	BASIL	PRESIDENT
KRUTCH, LINDEL, HOUSH, ET. AL.	KRUTCH	RICHARD F.	
LEAGUE OF WOMEN VOTERS OF OREGON	UNGER	CHERI	PRESIDENT
LEOPOLD CLUB	FORBES	BILL	
LINCOLN COUNTY WATERSHED WATCH	GRAVON	THOMAS	
MNWR	NELSON	TOM	
MOBY DICK HOTEL	COHEN	EDWARD AND FRITZI	
MOSS LANDING COMMUNITY	CHASE	GLEN	MOSS LANDING REP.
NA KUPUNA O MAUI	LINCOLN	ALOYSIUS G.	ARCHAEOLOGICAL CHAIR
NATURAL RESOURCES DEFENSE COUNCIL	MILLER	SUSAN E.	
NEIGHBORS WEST/NORTHWEST	BENNETT	ROBERT	
NENDELS EDGEWATER INN	SNOW	ROBERT B.	
NESKOWIN NORTH, INC.	BENNETT	JEFF	
NORTHCOAST ENVIRONMENTAL CENTER	MCKAY	TIM	
OCEAN SHORES DEVELOPMENT ASSOCIATION	BROOKS	ROGER	DIRECTOR
OREGON CHAPTER SIERRA CLUB	FRENKEL	BOB	
OREGON NATURAL RESOURCES COUNCIL	MATTEI	LYN	
OREGON SHORES CONSERVATION COALITION	JOHNSON	PHILLIP	
	JOHNSON	WALLACE E.	
	HERBERT	P. SYDNEY	
ORMONA BEACH OBSERVERS	ARMBRUST	ROMA	CHAIR
PACIFIC COUNTY EDC	LOWERY	JIM	
PACIFIC SHORES WATER DISTRICT	SMITH	DWAYNE B.	PRESIDENT
PORTLAND GARDEN CLUB	LARSEN	SYLVIA	
PRESTON GATES AND ELLIS	CHAPMAN	WILLIAM H.	
PROJECT REEFKEEPER	GILMARTIN	DALE MOANA	HAWAII REPRESENTATIVE
PUBLIC AFFAIRS COUNSEL	NELSON	MARK	
REDWOOD REGION AUDUBON SOCIETY	SPRINGER	PAUL F.	
REINERS REAL ESTATE & DEVELOPMENT	REINERS	DICK S.	

Appendix List of Federal and State representatives; Federal, State, and Agencies; interest groups, and others that commented on the 19
Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
RESERVATION RANCH	WESTBROOK	HANK	
ROGUE GROUP SIERRA CLUB	BARBOUR	VIKI	CHAIR
RURAL UTILITIES SERVICE	RANKIN	DENNIS	ENVIRONMENTAL PROTECTION SPECALIST
SAN FRANCISO BIKE ADVISORY COMMITTEE	VESSELINOVITCH	ANDREW	CHAIR
SAND ROAD ASSOCIATION	BECKER	ORLIEN N.	PRESIDENT
	GREGG	GEORGE O.	SECRETARY
SAVE MOSS LANDING'S INDIANS, LAND AND ENVIRON.	SLICHTER	SALLY D.	
SAVE OUR BAY	CLAYCOMB	WILLIAM	PRESIDENT
SEA VIEW ESTATES INC	MENATH	EDWINA	
SEAVIEW COAST CONSERVATION COALITION	CAMPICHE, MD	JOHN	SECRETARY
	LE FORS	ANN SKELTON	
SIERRA CLUB	ANGENENT	THOMAS A.	
SIERRA CLUB - MANY RIVERS GROUP	OGLE	CHARLIE	CHAIR
SIERRA CLUB - NATIONAL MARINE COMMITTEE	HOLMGREN	ROD	
SIERRA CLUB - OAHU GROUP	KIMO FRANKEL	DAVID	
TEN MILE LAKE'S BASIN PARTNERS	BROWN	JIM	CHAIRMAN
THE DUNES ESTATES INC	VENATOR	ROBERT S.	PRESIDENT
THE RESEARCH GROUP	DAVIS	SHANNON	PLANNER
THE SEMIAHMOO COMPANY	POORS	THOMAS M.	
TIJUANA RIVER VALLEY EQUESTRIAN ASSOC.	RICKS	CANDACE	PRESIDENT
UMPQUA VALLEY AUDUBON SOCIETY	WALES	DIANA	
WEYERHAEUSER PAPER COMPANY	HOLBERT	CHUCK	SPECIAL PROJECT MANAGER
	HANSON	RICHARD E.	VICE PRESIDENT
WINDERMERE REAL ESTATE - OCEAN SHORES	DONAHOE	JIM	

Appendix 2. List of Federal and State representatives; Federal, State, and local agencies; interest groups, and others that commented on the 1993 Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
Local Agencies			
BELLINGHAM/WHATCOM CHAMBER OF COMMERCE	BRENNAN	MICHAEL J.	
BLAINE COMMUNITY CHAMBER	SAMMONS	DUANE P.	PRESIDENT
BLAINE, CITY OF	FLOYD	PATRICK T.	CITY MANAGER
	HOLBROOK	JOHN W.	
CHULA VISTA, CITY OF	VARSHOCK	GEORGE	
PLANNING DEPARTMENT	HERRERA-A	FRANK J.	ASSOC. PLANNER
CLALLAM COUNTY PLANNING DIVISION	MAGGI	TOBI	
COLUMBIA RIVER ESTUARY STUDY TASKFORCE	BRITZ	PETER	JOHN GRAVES
COOS BAY/NORTH BEND WATER BOARD	SCHAB	ROB K.	GENERAL MANAGER
COOS COUNTY BOARD OF COMMISSIONERS	BEEBE SR	JACK	COMMISSIONER
	OWEN	BEV	COMMISSIONER
COOS-CURRY ELECTRIC COOPERATIVE	SMITH	DAVID A.	
CURRY COUNTY BOARD OF COMMISSIONERS	REAGAN	PEG	COUNTY COMMISSIONER
DANA POINT, CITY OF	FOX	KIT	COMM. DEVEL. DEPT.
DOUGLAS COUNTY PLANNING DEPARTMENT	CUBIC	KEITH L.	DIRECTOR
GARIBALDI, CITY OF	ERNST	DONALD	MAYOR
GRAYS HARBOR COUNTY COMMISSIONERS	DIXON	DICK	CHAIRMAN
GRAYS HARBOR REGIONAL PLANNING COMMISSION			CHAIRPERSON
GROWTH MANAGEMENT COMMITTEE, PACIFIC COUNTY	SWANSON	MAL	COMMITTEE MEMBER
LANE COUNTY LAND MANAGEMENT DIVISION	KENDALL	JERRY	
LONG BEACH, CITY OF	SHAWA	NABIEL	CITY ADMINISTRATOR
	RAMSEY	KEN	MAYOR
FLORENCE, CITY OF	GRAY	EILEEN	
MALIBU, CITY OF	PARKER	JOYCE	
MONTEREY COUNTY PLANNING DEPT.	MAKI	STEVE	SENIOR PLANNER
NEHALEM, CITY OF	DILLARD	WILLIAM LEE	MAYOR
NORTH BEND, CITY OF	SLATER	TIMM	MAYOR
OCEAN SHORES CHAMBER OF COMMERCE	THORNTON	IRENE	EXECUTIVE DIRECTOR
OCEAN SHORES, CITY OF	PENCE	MICHAEL L.	CITY MANAGER
ORANGE COUNTY PLANNING DEPT.	MEDEIROS	GARY	CHIEF
ORANGE COUNTY, ENVIRONMENTAL MGMT AGENCY	RIGONI	KARI A.	SENIOR PLANNER
PACIFIC COUNTY COMMISSIONER			DIRECTOR
PORT HUENEME, CITY OF	BROWN	GREG C.	PLANNER

Appendix List of Federal and State representatives; Federal, State, and agencies; interest groups, and others that commented on the I Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
SAN DIEGO COUNTY PARKS	SIMMONS	BARBARA	DISTRICT MANAGER
SANTA BARBARA COUNTY	ANTHONY, AICP	DOUGLAS K.	ENERGY SPECIALIST
TILLAMOOK BAY NATIONAL ESTUARY PROJECT	SHELDON	DORIS	VICE-CHAIRPERSON
TILLAMOOK COUNTY COMMISSIONERS	MULFORD	GINA	CHAIRPERSON
TILLAMOOK COUNTY, DEPT. OF COMMUNITY DEVEL.	AFFOLTER	VIC	DIRECTOR
WESTPORT, CITY OF	CHAPMAN	FRED	
WESTPORT/GRAYLAND CHAMBER OF COMMERCE	ROLLER	RICHARD E.	
WHATCOM COUNTY EXECUTIVE OFFICE	VAN ZANTEN	SHIRLEY	COUNTY EXECUTIVE
Media			
THE MOLOKAI ADVERTISER	PEABODY	GEORGE	
THE OREGONIAN	GRIFFITH	JOHN	
Ports			
GARIBALDI, PORT OF	VANDERHOEF	ROBERT	PRESIDENT
PORT OF COOS BAY, OREGON INTERNATIONAL	GAUL	MICHAEL	
PORT OF COOS BAY, OREGON INTERNATIONAL	RUMBAUGH	ALLAN E.	GENERAL MANAGER
PORT OF GRAYS HARBOR	MULLER	CLIFFORD C.	EXECUTIVE DIRECTOR
PORT OF NEHALEM	KNIGHT	F.E. "SHANG"	PRESIDENT
PORT OF SIUSLAW	BRADSHAW	BILL	MANAGER
PORT OF TILLAMOOK BAY	DEAN	MEL	PRESIDENT
PORT OF WILLAPA HARBOR	SMITH	DOUG	CHAIRMAN
SALMON HARBOR	VANDER KLEY	JEFF	HARBORMASTER
State Agencies			
Washington			
OFFICE OF THE GOVERNOR	LOWRY	MIKE	GOVERNOR
WASHINGTON DEPARTMENT OF ECOLOGY	SHEPARD	JAY A.	PROGRAM MANAGER
	SHIPMAN	HUGH	
WASHINGTON DEPARTMENT OF TRANSPORTATION	STEVENS	DAVID W.	ENVIR. PROGAM MANAGER
Oregon			
OFFICE OF THE GOVERNOR	SQUIER	ANNE W.	SENIOR POLICY ADVISOR

Appendix 2. List of Federal and State representatives; Federal, State, and local agencies; interest groups, and others that commented on the 1993 Draft Study and/or 1995 EIS scoping.

AGENCY/AFFILIATE	LAST NAME	FIRST NAME	TITLE
OFFICE OF THE GOVERNOR	ROBERTS	BARBARA	GOVERNOR
OREGON DEPARTMENT OF FISH AND WILDLIFE	ZARNOWITZ	JILL	ASSISTANT DIRECTOR
OREGON ECONOMIC DEVELOPMENT DEPARTMENT	ADDINGTON	YVONNE	MANAGER
OREGON PARKS AND RECREATION DEPT	EVANS	NAN	POLICY/PLAN. ADMIN.
OREGON SEISMIC SAFETY ADVISORY COMMITTEE	MCGARRIGLE	ROGER W.	CHAIRMAN
OREGON DEPT OF ENVIRONMENTAL QUALITY	HANSEN	FRED	DIRECTOR
OREGON DIVISION OF STATE LANDS	GUSTAFSON	GARY	DIRECTOR
OREGON STATE MARINE BOARD	OBERN	DAVE	FACILITIES MANAGER
OREGON ECONOMIC DEVELOPMENT DEPARTMENT	ADDINGTON	YVONNE	MANAGER
OREGON PARKS AND RECREATION DEPARTMENT	MEINEN	BOB	
OREGON DEPARTMENT OF FISH AND WILDLIFE	ZARNOWITZ	JILL	ASSIST. DIRECTOR
California			
ASSEMBLY CALIFORNIA LEGISLATURE	HAUSER	DAN	ASSEMBLYMAN
	MORROW	BILL	ASSEMBLYMAN
CALIFORNIA DEPARTMENT OF TRANSPORTATION	SARASOHN	HOWARD A.	ENVIRON. PROGRAM MANAGER
GOVERNOR	WILSON	PETE	GOVERNOR
RESOURCES AGENCY OF CALIFORNIA	MANTELL	MICHAEL A.	UNDERSECRETARY
RESOURCES AGENCY OF CALIFORNIA	WHEELER	DOUGLAS P.	SECRETARY OF RESOURCES
Hawaii			
COUNTY OF MAUI PLANNING DEPARTMENT	MISKAE	BRIAN	DIRECTOR
HAWAII DEPARTMENT OF TRANSPORTATION	JOHNSON	REX D.	
HAWAII OFFICE OF STATE PLANNING	MASUMOTO	HAROLD	DIRECTOR
OFFICE OF THE GOVERNOR	WAIHEE	JOHN	GOVERNOR
OFFICE OF STATE PLANNING, HI	MASUMOTO	HAROLD S.	
Tribes			
JAMESTOWN S'KLALLAM TRIBE	ALLEN	W. RON	TRIBAL CHAIRMAN
SHOALWATER BAY INDIAN TRIBE	JACOBSON	CRAIG	NATURAL RESOURCE POLICY COORDINATO

(Note: Several tribes commented prior to the 1993 Draft Study; issues raised were subsequently addressed in the 1993 mapping effort.)

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

Last Name	First Name
ABSHER	JANICE & SAM
ABTS, M.D.	RICHARD M.
AHGENENT	TOM
AHLFS	NICHOLAS
AHNEE	SAMUEL G.
ALLARDALE	MELANIE
ALLAWAY	LINDA & DAVID
ALVAREZ-VAZQUEZ	HECTOR
AMICARELLA	JOE
ANDERSON	AMY
ANDERSON	L.N.
ANDERSON	MR AND MRS RONALD D.
ANDERSON	VIVIAN
ANDREWS	MARCIA AND JAMES
APPLEBY	ROBERT T.
ARNOLD	FREDERICK E.
ARTOFF	MARTY AND GLENDA
ATKINS	LEONARD & MIRIAM
ATKINSON	WILLIAM AND SHIRLEY
AYLSTOCK	RALPH H.
BACHMAN	ELLEN M.
BARESI	SILVANO
BARLOW	JULIE
BARNUM	MARGARET L.
BARRETT	CYNTHIA
BARRON	ALAN D.
BARTON	RICHARD E.
BAUER	FRANCES M.
BAUMAN	CAROLINE
BAUMAN	ROSEMARY
BAYER	RANGE D.
BECKMAN	SUSAN
BECKWITH	JANE
BEIDLER	CHARLOTTE AND DON
BELDEN	MR AND MRS L.M.
BELTRANO	NICK
BEMIS	DAN AND LENORE
BENSON	LAWRENCE W.
BERGMAN, JR.	AL
BERLAND	ROBERT
BERRY	HELEN
BICHSEL	ROBERT G.
BIERMAN	SIDNEY R.
BIRD	STANLEY L.
BISHOP	JACK AND RUTH
BLUM	LEROY AND ZULA
BOATRIGHT	JAMES AND REA
BOICE	MARY LOU
BORNHOLDT	MARIANA D.
BOTHA	MARLENE
BOTHO	JOHN S.
BOWE	KEN
BOYES	COL. PETER
BRANT	JOE
BRAUMAN	DAVID R.
BREDLAU	ROY AND CONSTANSE
BRENESSEL	AARON AND EILEEN
BROCKMANN	BRUCE
BROOKS	WILMA C.
BROWN	LIZ
BROWN	THOMAS F.
BRUNEAU	BERNICE M.
BUCKMASTER	ROBERT AND VELMA
BUDKE	FRED
BULLUSS	JOHN
BULM	LE ROY AND ZULA
BURKE	DEBORAH
BUZZARD	ROBERT J.
CAFFEY	MARGARET
CALCOTE	MARY
CALDERN	DWAYNE & MELODY
CANZONE	VINCENT
CARLSEN	DUANE AND DEANNA
CARSON	JOHN J.
CARTER	DARRYL O.
CARTER	JAMES AND RETHA
CASTELLI	ROBERTO J.
CAVANAGH	ANN W.
CELESTINO	M.
CERVENY	SARAH J.
CHADWICK	ROSE
CHAMBERLIN	EARL AND MARINE
CHAVEZ	ALFONSO AND BARBARA
CHILDS	PATRICK J.
CHRISTIAN	ELIZABETH A.
CLEET	HAROLD
CLOUD	JOHN
CLUGSTON	JANE
COKER	H.V.
COLEGROVE	RONALD

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

Last Name	First Name
COMSTOCK	JOEL
CONNALLY	RUDELLE
COOK	STANTON
CORLIAS	JOHN
CORNU	CRAIG
COULTER	MR AND MRS ROBERT
COWLES	RONALD & LISA
COX	MR AND MRS J.
COYLE	ELMER AND MARGARETE
CRADDOCK	LILLIAN M.
CRAVEN	CORMAC
CRIDER	GEORGE L.
DANSKY	RONNA
DAVIS	B.E.
DAVIS	MICHAEL W.
DAVIS, Ph.D.	MICHAEL W.
DE SANNO	GLEN E.
DE VORE	VINCENT AND JANET
DEIRO	M.V. AND JANET
DEMPSTER	DAVID & JONI
DENNING	BRUCE AND LYNN
DERIG	GENE
DEVERAUX	HELEN D.
DICKMAN	MR AND MRS DWAINE O.
DIEGELMAN	DONALD
DIERKING	STEVEN
DOASIR	MRS. JOSE M.
DODGE	FRANK
DOI	SATORIE
DOLAN	ROBERT & LILA
DONCKELS	MARY
DONISH	MICHAEL
DONNELLY	ANNE W.
DRAGE	MARK
DRURY	IRENE P.
DUDMAN	BARBARA
DUFFEE	P.F.
DUNGAN	WILLIAM T.
DUPE	
DYMENT	ROGER AND VIVIAN
DeLISO	MARCEL P. & LEONORA
EBORA	THEODORA
EDGE	MARTHA JANE AND DEXTER
EDWARDS	WILLIAM P.
ELLIS	BARBARA L.
ELMER	R.W.
ENGEL	RICHARD
ENGLEHART	JAMES E.
ESHORT	RICHARD
ESKEW	JAMES A.
EVA	WALT
FALUDI	ROSE M.
FANKHAUSER	ERNEST
FARRAR	LLOYD E.
FAULKNER	DON AND MAUREEN
FEREDAY	JAMES
FERGUSSON	CLAUDIA M.
FINKE	GARY AND JEANNE
FLEMING	JOHN AND WANDA
FLORES	PAUL
FOLLSTAD	JUNE
FORBES	MARGARET G.
FORBESS	JOHN H.
FORD	AMY AND BILL
FORD	ROBERT J.
FORNADEL	JOHN F.
FORTE	CURT B.
FOX	ELIZABETH
FOX	JOHN J.
FRANK	MARNIE
FRASER	GORDON E.
FRERIKS	LILLY E.
FRILLO	THOMAS
FUITEN	ROBERT
GABEHART	ELLEN
GABLE	BOB D.
GAFFIN	JOYCE
GAGE	WILLIAM & MARY LOUISE
GAITHER	TRAVIS G.
GALARPE	DANNY A.
GARNER	RANDALL J.
GARNICA	GENE
GATTI	JUDI
GAUGAS	GORDON
GAUL	CYRIL L.
GENOVESE	MR AND MRS ANTONIO
GERITSEN	LLOYD R.
GERMAN	CLAUDE L.
GIERMIN	MARY
GILES	LAWRENCE AND SHIRLEY

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

Last Name	First Name	Last Name	First Name
GIMA	CHARLES	HODDER	JAN
GIMBEL	JOSEPH B.	HOEFFERLE	WILLELMINA M.
GOLD	MORTON	HOLCE	DORIS
GOODALL	CAROL	HOLDMAN	BEN AND NORA
GRATTAN	ROLAND N.	HOLLANDER	ANNE AND CHARLES
GREENIDGE	F.D.	HOLLIPETER	NELLIE M.
GREMP	LOUIS E.	HOLSTROM	JUANITA GRAIL
GROOMER	GLORIA N.	HONEYSETT	LAURA
GUNN	BRAD	HOPPER	R.J.
GUSALE	MR AND MRS R.	HUDSPETH	BETTY JO
GUTCHECK	ROBERT	HUNTINGTON	BARBARA C.
HACHTMANN	LUTHER AND BERYL	HUTCHINSON	EDYTHE E.
HACKETT	BARBARA M.	HYDE	R. W.
HALLIBURTON	ROBERT	ISBELL	CARL W.
HAMILTON	ROLAND C.	ISON	HARRY C.
HAMLIN	CHRISTOPHER M.	IVES	KENNETH
HANINGER	GEORGE A.	JAQUES-STRONG	DEBORAH
HARDWICK	THOMAS	JASPER	TOM AND SUSAN
HARPER	DOUGLAS & AUDREY	JENEWIEN	ALICE L.
HARRIS	GEORGE N.	JOHNSEN	MARK
HARRIS	MR AND MRS GEORGE	JOHNSEN	MARK R.
HARRISON	THOMAS D.	JOHNSON	KENNETH D.
HART	JANETTE	JON	GRAMME
HARTOG	PHILIP	JONES	JAYLEN
HARVEY	JAMES A.	JORGENSON	D.L. AND B.J.
HASTINGS	CAROL D.	KALIMA	JUNIOR AND MARGARET
HATLER	B. R,	KAMINSKY	SHIRLEY E.
HAWTHORNE	ROBERT H.	KAUFFMAN, JR.	JOHN H.
HAYBAUM	LOUIS	KAWAI	SHIGERU
HAYDEN	CHARLES E.	KEENAN	WILLIAM E.
HAYES	ERNEST AND SADIE	KEESLING	MAXINE
HEATH	EILEEN	KELLY	BARBARA
HEIGH	LISA	KENNEL	EDNA M.
HELVIE	TIM P.	KERR	DONALD G.
HENDERSON	MARTHA	KIGERL	WAYNE
HEUMANN	JUDY R.	KIRITA	SAKAYE
HEZEKIA	MICHAEL AND JAYCE	KLEUGER	DARRELYN L.
HIGGINS	DANNY AND ELAINE	KOOIMAN	B.J.
HIGGINS PHD	DENNIS V.	KOSTERLITZ	NANCY
HILL	BOB	KUEFFLER	DOLORES
HILTON	FREDERICK & MARY	LACISTE	MR. & MRS. JOE
HINCKLEY	LILLA	LAMBERSON	PHILLIP B.
HIRST	FRANK	LANE	EDWARD AND JAN
HOBBS	GLADYS M.	LARSEN	JOHN B.
HODDER	DR. JAN	LARSEN	LORI J.

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

Last Name	First Name	Last Name	First Name
LAURIN	LUCILLE	MCCARTHY	MAURICE
LAWRENCE	C. M.	MCCONNAUGHEY	BAYARD & EVELYN
LAWRENCE	MARILYN	MCCREADY	LISA K.
LAZARUS	DARRELL	MCCREARY	JACK AND LOUISE
LEACH	JOHN	MCDANIEL	EDITH H.
LEE	DARRELL M.	MCDONALD	CALVIN T.
LEFERRE	JANE AND PATRICK	MCDONALD	PAMELA MATTSON
LEGER	B.W.	MEESE	THOMAS
LEONE	JOSEPH H.	MELINE	DONALD T.
LETTER	DONALD	MERLINO	ROBERT AND DIANE
LEWIS	LOUIS AND SALLY	MERRILL	JAMES
LEYDER	H.A.	METELSKI	ANNE
LIOI	JAMES	MILLARD	MR. AND MRS. ROBERT
LIU	PHOEBE	MILLER	FRANCES R.
LIVINGSTON	MAJORIE	MILLER	LAWRENCE AND EDNA
LOCKWOOD	WILLIAM H.	MILLS	SAM AND SHARON
LOMAS	JENNIFER	MINSER, M.D.	ALLEN C.
LOPEZ, SR	CHRISTOPHER B.	MINTKESKI	WALT
LOVE	GLEN & RHODA	MITCHELL	RUSSEL J.
LOWENSON	LEE B.	MITSUMORI	MAY AND JOHN
LUCAS	LIBBY	MOHR	BERTHA AND WAYNE
LUEDER	FRANK D.	MONIZ	MARC
LUFTS	RYAN L.	MORAN	ALAN AND CONNIE
LUNING	JACQUELINE	MORENO	JESSE
LUTZ	H.R.	MORRIS	DONNA
MACHLAN	PEGGY AND ROBERT	MORRIS	JEANNE
MADISON	VALERIE	MORROW	GAIL AND NORMA
MAEBE	IDA AND ALPHONSE	MORSE	TERRY
MAGNUSON	JAMES VERNER	MUELLER-CRISPIN	DEANNA
MAGNUSON	TED	MULLEN	ROBERT AND KATHERINE
MAKINSTER	GORDON W.	MURRAY	THOMAS J.
MALLON	SUE	MUSCHE'	ALAN T. RICHARDS
MALONEY	EDWEN AND PAULINI	McCORMICK	PHYLLIS M. AND JOHN
MAMAKOS	PETER AND MARY CLAIRE	NAESETH	DALE
MARKEU	MONA	NAESETH	MARCIA
MARTIN	DAN AND KHANH	NAKAMURA	RALPH AND TROY
MASON	GORDON AND GWEN	NASBURG	ANDY
MASON	KAREN	NEAPOLITAN	ANTHONY AND BETH
MASON	MR AND MRS	NEVILL	WELLY CLYDE
MASON	RICHARD W.	NEWBOLD	ED
MASSETH	HENDRICA	NIXON	RICHARD M.
MASTERS	CONNIE & TAYLOR	NOBGOOD	NICK
MATHIASEN	REX AND SUSAN	NOJIMIA	GARY AND DARLENE
MAZZOLA	LORINELL P.	NORLING	NANCY AND PAUL
MCADAMS	ROY	NORMAN	CORA

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

Last Name	First Name
NORRIS	RICHARD AND RITA
NORTH	ROBERT AND LORENE
NYC	ROBERT P.
O'CONNELL	MELANIE A.
O'CONNELL, III	JAMES J.
O'GUINN	ANNA L.
OESTING	MARIE R. & RALPH B.
OLIVER	JACK G.
OLSEN	JUNE
OLSON	JOHN V.
OLSON	MELVETA
OLSON JR.	INGVE
OMAN	DENNIS
OPEL	MARKUS
ORNELLAS	MR AND MRS JAMES
ORR	SUZANNE
OSIS	VICKI
OSTERTAG	RHONDA & GEORGE
PALMER	W.S.
PARADIS	ANDREE AND GEORGE
PARADIS	GEORGE L.
PASSANTINO	ROSE
PEARSON	DERYL AND ROSE
PEASLEE	DOROTHY M.
PECK	ERNEST A.
PENNINGTON	MARY AND OTIS
PEPPMULLER	MR & MRS R.C.
PETERS	CAROL AND VERNON
PIELOW, JR.	WILLIAM E.
PODDAR	BHAGWATI & SARADELL
POTTER	WILLIAM AND LORRAINE
POWELL	CARL AND LOIS
POWERS	BILL AND DOTTY
PRAGER	MR AND MRS S.
PROULX	DAVID P.
PRUETT	CHARLES
RADER	DARRELL
RANA	AVIS
RANDAL	FLORANCE E.
RAY	JUNE
READNOUR	JAMES L.
REAMER	IRENE M.
RECHT	FRAN
REEVES	DOROTHY
REINHARDT	THEORA
REITER	JANET
RESCH	THOMAS
RINGER	JUNE
RIPPEY	BARBARA
RITTER	WILLIAM A.
ROBECK	CAROL AND JIM
ROBERTS	TED AND PAT
ROBINS	MILTON
ROBINSON	CAROLE & MEL
ROBINSON	SEAN D.
ROCKOFF	JIM
RODE	TOM
RODGERS	GLORIA & BUCK
ROEHR	BENJAMIN N
ROEHR	BENJAMIN N.
ROGERS	BOB
ROGERS	RAFAEL R.
ROSCH	THOMAS W.
RUSSELL	HAROLD
RYAN	MARGARET
SALISBURY	FERN O.
SANDAHL	AUDREY AND THEODORE
SANDERS	DEAN AND GEORGINA
SARFF	M.
SAWYER	CALVIN B.
SAWYER	ELZIE RICHARD
SAYCE	KATHLEEN
SCHICK	CARROLL G.
SCHOCH	G. CARL
SCHWAB	GLORIA J.
SCOTT	WALTER & RALPH
SCOVELL	VERN
SELIMOS	DEAN J.
SELIMOS	JAMES G.
SEYDOUX	ANTONIETTE B.
SGRIO	NUZIO
SHAFFNER	JOHN D.
SHANNON	GLENNA AND RICHARD
SHAUER	GERALD AND GINGER
SHAVELSON	BOB
SHEARY	RALPH C.
SHEETS	ETHIS AND ORVILLE
SHEETS	GALEN
SHEFFIELD	MR AND MRS CARROLL
SHIELDS	MORTON K.

Appendix 2. List of private individuals that commented on the 1993 Draft Study and/or 1995 EIS scoping.

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SINGLETON	ESTHER	TOWNE	MILTON H.
SLATTERY	K. AND K.	TRABILAY	ALIVIA
SMITH	BILLY	TRAMEL	MARTHA YVONNE
SMITH	CLARA M.	TRANTOW	WAYNE
SMITH	DARLENE	TRENHOLM	MR & MRS CHRISTOPHER
SMITH	JOHN AND TAMMY	TROUT	ROBERT G.
SMITH	MARIE F.	TRUEBLOOD	JOHN AND VIRGINIA
SMITH	RICHARD	TULK	BRYAN AND VIRGINIA
SMITH	SHARON	TURNER	GILBERT AND PAULINE
SOROKIN	LINDI	TWEELINCKY	MR. & MRS. M.
SORTE	CURTIS B.	ULBRICHT	RICHARD & ROMONA
SPACONE	HENRY	URSIA, II	THOMAS E.
SPENCER	TED	VAN DEDE	BERNARD AND LAURENA
SPERLE	DAVE	VAN NATTER	BILL
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SPROUL	L.	VAUGHN	SHARON
STAGG	DANIEL AND MARGARET	VAWTER	GWEN AND JERRY
STAGG	ROBERT AND DOROTHY	VENATOR	ROBERT S.
STAHL	JOHN R.	VERNACI	FRANK
STANDRIDGE	JAMES W.	VIERRA	EDWARD AND DAMEANA
STEEN	ELLEN & JOHN	VIGGIANELLI	ELISE
STEINER	LYNDA K.	WADSWORTH	JOHN
STELGES	MILBERN F.	WALSH	JOHN J.
STEVENS	CHET	WALSH	MICHAEL
STEVENS	JEANETTE E.	WARE	HOWARD AND BETTY
STILWELL	JAMES L.	WARNER	DAN & JANE
STRICKLIN	ROBERT C.	WARREN	E.J.
STUART	LARRY AND MARGENE	WATKINS	HOWARD & MARGUERITE
STUMPF	CAROL	WATKINSON	JOHN A.
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SUGIYAMA	RICHARD	WATSON	EDNA KATY
SUN	DAVID	WAUGH	HELEN
SWAN	GORDON W.	WEBB	EDWIN AND DEBRA
SWANSON	MAL & LUE	WEBER	HELEN AND HERBERT
SWENSEN	DWAYNE M.	WEILAND	DANIEL AND KATHLEEN
TAFT	EDITH	WEILAND	DEBORAH
TALAVERA	EDWARD	WEILAND	MICHAEL
TAYLOR	KELLY AND ALMA	WEILAND	RICK AND DEBORAH
TEJADA	CLIFFORD & CARMENCHITA	WEN	WILLIAM AND HELEN
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TIEKEN	BARBARA	WIERZEL	ANTHONY

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WILSON	ROBERT M.		
WONG	GEORGE AND GRACE		
WONG	WILLIAM G.		
WOOD	BRAD AND LESLIE		
WOOD, SR.	CARL B.		
WOOLF	CHARLES W.		
WRIGHT	DAVID H.		
WRIGHT	HOWARD O.		
YANKOWSKI	JOYCE AND MIKE		
YEAGER	CAROLYN C.		
YEOMAN	MARGARET		
YOUNG	ROBERT A.		
ZAHN	E.		
ZEBELLI	LOUIS R.		
ZELHART	DAVID		
ZERR	JAMES		
ZORA	CRAIG A.		

APPENDIX C

PACIFIC COASTAL BARRIERS

ENVIRONMENTAL EVALUATION

U.S. Fish and Wildlife Service
Region 1
Portland, Oregon

May 1996

Contents

Contents (continued)

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Acronyms and Abbreviations

ACOE	U.S. Army Corps of Engineers
CBIA	Coastal Barrier Improvement Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CBSG	Coastal Barrier Study Group
CCMP	California Coastal Management Program
CDBG	Community Development Block Grants
CEIP	Coastal Energy Improvement Program
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
DLNR	Department of Land and Natural Resources
DNR	Department of Natural Resources
DOI	Department of the Interior
EIS	Environmental Impact Statement
ENSO	El Nino-Southern Oscillation
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
GAO	General Accounting Office
GMA	Growth Management Act
HRS	Hawaii Revised Statutes
LCP	Local Coastal Program
MLCD	Marine Life Conservation District
mph	miles per hour
NARS	Natural Area Reserve System
NEPA	National Environmental Protection Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
OCMP	Oregon Coastal Management Program
OPA	Otherwise Protected Area
ORS	Oregon Revised Statutes
P.L.	Public Law
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMA	Special Management Area

USC	United States Code
USGS	U.S. Geological Survey
WDOE	Washington State Department of Ecology

1.0 Purpose of the Environmental Evaluation

The purpose of this Environmental Evaluation is to provide reviewers with background information the U.S. Fish and Wildlife Service (FWS) considered in the development of a recommendation to Congress on whether or not to implement the requirements of the Coastal Barrier Resources Act (CBRA) of 1982 (P.L. 97-348) on the Pacific coast. The CBRA established the Coastal Barrier Resources System (CBRS) on the Atlantic and Gulf coasts. Congress has since expanded the CBRS with passage of the Coastal Barrier Improvement Act (CBIA) (P.L. 101-591). The CBIA also required the Department of the Interior (DOI) to study the appropriateness of expanding the CBRS to include undeveloped coastal barriers along the United States' Pacific coast south of 49 degrees north latitude. The FWS, directed by DOI, conducted the study and mapped coastal barrier resources that fit the criteria on the coasts of California, Hawaii, Oregon, and Washington (including Puget Sound).

Section 6 of the CBIA required:

- A study examining the need to protect undeveloped Pacific coastal barriers through inclusion in the CBRS (a draft was completed with results presented in the 1993 Draft Pacific Coastal Barriers Study).

- Maps identifying boundaries of undeveloped coastal barriers (drafted in 1993, with technical revisions completed in March 1994).

- Recommendations to Congress as to which units, if any, would be appropriate for inclusion in the CBRS (the results are presented in the 1996 Report to Congress, of which this Environmental Evaluation is included as an appendix).

The CBIA required the study to examine:

- The potential for loss of human life and damage to fish, wildlife, other natural resources, and the potential for the wasteful expenditure of Federal revenues given the geologic differences of Pacific coastal barriers compared to the Atlantic and Gulf coasts; and

- The differences in extreme weather conditions along the Pacific coast compared to the Atlantic and Gulf coasts.

This Environmental Evaluation describes the physical, biological, social, and economic factors considered in evaluating the need to include undeveloped coastal barriers in the CBRS. These issues are discussed in the context of the CBIA requirements. Issues raised in the public involvement process also are described in this evaluation and related data contributed substantially to the information base the FWS relied on to develop recommendations to Congress.

2.0 Description of Coastal Barriers

The following chapter describes coastal barriers as defined by the CBRA and CBIA, the mapping of Pacific coastal barrier units, types of coastal barriers, the processes associated with the formation of coastal barriers, the geographic variation of coastal barriers, and the functions of undeveloped coastal barriers.

2.1 Definition of Undeveloped Coastal Barriers

The CBRA defines an "undeveloped coastal barrier" as:

- A generally depositional geologic feature that: (1) is subject to wave, tidal, and wind energies; and (2) protects landward aquatic habitats from direct wave attack; and

- All associated aquatic habitats, including adjacent wetlands, marshes, estuaries, inlets, and near-shore waters, but only if such features and associated habitats contain few human structures and these structures, and human activities on such features and within such habitats, do not significantly impede geomorphic and ecological processes.

Many, but not all, coastal barriers are depositional in nature (such as a bay barrier, tombolo, or barrier spit). On the Atlantic coast, land formations that function as coastal barriers but whose composition is not completely of unconsolidated sediment are also included in the CBRS. These include: discontinuous bedrock/glacial and carbonate-cemented deposits and mangrove shorelines (CBIA legislative history, House Report 101-657 (I) p.8).

A coastal barrier is considered undeveloped if it contains fewer than one insurable structure per five acres of fastland. A structure is defined in the CBRA as a walled and roofed building constructed in conformance with Federal, State, or local legal requirements, with a projected ground area exceeding 200 square feet. Additionally, for the coastal barrier to be considered undeveloped, the structure(s) and associated human activities must not significantly impede geomorphic and ecological processes.

A coastal barrier is considered developed when it is altered to the extent that the long-term perpetuation of the coastal barrier is threatened by one or more of the following:

- Extensive shoreline manipulation or stabilization;
- Pervasive canal construction and maintenance;
- Major dredging projects and resulting sedimentary deposits; and/or
- Intensive capital development projects, which effectively establish a commitment through infrastructure development to stabilize an area even though few actual structures exist.

2.2 Mapping of Undeveloped Coastal Barrier Units

In response to the CBIA requirements, the FWS mapped all undeveloped coastal barriers at least 0.25 mile in shoreline length and their associated aquatic habitats, together forming a mapped unit, according to the definitions and technical criteria provided in Section 2 of the CBRA and in the revised criteria published in the Federal Register, March 4, 1985 (50 FR 8698) (FWS 1993). Secondary barriers, defined as coastal barriers that occasionally develop on the mainland side of large bays or lagoons behind larger coastal barrier systems, were also included in the inventory, such as those on the Puget Sound, the San Juan Islands, and the Strait of Juan de Fuca.

Similar to the Atlantic, Gulf, and Great Lakes coasts, all undeveloped coastal landforms that fit the criteria were mapped regardless of existing land use, ownership, or protection status, including military and Coast Guard holdings. Many of the mapped units included lands categorized as Otherwise Protected Areas (OPAs). OPAs are defined by the CBRA as areas "included within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization as defined in Section 170(h)(3) of the Internal Revenue Code of 1954, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes." Examples of these areas include National Wildlife Refuges, National Parks and Seashores, State Parks and conservation lands, and local parks and recreation areas. Although mapped, OPAs on the Atlantic, Gulf, and Great Lakes coasts were not included in the CBRS as their conservation status excludes them from the normal development cycle. However, they are not eligible for Federal flood insurance. Section 4(d) of the CBIA allows for Federally owned OPAs or portions of OPAs to be included in the CBRS if they are ever transferred out of Federal ownership. Non-Federally owned OPAs that change ownership would not be included in the CBRS and, therefore, would be eligible for Federal funding assistance. For this environmental evaluation, military lands were treated similarly as OPAs since military lands are not subject to private development. Although these lands may be developed for use by the military, activities related to national security are exempt from the CBRA.

During the inventory of Pacific coastal barriers, the criteria used for determination of development were consistent with those established in the CBRA. For partially developed coastal barriers, the boundary was drawn at the edge of the development, and the entire associated aquatic habitat was included. Barrier units with proposed phased developments were not considered developed at the time of the inventory. Therefore, housing subdivisions planned for full build-out over a period of time did not meet the criteria for a developed site, regardless of permits or approvals obtained, if the structures or complete infrastructure had not been built.

The results of the inventory were published in a 1993 Draft Pacific Coastal Barriers Study (FWS 1993) and accompanying maps, which were distributed for public review. A total of 195 units were identified on the coasts of California, Hawaii, Oregon, and Washington. No units meeting the technical definition of a coastal barrier were identified in any of the U.S.

territories in the Pacific (mapped unit list, Report to Congress Appendix A). After considering nearly 700 public comments on the 1993 Study, the FWS made technical revisions to the unit boundaries and prepared revised maps in 1994 based on observable conditions on site, field inspections, aerial photography, and information provided by commentors (FWS files). See Appendix A for general locations of coastal barrier units.

Based on the revised 1994 maps, 195 units were identified encompassing approximately 28,289 acres (44 square miles) of fastland (non-wetland) and 76,525 acres (120 square miles) of wetlands and aquatic habitat along 307.4 miles of shoreline (Table 2-1). In general, most of the units proceed inland to an elevation of 20 feet above mean high water level. According to the definitions in the CBRA, the largest extent inland of the aquatic habitat to be included in any unit is 5 miles. Most mapped units extend inland substantially less than this amount.

Although the mapped units along the Pacific coast are scattered along the four affected States, the mapped coastal barrier units represent little over three percent of the total shoreline ("shoreline" includes all places where water and land meet) mileage of the Pacific coast. The units also comprise a small amount of the total land adjacent to the Pacific coast. Table 2-2 compares the total shoreline of the affected Pacific coast with the total shoreline of all mapped coastal barrier units.

In the 1993 Study, the FWS recommended that all 195 undeveloped coastal barrier units identified on the Pacific coast be included in the CBRS, regardless of ownership or conservation status (FWS 1993). However, such an action would not be consistent with the implementation of CBRA on the other U.S. coasts; OPAs and military lands were excluded from the CBRS on the Atlantic, Gulf, and Great Lakes coasts. Therefore, this Environmental Evaluation examines the effects of implementing the CBRA on the Pacific coast using the same definitions and exclusions as applied on the Atlantic, Gulf, and Great Lakes coasts. Under this scenario, OPAs would be designated on the maps but **excluded** from the CBRS.

Sixty-six of the mapped units with a total of 6,303 acres (9.85 square miles), including 1,789 acres (2.8 square miles) of fastland, are entirely privately held and would be included in the CBRS. Additionally, the privately held non-OPA portions of 74 mapped units of mixed ownership which total 76,991 acres (120.30 square miles), including 21,916 acres (34.24 square miles) of fastland, would be included in the CBRS and subject to the same restrictions. In units of mixed ownership, the exact amount of privately held land is unknown, so these figures represent the total areas of these units, not the privately owned portions. In total, undeveloped and unprotected portions of 140 mapped coastal barrier units, comprising a maximum of 83,294 total acres (130 square miles), including 23,705 acres (37.1 square miles) of fastland and 240.4 miles of shoreline, would be subject to Federal funding restrictions if the CBRS were expanded as proposed in the 1993 Study. It is estimated that as little as 4,500 to 12,000 acres of the total fastland is actually privately held (FWS files).

Table 2-1. Number and area of mapped coastal barrier units by State.

State/Unit Attributes	No. of Units	Fastland[1]			Associated Aquatic Habitat[2]			Total Area		
		Acres	Square Miles	Percent (of Total)	Acres	Square Miles	Percent (of Total)	Acres	Square Miles	Percent (of Total)
California										
Full OPA	24	1,773	2.77	4.7%	5,752	8.99	15.2%	7,525	11.76	19.9%
Full Military	5	769	1.20	2.0%	2,519	3.94	6.7%	3,288	5.14	8.7%
Mixed Ownership[3]	27	7,524	11.76	19.9%	19,103	29.85	50.5%	26,627	41.60	70.4%
Full Private	7	147	0.23	0.4%	251	0.39	0.7%	398	0.62	1.1%
Total	63	10,213	15.96	27.0%	27,625	43.16	73.0%	37,838	59.12	100.0%
Hawaii										
Full OPA	3	21	0.03	0.4%	273	0.43	5.1%	294	0.46	5.5%
Full Military	1	67	0.10	1.3%	360	0.56	6.8%	427	0.67	8.1%
Mixed Ownership[3]	14	298	0.47	5.6%	2,946	4.60	55.5%	3,244	5.07	61.2%
Full Private	17	317	0.50	6.0%	1,022	1.60	19.3%	1,339	2.09	25.2%
Total	35	703	1.10	13.3%	4,601	7.19	86.7%	5,304	8.29	100.0%
Oregon										
Full OPA	3	1,318	2.06	3.1%	4,453	6.96	10.5%	5,771	9.02	13.6%
Full Military	0	0	0.00	0.0%	0	0.00	0.0%	0	0.00	0.0%
Mixed Ownership[3]	21	10,772	16.83	25.3%	25,238	39.43	59.4%	36,010	56.27	84.7%
Full Private	4	283	0.44	0.7%	443	0.69	1.0%	726	1.13	1.7%
Total	28	12,373	19.33	29.1%	30,134	47.08	70.9%	42,507	66.42	100.0%
Washington										
Full OPA	14	530	0.83	2.8%	3,109	4.86	16.2%	3,639	5.69	19.0%
Full Military	5	106	0.17	0.6%	470	0.73	2.5%	576	0.90	3.0%
Mixed Ownership[3]	12	3,322	5.19	17.3%	7,788	12.17	40.6%	11,110	17.36	58.0%
Full Private	38	1,042	1.63	5.4%	2,798	4.37	14.6%	3,840	6.00	20.0%
Total	69	5,000	7.81	26.1%	14,165	22.13	73.9%	19,165	29.95	100.0%
TOTALS										
Full OPA	44	3,642	5.69	3.5%	13,587	21.23	13.0%	17,229	26.92	16.4%
Full Military	11	942	1.47	0.9%	3,349	5.23	3.2%	4,291	6.70	4.1%
Mixed Ownership[3]	74	21,916	34.24	20.9%	55,075	86.05	52.5%	76,991	120.30	73.5%
Full Private	66	1,789	2.80	1.7%	4,514	7.05	4.3%	6,303	9.85	6.0%
Total	195	28,289	44.20	27.0%	76,525	119.57	73.0%	104,814	163.77	100.0%

Source: FWS files

[1]Fastland is non-wetland.

[2]Associated Aquatic Habitat includes open water and wetlands.

[3]Individual units of mixed ownership include OPA and/or Military lands, as well as private inholdings. The acreage/sq. miles of private inholdings in these units is unknown.

[4]Implementation of the CBRA would not include the OPA or military lands.

Table 2-2. Total shoreline miles of 195 mapped units compared to the Pacific coast.

State	Total Shoreline Miles[1]	Mapped Units Shoreline	
		Miles	Percent of Total
California	3,427	104.1	3.0
Hawaii	1,052	27.1	2.6
Oregon	1,410	105.5	7.5
Washington (including Puget Sound)	3,026	70.7	2.3
Total	8,915	307.4	3.4

Source: Total shoreline – 1995 World Almanac, Unit Miles – FWS, Percent – EDAW

[1] Shoreline includes all places where water and land meet, and encompasses all bays regardless of whether units were mapped within them.

2.3 Types of Coastal Barriers

Coastal geologists have designated the principal types of coastal barriers according to their attachment, or lack thereof, to the mainland (or some other large land mass) (DOI 1983). The barrier types found along the Pacific coast, illustrated in Figure 2-1, include:

- **Bay Barriers:** barrier beaches that are connected to headlands on both ends; lack a permanent natural opening to the sea; and enclose a marsh, pond, or small lagoon behind them.

- **Barrier Spits:** coastal barriers that are attached at one end to the mainland or other large source of sediment. Over time, these can become either bay barriers by sediment accretion or islands by erosion.

- **Tombolos:** coastal barriers that connect or tie one or more offshore islands together and to the mainland.

- **Sand Dunes/Beach Barriers:** broad sandy beaches with wind-formed sandhills which protect landward aquatic habitats.

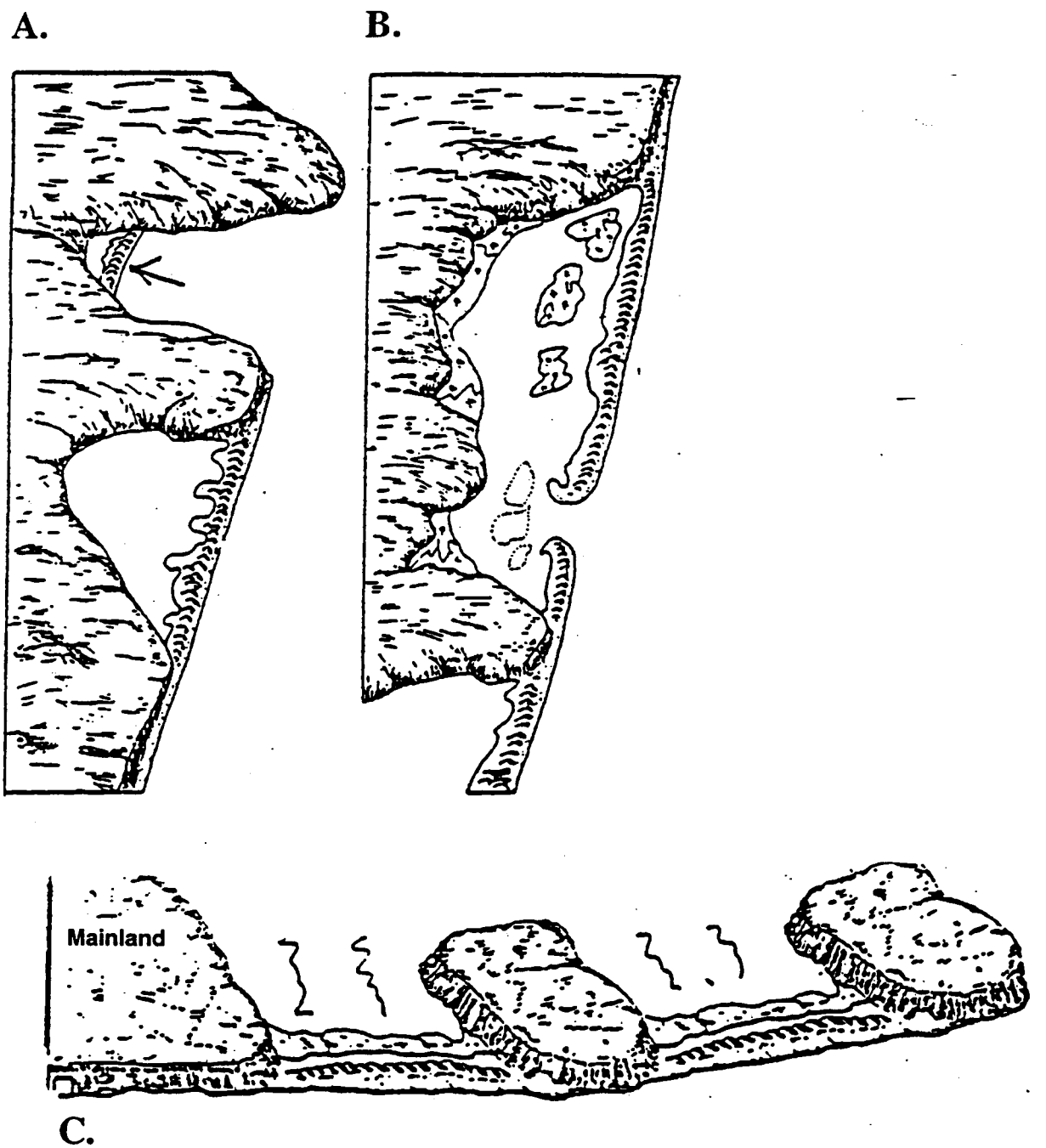
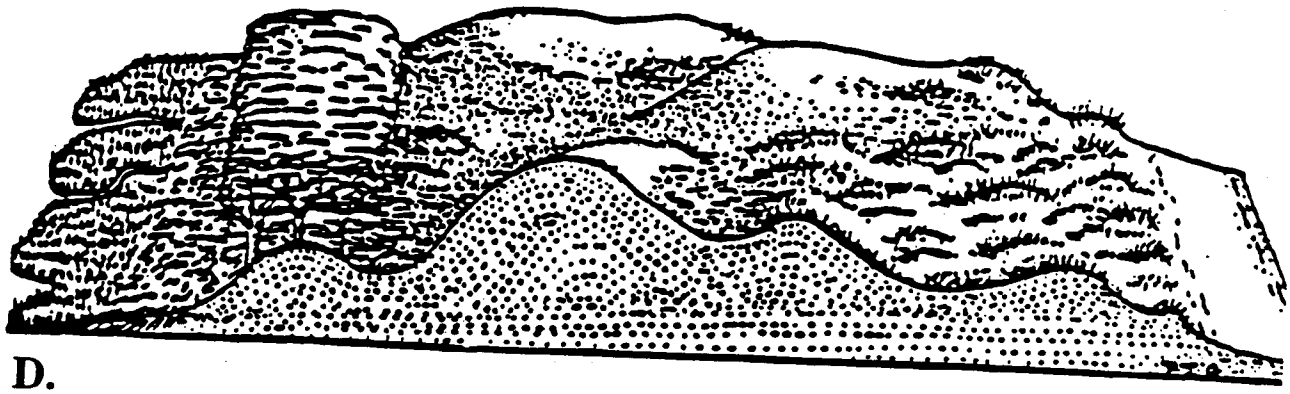


Figure 2-1. The principal types of coastal barriers: (A) bay barriers, (B) barrier spits, (C) tombolos. (Source: Godfrey 1978; FWS).



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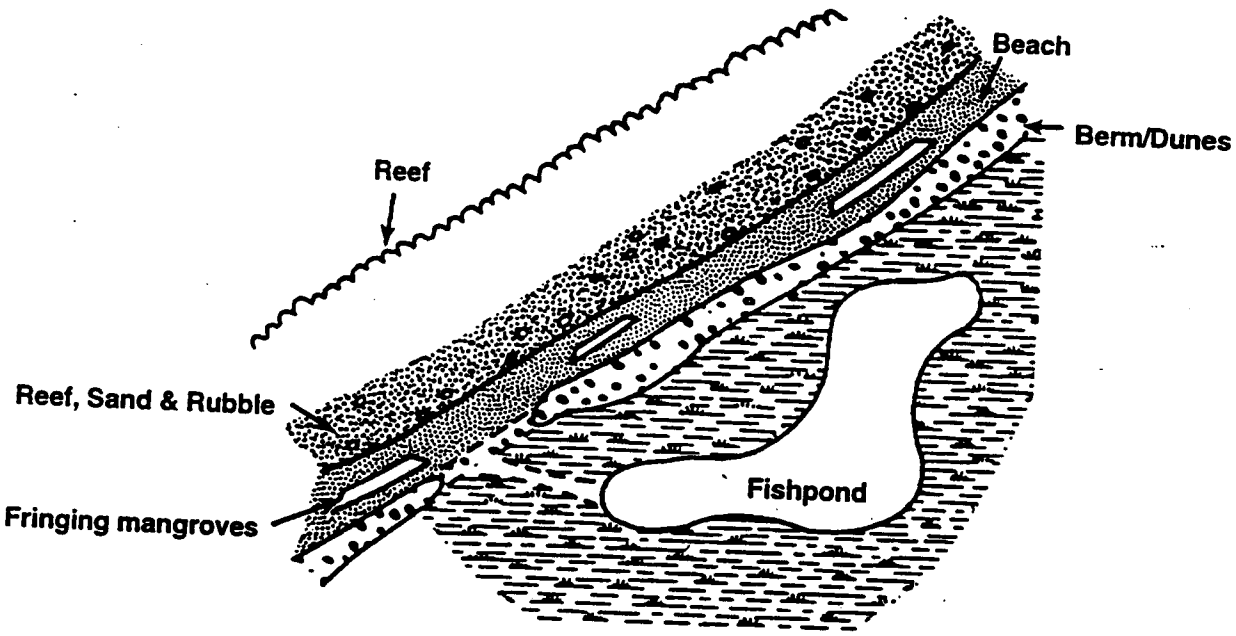


E.

Figure 2-1. The principal types of coastal barriers: (A) bay barriers, (B) barrier spits, (C) tombolos. (Source: Godfrey 1978; FWS).

- **Fringing Mangroves**[1]: bands of mangroves occurring along the Hawaiian shorelines, often associated with coral reefs and human-made fishponds (FWS 1993).

In comparison to the Atlantic and Gulf coasts, the Pacific coast generally lacks the extensive depositional barrier feature types. The types of depositional coastal barriers on the Atlantic coast include the above types, but also often include much more complex barriers such as multiple beach ridges, multiple dune ridges, chenier barriers, and other parallel features, or barrier islands (barriers completely separated from the mainland). The Pacific coast typically has single ridge beach barriers and spits that are completely attached to the mainland; there are some broader dune systems that are somewhat similar to those on the Atlantic coast, except for their height, especially in Oregon and southern Washington.

Detailed descriptions of the Pacific coastal environments are available in three technical reports prepared to support this evaluation: (1) DOI, Summary Report, Coastal Barriers of the Pacific Coast, Report to Congress (Hedgpeth 1988); (2) DOI, Summary Report, Coastal Barriers of Hawaii and American Samoa, Report to Congress (Holthus 1988); and (3) FWS, Draft Pacific Coastal Barriers Study (FWS 1993).

2.4 Formation of Coastal Barriers

The coastal barriers and associated aquatic habitat along the Pacific coastlines are shaped by the common yet varying magnitudes of wind, waves, tides, currents, and river flow. The following sections present information on the effects of sediment supply and littoral drift, climate, coastal storms/weather patterns, sea-level rise, and human manipulation on coastal barrier formation/maintenance. The discussion also includes a comparison with conditions on the Atlantic coast, where appropriate. See DOI (1983), CBSG (1988), Hedgpeth (1988), and Holthus (1988) for additional information.

[1] Fringing mangroves (*Rhizophora mangle* and *Bruguiera gymnorrhiza*) were initially included in the inventory of Pacific coastal barriers because similar communities were included in the CBRS on the Atlantic and Gulf coasts. The legislative history of the CBRA references the coastal barrier function of fringing mangroves, particularly in the Florida Keys. On the Hawaiian Islands, however, these mangrove forests are not native. Although they protect landward habitats, fringing mangroves invade areas and reduce or eliminate native plant species (FWS files). They are included in this inventory because of their association with coral reefs or other structures on which they grow, protecting the mainland from storm impact. Currently, there are efforts underway by the State of Hawaii to eradicate fringing mangroves to restore former ecological functions. There are certain native avian species which have adapted and begun to utilize this exotic habitat that could be affected by restoration efforts.

2.4.1 Sediment Supply and Littoral Drift

Unlike the Atlantic and Gulf coasts, where the wide continental shelf serves as a sediment storage area available for distribution along the coast by longshore currents, the narrow continental shelf of the Pacific coast causes much of the sediment input to the Pacific Ocean from rivers and coastal erosion to settle beyond the continental shelf (Figure 2-2). This, along with geological and topographic differences between the two coastlines, results in substantial differences in the formation of coastal barriers on the Pacific and Atlantic coasts. Pacific coastal barriers that meet the CBRA definition tend to form as sand spits and beaches near rivers or nearby erodible cliffs/bluffs, while Atlantic coastal barriers often extend over many miles of shoreline upon the broad continental shelf (Hedgpeth 1988, Shipman 1993).

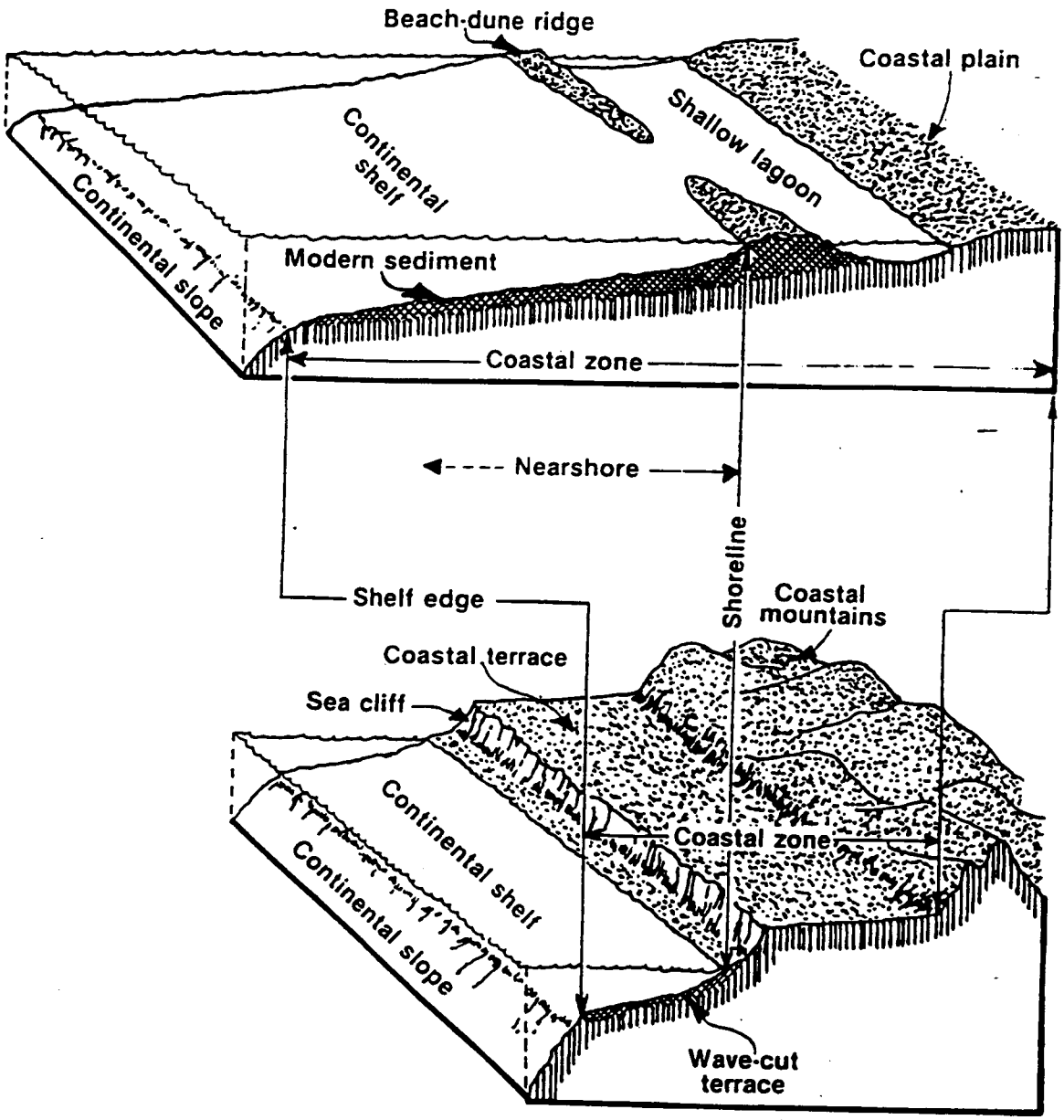
Without a relatively continuous supply of sediment, a coastal barrier would not exist. However, with sufficient amounts of depository materials, a barrier can maintain itself, migrate, or accrete seaward. The beaches and dunes along the Pacific coast and Puget Sound are formed from sediments primarily derived from eroded materials of cliffs, bluffs, and other coastal formations by wave attack, and from sediment accumulation from outflow of rivers (Cooper 1958, Hedgpeth 1988, Shipman and Canning 1993).

Large dunes have formed near the mouths of major rivers along the Pacific coast, such as the Columbia River, since sediment settles out of the water column faster than it can be moved along the coast by littoral currents[2]. Rapid accretion is continuing in some areas, but in other areas such as at Grays Harbor and Willapa Bay, Washington, substantial erosion has taken place possibly due to reductions in sediment supply or changes in river channels (Shipman 1993). Substantial beach and dune development has also occurred at the mouths of the Umpqua and Suislaw rivers in Oregon. On the California coast, the largest river flowing directly into the sea is the Klamath River; however, beach development at the mouth of the Klamath River is restricted to a relatively narrow sand spit due to the high hills bordering either side. Pocket beaches are formed at the base of, and between, the rocky headlands that occur along most of the California, Hawaii, Oregon, and Washington coasts.

Once in the ocean, sediment that remains in the nearshore zone is continuously moved by wave action, resulting in the creation of ripples and sand bars (DOI 1983). During periods of fair weather, wave action does not have a noticeable effect on sediment movement. However, waves striking the shoreline at an angle transport an appreciable amount of sediment into the near-shore zone. During storm conditions, these longshore currents can be exceedingly strong, moving up to several cubic feet of sediment per second. In general, the littoral drift along the continental Pacific coast is from the north to south during the summer and a northerly offshore movement of sediment occurs during the winter. This results in seasonal erosion and accretion patterns and movement of sediment from barrier to barrier. If sufficient

[2] Such continuous wave action generates a longshore current that steadily brings in sediment. The direction of this sediment transport (called littoral drift) is determined by the direction of wave approach relative to the shoreline.

Atlantic: Trailing edge



Pacific: Collision edge

Figure 2-2. The general morphology of the Atlantic and Pacific coastal zones (source: Inman and Brush 1973).

sediment is available in a given area, coastal barrier beaches, sand dunes, and spits will generally form parallel to the coastline. However, in areas of high tidal range (tidal range increases from south to north), the wave energy is distributed across a wide range of intertidal zones during the tidal cycle, resulting in complete elimination of some coastal barriers.

As a spit is formed by sediment deposition, waves and tides carry sand and silt over and around the spit into the bay on the landward side of the forming barrier. As the barrier grows and sediment settles in the bay, wetlands may develop within the protected area. Storm overwash is the second-most common method of movement of sediment across coastal barriers and can form inlets in dune and beach barriers which add to the complexity of the local coastal environment. Where sufficient wind, tidal, and wave energies and an adequate supply of sediment exist, secondary coastal barriers occasionally develop on the mainland side of large bays or lagoons behind coastal barrier systems. Secondary barriers often occur in large protected areas such as within the Puget Sound of Washington. There are many smaller depositional features that exist along the Pacific coasts near the mouths of small tributaries and in bays. Such features, however, are not included in the inventory because they are less than 0.25 mile long (See criteria in Section 2.2).

Coastal barriers on the Hawaiian Islands differ substantially from those of the Atlantic States but are similar to units previously mapped in the U.S. Virgin Islands. The coastal barriers of the Hawaiian Islands are often composed of eroded materials from cliffs and bluffs, sediment deposited by tributaries, and biologically derived sediments produced from the calcareous skeletons of corals and other organisms (FWS 1993). The distribution of coastal barriers in Hawaii is a function of the distribution and size of coral reefs. Reefs are generally wide and shallow off coasts exposed to the northeast tradewinds, wide and very shallow along some leeward (south and west) or otherwise protected coasts, and deeper and more irregular off northern coasts exposed to seasonally large surf (USACOE 1971). Inside the reefs and along the beaches, wind and waves generate the nearshore current that move sediment and create barriers.

Relatively few depositional coastal barriers exist in Hawaii. Nearly all barriers that meet the criteria of the CBRA are located in now flooded stream-cut valleys that support wetlands and bay-mouth barriers (Holthus 1988). Biologically derived sediments from corals often become part of the beaches common in geologically older sections of the Hawaiian shoreline. Several mapped, undeveloped coastal barrier units were included because they support fringing mangroves, a species used to identify coastal barriers on some portions of the Atlantic and Gulf coasts. Volcanic activity inhibits the development of sandy beaches and buries existing beaches (Moberly et al. 1963).

2.4.2 Climate and Coastal Storms/Surges

As noted above, a substantial amount of sediment is moved along the coast during major storms. The climate and coastal storms of California, Hawaii, Oregon, and Washington play an important role in the development and maintenance of coastal barriers by affecting the

amount of water and sediment inflow from coastal streams, and by affecting the coastal dynamics. Winter weather along the Pacific coast is typically the most severe and is affected by "Aleutian lows" bringing heavy rains and strong south to southwesterly winds (FWS 1993). It is during these strong winter storms that much of the sediment movement along coastal areas and coastal bluff landslides/erosion occur (Hedgpeth 1988, Holthus 1988, Shipman 1991).

Major storm waves occurring on the Pacific coasts typically originate from three different oceanic events: meteorological (winter storms), seismic (tsunamis caused by earthquakes or volcanic activity), and trans-Pacific storms (waves from a distance). These waves can move sediment along hundreds of miles of shoreline. The effects of the waves tend to be greatest when the waves coincide with high tides, resulting in waves 4 to 5 feet higher than normal (Phipps 1990). These conditions move large amounts of sediment into bays and away from barriers.

Another climatic pattern that affects the formation of Pacific coastal barriers is the occurrence of irregular strong El Nino-Southern Oscillations (ENSO). These phenomena can increase shoreline erosion by moving sediment to the north over a several-year period (Phipps 1990, FWS 1993). Strong ENSOs occur, on average, every 8.5 years and can increase the mean tide by as much as one foot (Phipps 1990).

The Hawaiian Islands, with a tropical climate, experience dominant northeast tradewinds from April to November. These winds play a major role in coastline processes by blowing sand inland to form coastal dunes. Heavy rainfall combines with steep topography, low bedrock permeability, and extensive floodplains to cause flooding in coastal areas and landslides which erode coastal terraces and produce bluff retreat. Such flooding and coastal bluff erosion also occurs in California, Oregon, and Washington in response to heavy precipitation. The primary effect of heavy precipitation is to increase sediment by increasing river flow and causing erosion of other landforms such as coastal bluffs.

In addition to climatically created storm surges, the Pacific is also subjected to rare seismically generated waves called tsunamis. Tsunamis are trains of long-period waves that move at speeds of 500 to 600 miles per hour (mph), generated by seismic or volcanic activity in the ocean basin, along continental margins, or in major island groups (Holthus 1988). Although not a climatic phenomenon, tsunamis can have a major effect on erosion and sediment accretion along the Pacific coast as well as at upland sites in the tsunami run-up zone. It is thought that large-scale tsunamis occur along the Pacific mainland coast, on the average, every 300 to 400 years; the last major tsunami to hit the mainland was in 1964.

2.4.3 Sea-level Rise

As with the Atlantic coast, long-term variations in the sea-level play a role in development and elimination of Pacific coastal barriers. Throughout geologic time, the earth's sea-level has risen and fallen relative to the land surface in a cyclical pattern. At the end of the most

recent Ice Age, the sea-level was approximately 300 feet lower than today (DOI 1983). The rise in water level since the ice melt has resulted in flooded offshore terraces at various elevations, and although this sea-level rise has slowed, scientists predict the sea-level could rise from 0.7 to 11 feet by the year 2100 (Hecht 1990, DOI 1983).

Along the Pacific coast, sea-level rise could result, at a minimum, in the elimination of beaches, coastal wetlands, and reefs (Titus 1985, Kana et al. 1986, FWS 1993). This is especially true when sea-level rise is combined by rapid subsidence caused by seismic activity, such as could result from a large subduction earthquake along the Cascadia Subduction Zone just off the Oregon and Washington coasts (Atwater 1987, Shipman 1993). The rate and direction of sea-level changes vary greatly throughout the region. For example, in Washington many coastal areas are currently experiencing a slight drop in relative sea-level due to accretion and tectonic forces, while in Puget Sound sea-levels are rising relative to the land (Phipps 1990). Other areas along the Oregon and California coasts are experiencing sea-level rise as well. The increased sea-level could lead to more coastal erosion, increased storm frequency and severity, and saltwater intrusion into groundwater. Brunn (1986) suggested that a 3 cm sea-level rise could cause 3 to 4.5 m of shoreline recession. In comparison, sea-level rise on the shallower and broader Atlantic continental shelf often results in substantial landward horizontal migration of coastal barriers (DOI 1983). This is less likely on the Pacific coast which is bordered by steep bluffs and cliffs along much of its length and has a narrow continental shelf; instead, most barriers would be drowned by continued sea-level rise.

2.4.4 Human Influence on Formation and Integrity of Coastal Barriers

When allowed to fluctuate naturally, coastal dynamics ensure the continued formation and maintenance of the coastal barrier system. When humans alter these processes by construction and development directly on coastal barriers, shoreline protection and stabilization efforts, and construction and maintenance of navigation channels and ports, they reduce the ability of coastal barriers to adjust to environmental forces, which in turn can lead to the destruction of the human-made structures located on the barrier, and the coastal barrier itself (CBSG 1988).

Construction of seawalls and other similar structures on or near barriers or near a major sediment source (e.g., bluff or river) often results in a change in substrate size (typically a loss of small particles), beach erosion, and reduced sediment transport which not only affect coastal barriers that fit the criteria but also coastal bluffs (WDOE 1992, Canning and Shipman 1995). It is nearly impossible to predict the pattern of sediment accretion/erosion in areas near jetties, although typically sediment accretes on one side of a jetty but erodes from the other side (Phipps 1990). Approximately 86 percent of the California coast is experiencing erosion problems, partly due to such activities (California Coastal Commission 1992). Shipman and Canning (1993) indicated that in Puget Sound, as in other areas, shoreline stabilization along the base of bluffs can lead to sediment starvation, shoreline armoring, and loss of vegetation. As these structures are undermined by tides and storms, they become less effective or are destroyed and can lead to further erosion (Phipps 1990).

Construction of shoreline stabilization structures or damming of rivers can reduce sediment supply and lead to a net loss of barrier beach (Phipps 1990, Shipman 1993). Although individual shoreline protection structures may have limited impact on sediment transport, the cumulative impact of multiple structures can be substantial (Shipman and Canning 1993).

2.5 Geographic Variation of Coastal Barriers

This section discusses the geographic variation of Pacific coastal barriers and provides a brief comparison with those of the Atlantic coast. Additional detail on the Pacific and Hawaiian coasts is provided by Hedgpeth (1988) and Holthus (1988); Atlantic and Gulf coastal barriers are described by DOI (1983).

The Atlantic and Gulf coasts contain numerous barrier islands and spits fronting extensive bays and tidal marshes on expansive coastal plains. Nine basic types of coastal barriers occur on the Atlantic coast, four of which include extensive dunes and/or flats (DOI 1983). In contrast, Pacific coastal barriers are generally characterized by small bay-mouth barriers and sand spits that block small permanent streams in the northern half of the coast and small intermittent streams in the southern portion of the mainland (Hedgpeth 1988). Atlantic and Gulf coast barriers are generally much longer than those on the Pacific coast (Table 2-3). Only along the Oregon and Washington coasts are there many long uninterrupted coastal barriers that are similar in length to the Atlantic and Gulf coasts.

The Pacific coast is dominated by cliffs and rocky headlands (over 950 of the 1,500 miles of outer Pacific coastline and two-thirds of the Hawaiian coastline are rocky), often several hundred feet high, which drop with a sheer vertical surface to the sea. Cliffs, headlands, and

Table 2-3. Comparison of mapped coastal barrier units along the Atlantic, Gulf of Mexico, and Pacific coasts.

	Percent of Mapped Units by Size			
Coast	**< 1 mile of shoreline**	**1-2 miles of shoreline**	**2-12 miles of shoreline**	**> 12 miles of shoreline**
Atlantic[1]	41	22	36	1
Gulf of Mexico[1]	14	12	61	13
California[2]	62	18	19	<1
Hawaii[2]	86	8	6	0
Oregon[2]	43	14	32	11
Washington[2]	72	21	7	0

Source: [1] DOI (1983), [2] FWS files.

rocky areas comprise about 61 percent of the Washington coastline, 40 percent of the Oregon coastline, and 70 percent of the California coastline (CBSG 1988). These cliffs, rocky headlands, and bluffs often function as coastal barriers by being the first land to absorb coastal storms, although they do not meet the CBRA/CBIA definition. Beaches of varying length occur between these rocky headlands. The Hawaiian Islands' coastal environments differ substantially from the Atlantic and Gulf coasts, as well as the continental Pacific coast, primarily because volcanic action creates rugged coastlines and quickly eliminates depositional features.

Much of the Washington coast consists of rocky headlands and pocket beaches similar to those found in New England and the Great Lakes (Shipman 1991), with barrier beach and dune complexes fronting Willapa Bay and Grays Harbor (Carefoot 1978). The coastline near the mouth of the Columbia River supports extensive beaches and dunes covering more than 50 miles (Phipps 1990, Hedgpeth 1988). Within Puget Sound, the typical depositional features are much smaller than along the rest of the coast because of lower wave energy, although these features often are formed and function in the same manner as those along the outer coast.

Interspersed among the rocky headlands, pocket beaches, and river bay mouths of the Oregon coast are several series of coastal sand dunes and bluffs that protect inland freshwater lakes. Some of the dune fields and lake systems in Oregon between Heceta Head and Coos Bay are suggestive of the East Coast barriers. Approximately 40 percent of the Washington and Oregon coasts is bordered by dunes.

Below the Oregon-California border, rugged coastal mountains and headlands give way to coastal plains with steep beaches and a series of lagoons at stream mouths (Hedgpeth 1988). In California, dunes comprise 23 percent of the California shoreline (Cooper 1958). With only a few exceptions, such as high coastal hills between Crescent City and the Klamath River and a group of tombolos at Trinidad Head, these coastal plains extend as far south as the Eel River south of Eureka, California. From the Russian River to Half Moon Bay, pocket beaches, larger beaches, crescent-shaped sand spits, and tombolos are common. South of Monterey, the coast becomes rugged, with only one tombolo near Big Sur. South of Big Sur, the coast is composed of large beaches and tombolos with scattered rocky headlands.

In Hawaii, coastal barriers are relatively uncommon and small in size, even relative to the other three Pacific States, as the local geology and currents do not provide optimal conditions for coastal barrier development (Table 2-3). Wetlands and bay mouth barriers in drowned river valleys are the most common barrier systems, while shorelines near recent volcanic activity typically lack coastal barriers (Holthus 1988). The abundance and type of Hawaiian coastal barriers vary among the islands and largely depend on the presence of protective coral reefs. Broad beach barriers at mouths of drowned valleys account for nearly all barriers on the island of Kauai (Moberly et al. 1963). The extent of beach barriers on Oahu is second only to Kauai. On Niihau, sandy beaches and dunes separate brackish lagoons from the ocean. Long barrier beaches protect wetlands in coastal depressions on Maui. Because of

active volcanoes, little coral reef development has occurred around the island of Hawaii resulting in fewer sandy barrier beaches than the other islands. Many of the mapped units in Hawaii include fishponds that support fringing mangroves, the key to meeting the mapping criteria established for the Atlantic coast. The use of these criteria in Hawaii may not be appropriate since fringing mangroves are non-native species and are actively being eradicated to restore native ecosystems in some areas.

2.6 Functions of Undeveloped Coastal Barriers

Coastal barriers and their associated wetland, estuarine, and near-shore aquatic habitats offer numerous benefits. The primary functions are to protect the mainland from coastal hazards and to provide fish and wildlife habitat. Coastal barriers buffer the adjacent lands from the full force of coastal storms and decrease the amount of damage that is incurred to the environment and human structures. The Pacific coastal barriers provide habitat for thousands of species of plants, fish, and wildlife that rely on the complex marine/estuarine habitats. Included in the group of species that occur in these areas, are 93 and 62 species of wildlife and plants, respectively, that are Federally listed, candidates for listing, or otherwise species of concern.

In addition, coastal barrier areas contain resources of scenic, scientific, recreational, natural, cultural, historic, and economic value. The areas associated with coastal barriers provide substantial natural beauty that attracts residential, recreational, and tourism development to nearby areas. In some areas, the aquatic areas associated with coastal barriers are used for aquaculture, marine transportation, and other uses that contribute to local economies. See Holthus (1988), Hedgpeth (1988), and FWS (1993) for additional discussion of resources associated with Pacific coastal barriers.

3.0 Factors Affecting the Need to Protect Undeveloped Pacific Coastal Barrier Units

This section addresses the extent to which the mapped coastal barrier units on the Pacific coast need additional protection and the effects of implementing the CBRA. There are three primary factors considered in evaluating the effects of implementing CBRA: (1) anticipated development based on economic, population, and demographic trends; (2) existing regulations that would control, limit, or alter future development plans; and (3) the geologic and climatic conditions of the Pacific coast that would make such development subject to hazards, thereby increasing the potential for loss of human life, damage to fish, wildlife and other natural resources, and wasteful expenditures of Federal revenues. These factors are described below.

3.1 Existing Development and Future Trends

The following sections discuss the ownership, land use and development, and population and demographic trends that determine anticipated development and affect the need for protecting undeveloped coastal barriers.

3.1.1 Ownership of Coastal Barrier Units

There are three types of ownership of mapped Pacific coastal barrier units: military, OPA, and private. In many cases, an individual coastal barrier unit has multiple owners with a portion being privately owned and a portion under military ownership and/or OPA status.

OPA lands are lands designated for conservation uses (See Section 2.2). Most OPA lands are owned by the public, including Federal, State, and local governments. In some cases, an OPA may be owned by a private organization, such as The Nature Conservancy. To be considered an OPA, the land must be set aside for conservation purposes, such as wildlife refuges or parks. One exception, however, is a portion of Unit OR-1 in Oregon which includes part of an Oregon National Guard training facility. Although not actually designated as conservation status, this portion of the unit is considered an OPA since it is under public ownership but is not a Federal military property. Private lands include those units or portions of units that are owned by private individuals, corporations, or groups and that have not been designated for conservation use.

Table 2-1 (Section 2) shows the breakdown of ownership of the units by State. Approximately 33 percent (66 of the 195 units) are entirely privately owned. Because of the large number of units with mixed ownership, the exact amounts of land under military, OPA, or private ownership cannot be determined. However, for the Pacific coast as a whole, approximately 21 percent of the area included in a coastal barrier unit (fastland and associated aquatic habitat) is currently under private ownership (FWS files). For fastland areas, the percentage of private ownership may range between 16 and 42 percent (4,500 and 12,000 acres). The proportion of private land in mapped coastal barrier units varies by State with 20 percent in California, 49 in Hawaii, 8 in Oregon, and 19 percent in Washington (FWS files).

As most of the land area and aquatic habitat in mapped units is currently under public control and not immediately subject to future development, relatively little land associated with coastal barrier units actually has the potential to be developed. Even if all private lands on coastal barrier units were open to development, the developable fastland would comprise a maximum of approximately 4,500 to 12,000 acres. By comparison, the CBRS when established on the Atlantic and Gulf coasts included over 194,000 acres of privately owned fastland (DOI 1983).

3.1.2 Land Use and Development Trends

By definition, the mapped coastal barrier units are currently undeveloped. A large percentage of the land included in units is under conservation status and used for parks, wildlife refuges, and other similar uses. In addition, much of the land is currently used by a branch of the Federal military and is outside the normal development cycle. In all, 20 percent of the units are completely OPA or military land, while much of 74 percent of land in mixed ownership units is also OPA or military.

Coastal areas have been under increasing developmental pressures for several decades. Economic changes along the Pacific coast are altering development patterns. Traditionally, development along many portions of the Pacific coast was related to resource-based industries, such as timber or fishing. However, changes in the economics of the affected States have led to a decrease in the importance of resource-based industries with a corresponding decrease in development related to these industries. At the same time, many areas have experienced an increase in the importance of tourism. As a result, the types of development are changing, with greater emphasis on tourism such as recreational facilities, hotels, and second homes.

The desirability of coastal locations, based on the scenic amenities, is the primary impetus for this trend in development. This trend, however, is fairly uniform throughout the Pacific coast and is not limited to areas that constitute coastal barriers. Other coastal locations, such as cliffs, bluffs, and dunes that provide aesthetically pleasing views, are also subject to this development pressure. This is in contrast to the Atlantic and Gulf coasts where, because of the geology of the region, some entire stretches of the coast are coastal barriers, such as the Outer Banks of North Carolina. In such areas, much development has occurred directly on coastal barriers. On the Pacific coast, although some coastal barriers are developed, development more often occurs on areas that do not meet the CBRA definition of a coastal barrier.

3.1.3 Population and Demographic Trends

Population Changes

All four of the affected States have grown rapidly in recent decades with total population increases in the four affected States of 20 percent between 1970 and 1980 and 23 percent

between 1980 and 1990 (U.S. Bureau of the Census). During the same two periods, total population in the United States increased by 11 and 10 percent, respectively. Therefore, population growth in the four affected States is increasing at a much more rapid pace than the nation as a whole.

Identified coastal barrier units occur in most, but not all, of the coastal counties in the affected States. Population in the affected counties increased by 15 percent between 1970 and 1980 and by 20 percent between 1980 and 1990 -- rates much higher than the nation as a whole. This trend is expected to continue.

While these trends indicate that more development will be required to accommodate the increased number of residents in coastal counties, no population data specific to coastal barriers or the areas immediately adjacent to coastal barrier units are available. Since coastal barrier units represent such a small portion of the total land area of the coastal counties in the four affected States and regulatory restrictions limit development in the most sensitive areas, the expected increases in population would not necessarily directly impact the mapped coastal barrier units. Development to accommodate growth can occur in other areas. No evidence was found to indicate that growth would necessarily be focused on coastal barriers.

A more detailed discussion of population growth for each affected State and coastal county is provided below. It should be noted that U.S. Census data presented by county have been used, although in many cases, a county's population will include residents who live inland, away from the coast. For those States where more detailed information regarding coastal area population was available, this information has been incorporated as appropriate.

California

California includes a total of 15 coastal counties, not including those whose only coastline is on San Francisco Bay. Of these 15 counties, 13 contain identified coastal barrier units. The 13 affected counties experienced a total population growth of 14 percent between 1970 and 1980 and 21 percent between 1980 and 1990. The State as a whole grew 19 and 26 percent during these same periods, respectively (U.S. Bureau of the Census). Therefore, although population in the affected counties has increased rapidly, it has increased at a slower rate than the State as a whole. As a percentage of the total State population, the population in the affected counties has been decreasing from 53 percent in 1970 to 49 percent in 1990. Therefore, greater growth is occurring in non-affected counties, including inland counties, than in affected coastal counties. Table 3-1 shows the population figures for the affected counties in California.

Hawaii

Hawaii includes a total of four counties, all of which are coastal counties and contain identified coastal barrier units. The population of Hawaii grew by 26 percent from 1970 to 1980 (Table 3-2). Since then, the rate of growth has slowed with growth of 15

Table 3-1. Population data for affected coastal counties of California.

County	1970	1980	Percent Change (1970-1980)	1990	Percent Change (1980-1990)
Del Norte	14,580	18,217	24.9	23,460	28.8
Humboldt	99,692	108,514	8.8	119,118	9.8
Los Angeles	7,041,980	7,477,503	6.2	8,863,164	18.5
Marin	206,758	222,568	7.6	230,096	3.4
Mendocino	51,101	66,738	30.6	80,345	20.4
Monterey	247,450	290,444	17.4	355,660	22.5
Sand Diego	1,357,854	1,861,846	37.1	2,498,016	34.2
San Luis Obispo	105,690	155,435	47.1	217,162	39.7
San Mateo	556,234	587,329	5.6	649,623	10.6
Santa Barbara	264,324	298,694	13.0	369,608	23.7
Santa Cruz	123,790	188,141	52.0	229,734	-22.1
Sonoma	204,885	299,681	46.3	388,222	29.5
Ventura	376,430	529,174	40.6	669,016	26.4
Total Population of Affected Counties	10,650,768	12,104,284	13.6	14,693,224	21.4
Percent of Total	53.4	51.1	-4.2	49.4	-3.5
Total Population of State	19,953,134	23,667,902	18.6	29,760,021	25.7

Source: U.S. Bureau of the Census

Table 3-2. Population data for affected coastal counties of Hawaii.

County	1970	1980	Percent Change (1970-1980)	1990	Percent Change (1980-1990)
Hawaii	63,468	92,053	45.0	120,317	30.7
Honolulu	629,176	762,565	21.2	836,231	9.7
Kauai	29,761	39,082	31.3	51,177	30.9
Maui	46,156	70,847	53.5	100,374	41.7
Total Population of Affected Counties	768,561	964,547	25.5	1,108,099	14.9

Source: U.S. Bureau of the Census

percent between 1980 and 1990 (U.S. Bureau of the Census). Hawaii County, Kauai County, and Maui County have experienced the most dramatic growth, with growth rates between 31 percent and 42 percent between 1980 and 1990, considerably higher than the overall State growth rate. The City and County of Honolulu experienced only a 10 percent growth rate in the same period. Table 3-2 shows the population figures for the four counties in Hawaii.

Oregon

Seven counties in Oregon border the Pacific Ocean, all of which contain identified coastal barrier units. Population in these counties increased at a rate of 26 percent between 1970 and 1980. This increase roughly mirrored the rest of the State which increased by at 26 percent during the same period. However, between 1980 and 1990, population growth in Oregon slowed dramatically with statewide growth of only 8 percent while the seven coastal counties grew at only 2 percent (U.S. Bureau of the Census). Consequently, within the last decade the non-coastal areas of Oregon have been experiencing more rapid growth than the coastal areas. Counties along the coast had varying growth rates with a high of 14 percent in Curry county and a low of -6 percent in Coos County. Table 3-3 shows the population figures for Oregon coastal counties.

Population projections predict a maximum increase of between 21 and 27 percent for the coast and 29 to 33 percent for the State of Oregon as a whole between 1990 and 2010. All coastal counties are expected to increase in population, with the possible exception of Clatsop

Table 3-3. Population data for affected coastal counties of Oregon.

County	1970	1980	Percent Change (1970-1980)	1990	Percent Change (1980-1990)
Clatsop	28,473	32,489	14.1	33,301	2.5
Coos	56,515	64,047	13.3	60,273	-5.9
Curry	13,006	16,992	30.6	19,327	13.7
Douglas	71,743	93,748	30.7	94,649	1.0
Lane	215,401	275,226	27.8	282,912	2.8
Lincoln	25,755	35,264	36.9	38,889	10.3
Tillamook	18,034	21,164	17.4	21,570	1.9
Total Population of Affected Counties	428,927	538,930	25.6	550,921	2.2
Percent of Total	20.5	20.5	-0.2	19.4	-5.3
Total Population of State	2,091,385	2,633,105	25.9	2,842,321	7.9

Source: U.S. Bureau of the Census

County, which showed a slight decrease in population under one projection methodology (OCZMA 1994). (Unlike U.S. Census figures, these projections include only the coastal portions of Douglas and Lane Counties, including the communities of Florence and Reedsport, while the inland portions of these counties are included with the rest of the State.)

Washington

Washington has 15 coastal counties (including counties which border the Strait of Juan de Fuca, Puget Sound, Hood Canal, and the mouth of the Columbia River), 11 of which contain identified coastal barrier units. Between 1970 and 1980, population in the 11 counties with identified coastal barrier units increased by 16 percent compared to 21 percent for the entire State. From 1980 to 1990, however, population growth in these counties was 20 percent, outpacing the overall State growth of 18 percent. Growth rates among the counties, however, varied widely, from 37 percent for Island County to -3 percent for Grays Harbor County (U.S. Bureau of the Census). Table 3-4 shows the population figures for Washington.

Table 3-4. Population data for affected coastal counties of Washington.

County	1970	1980	Percent Change (1970-1980)	1990	Percent Change (1980-1990)
Clallam	34,770	51,648	48.5	56,464	9.3
Grays Harbor	59,553	66,314	11.4	64,175	-3.2
Island	27,011	44,048	63.1	60,195	36.7
Jefferson	10,661	15,965	49.8	20,146	26.2
King	1,159,369	1,269,749	9.5	1,507,319	18.7
Kitsap	101,732	147,152	44.6	189,731	28.9
Mason	20,918	31,184	49.1	38,341	23.0
Pacific	15,796	17,237	9.1	18,882	9.5
Pierce	412,344	485,643	17.8	586,203	20.7
San Juan	3,856	7,838	103.3	10,035	28.0
Skagit	52,381	64,138	22.4	79,555	24.0
Total Population of Affected Counties	1,898,391	2,200,916	15.9	2,631,046	19.5
Percent of Total	55.7	53.3	-4.3	54.1	1.5
Total Population of State	3,409,169	4,132,156	21.2	4,866,692	17.8

Source: U.S. Bureau of the Census

Demographic Changes

Demographically, the nation's population increasingly includes larger percentages of older persons and increasing numbers of retirees. As a result, development patterns are changing, with increased numbers of developments designed for retirees. Areas along the coast are often highly valued for their amenities as locations for retirement. This trend is evidenced in Washington, particularly in places such as San Juan County (Boettcher 1991). A similar trend is evident in Oregon. Most of the growth in Oregon is occurring in urban areas while the entire Oregon coast can be characterized as rural (OCZMA 1994). At the same time, increasing numbers of retirees have chosen to settle along the coast, sparking an increase in service sector jobs to serve this market (OCZMA 1994).

Changes in household size also affect coastal development patterns. Although the total population may not be increasing rapidly in an area, household size is generally decreasing, resulting in higher numbers of total households in an area. Increased numbers of households create a greater demand for housing and therefore create greater development pressure. Figures for housing stock in Washington generally indicate a more rapid growth in a county's housing stock than its population, indicating that development is increasing faster than population (Boettcher 1991).

These demographic changes indicate that more development is likely in coastal areas. The increase in the retired population of coastal counties is particularly likely to increase development pressure on coastal locations. This development pressure, however, will be distributed along the entire coast wherever coastal amenities are available and will not be focused solely on coastal barriers. Along the Pacific coast, coastal amenities are available in areas that do not meet the definition of a coastal barrier. This situation is different from the Atlantic and Gulf coasts, where, in many areas, the only locations with high coastal amenity values are on or near coastal barriers, such as barrier islands off the coasts of Georgia and South Carolina.

3.2 Existing Regulations

While existing laws do not specifically address Pacific coastal barriers as defined in the CBRA, a wide range of Federal, State, and local regulations affect development and activities in coastal areas, including coastal barriers. These laws and regulations provide substantial protection and regulation for coastal barriers. Laws and regulations that most significantly affect coastal barriers are described in the following sections.

3.2.1 Federal Regulations

Some of the most important Federal laws and regulations that affect coastal barriers are described briefly below.

Federal Coastal Zone Management Act of 1972 (16 USC 1451 et seq.)

The Coastal Zone Management Act (CZMA) of 1972 established a voluntary national program within the Department of Commerce to encourage States to develop and implement coastal zone management plans. Each State plan is required to define boundaries of the coastal zone, identify regulations and mechanisms to control uses within the coastal zone, inventory and designate areas of particular concern, and establish broad guidelines for priority uses within the coastal zone. Each State administers its coastal zone management plan individually. The four affected States all have approved coastal zone management plan which are discussed individually by State below.

Federal lands and actions are typically exempt from State coastal zone management regulations. However, Federal agencies must consult with State coastal zone management agencies to determine if proposed projects in a State's coastal zone are consistent with the State coastal zone management plans. This consultation offers the States an opportunity to comment on the potential expansion of the CBRS and to suggest measures that would cause an action to be consistent with the State plans.

The CZMA was amended in 1990 to include the Coastal Zone Enhancement Grant Program (Section 309) which identifies enhancement objectives for several coastal issues. To qualify for enhancements grants, each State with an approved coastal zone management plan must assess its existing plan to determine if coastal problems (erosion, water quality, land use conflicts, etc.) exist, evaluate any identified problems, and identify the importance of any problems (FWS 1993).

National Environmental Policy Act of 1969 (42 USC 4321 et seq.)

The National Environmental Policy Act (NEPA) of 1969 established Federal policy for involving the public and documenting the effects of Federal actions potentially affecting the environment. Under NEPA, Federal agencies must prepare an environmental impact statement (EIS) for any major Federal action with the potential to significantly affect the human environment. Therefore, before a Federal agency can undertake a project or issue a permit or license, it must consider the environmental impacts of the action. The implication of this law for coastal barrier units is that any Federal action that may impact the human environment within a coastal barrier must be analyzed and appropriate mitigation considered.

Clean Water Act (33 USC 1251 et seq.)

Originally known as the Federal Water Pollution Control Act of 1972, this statute has been amended extensively. Currently, the Clean Water Act (CWA) regulates activities that may have an impact on the quality of water in the Waters of the United States, which generally include all coastal waters as well as rivers, streams, wetlands, marshes, bogs, lakes, and other water bodies. Two sections of the CWA are especially important in relation to coastal barriers: (1) Section 404, and (2) Section 401.

Section 404 of the CWA requires that any agency, government, group, or individual receive a permit from the U.S. Army Corps of Engineers (ACOE) prior to conducting an activity within the waters of the United States, including dredging, filling, or construction. This regulation applies to all wetlands. Section 401 requires that the proposed Federal project meet State water quality standards. The U.S. Environmental Protection Agency (EPA) and FWS have developed stringent mitigation guidelines, which the ACOE typically incorporates into permits. Since all identified coastal barrier units contain associated aquatic habitat, these aspects of the law would regulate development activities in coastal barrier units.

Rivers and Harbors Act of 1899 (16 USC 460d, 493; 31 USC 680)

Section 10 of the Rivers and Harbors Act of 1899, also implemented by the ACOE, requires a permit for construction and placement of structures within the navigable waters of the United States. This includes waters to the mean high water mark of tidal waters and the ordinary high water mark of fresh water. The environmental evaluation elements of this law would offer some protection and regulation for the uses of a coastal barrier.

Endangered Species Act of 1973 (16 USC 1531 et seq.)

The stated purposes of the Endangered Species Act (ESA) are to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide for a program for the conservation of such endangered and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in the ESA."

The regulatory provisions of the ESA apply to species on the Federal list of endangered and threatened species. The ESA prohibits the "taking" of any member of a listed species. "Take" is defined broadly to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 U.S.C. Sec. 1532(19)). The ESA also requires that Federal agencies engage in a consultation process to ensure that projects authorized, funded, or carried out by Federal agencies do not jeopardize the continued existence of listed species or result in destruction or modification of their critical habitat.

The ESA would serve as a vehicle for considering sensitive species, avoiding or reducing impacts, and implementing mitigation measures where listed species may occur in coastal barrier units.

Marine Mammal Protection Act of 1972 (16 USC 1361 et seq.)

The Marine Mammal Protection Act provides for a general moratorium on the "taking" of marine mammals, along with other management goals and guidelines. The National Marine Fisheries Service (NMFS) implements this law that precludes harassment of marine mammals, including when they are on coastal barriers. This may affect the types of development and

land uses in important marine mammal haul-out sites, which may occur in mapped coastal barrier units.

3.2.2 State and Local Laws and Regulations

The following sections summarize the State regulations that potentially affect development in coastal barrier units. In addition to the State laws listed below, coastal resources are often afforded additional protection at a county or city level (e.g., sensitive area ordinances). Most Coastal Zone Management (CZM) regulations are actually administered at the local level. Table 3-5 summarizes the major components of the State Coastal Zone Management Plans (CZMPs) and other land use regulations affecting coastal barriers.

California

State coastal management efforts in California that may affect identified coastal barrier units are primarily the responsibility of the California Coastal Commission (Commission). In addition, the non-regulatory California State Coastal Conservancy (Conservancy) has primary responsibility to provide public access to coastal areas.

In 1977, the California Coastal Management Program (CCMP) (Public Resources Code Section 30000 et seq.) became a Federally approved CZM program, allowing the Commission and the Conservancy to qualify for funding under the CZM Act of 1972. The actual implementation of CZM guidelines is carried out by Local Coastal Programs (LCP). There are substantial variations in how each LCP regulates development.

The Commission's jurisdiction extends from the Oregon to Mexico borders, excluding San Francisco Bay (which is under the jurisdiction of a separate commission, and extends inland as much as 5 miles from tidally influenced bodies of water. The Commission undertakes its responsibilities through planning, permitting, and other non-regulatory mechanisms, and relies on cooperation between Federal, State, and local agencies.

Along with Federal consistency review authority, the Commission's primary mechanism for implementing the CCMP is the coastal development permit program. Under this program, any development in the coastal zone may require a coastal development permit issued either directly by the Commission, or by a local government to which this authority has been delegated. This delegation of authority represents a unique State and local government partnership through which State-wide policies for conservation and use of coastal resources are reflected in local coastal planning and development decisions. Local governments, with assistance from the Commission, also develop LCPs which consist of a land use plan, zoning ordinances, zoning district maps, and other implementing actions, all of which should reflect the policies of the CZMP.

The Commission maintains permit jurisdiction over some lands, including the immediate shoreline (tidelands, submerged lands, and some public trust lands). Permit authority is not delegated to the local government in these areas. This authority, along with other ongoing

Table 3-5. Outline of major features of affected States' Coastal Zone Management Programs (CZMP).

State	State Laws and Regulations	Responsible Agencies	Functions
California	• California Coastal Act of 1976 • California Coastal Management Plan • CEQA • CESA	• California Coastal Commission • San Francisco Bay Conservation and Development Commission • California State Coastal Conservancy • Local Governments	• Issues coastal development permits. • Conducts Federal consistency review of projects. • Assist local governments develop Local Coastal Programs. • Acquire land and design and implement resource restoration and enhancement programs.
Hawaii	• Shoreline Setback Law of 1970 • Hawaii Shoreline Protection Act of 1975 • Hawaii Coastal Zone Management Program • Local Zoning	• Office of State Planning • Department of Planning and Economic Development • Department of Land and Natural Resources • Land Use Commission • Local Governments	• Regulates development and land use within 100 yards of the coast. • Review state and county compliance with goals of program.
Oregon	• Oregon Land Use Planning Act • Removal-Fill Law • Oregon Beach Law • Oregon Coastal Management Program	• Department of Land Conservation and Development • Division of State Lands • Parks and Recreation Department • Local Governments • Department of Environmental Quality	• Ensures compliance of local comprehensive plans with goals of program. • Regulates alterations to beaches, estuaries, lakes, and waterways.
Washington	• Shoreline Management Act of 1971 • Seashore Conservation Act • Growth Management Act • Shoreline and Coastal Zone Management Program • Hydraulics Approval Permit	• Department of Ecology • Department of Natural Resources • Local Governments	• Issues Shoreline Permits. • Identifies sensitive areas and directs development away from such areas.

Source: FWS 1993

responsibilities. ensures that State-wide concerns and policies for the use and management of coastal resources are met.

Another State regulation potentially affecting coastal barriers is the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000-21178.1), which was enacted in 1970 as a system of checks and balances for land use development and management decisions in California. CEQA is similar to NEPA in that it requires environmental review of actions that may impact the environment. Project information is used by State and local permitting agencies in their evaluation of the proposed project.

Project permitting and approval also requires compliance with the California Endangered Species Act (CESA) of 1984 and the Native Plant Protection Act (NPPA) of 1977. The CESA authorized the California Fish and Game Commission to designate endangered, threatened, or rare species and to regulate their take (Sections 2050-2098 of the Fish and Game Code).

Hawaii

Hawaii has a number of laws that govern the management and protection of the coastal zone (Holthus 1988). The earliest is the Shoreline Setback Law (Chapter 205-32, HRS) of 1970 which delineated a restricted zone, generally 40 feet from the upper wash of waves, in which construction or other related activities are prohibited except by a special approval procedure. The Shoreline Setback area is considered an area of particular concern because of its importance to the State's economy and environment. The Hawaii Shoreline Protection Act of 1975 (Chapter 205A, HRS) also affects regulation of coastal barriers. This legislation established a Special Management Area (SMA) extending inland from the shoreline vegetation line for at least 100 yards and adopted guidelines for the management and protection of resources in the SMAs.

In 1977, Hawaii's CZMP was passed and approved under the Federal CZMA. The Hawaii CZMP encompasses the entire land area of each island with the exception of State forest preserves, which are managed separately, and Federal lands, which are exempt. The CZMA outlines specific objectives and policies as topics of particular concern, including: (1) provision of recreation opportunities; (2) protection and restoration of historic resources; (3) improvement of scenic and open space areas; (4) protection of coastal ecosystems; (5) provision for coastal-dependent economic uses; (6) reduction of coastal hazards; and (7) improvement of the review process involving development activities, including permit coordination and opportunities for public participation. These basic objectives and policies are reinforced by existing specific State and county statutes.

The Department of Land and Natural Resources (DLNR) also governs the use of coastal barriers. The DLNR is the principal agency for managing State-owned lands and regulating uses in conservation district lands. In addition, the DLNR also administers the Natural Area Reserve System (NARS, Chapter 195, HRS) which protects unique geological, volcanic, and other natural sites with distinctive marine, terrestrial, floral, and faunal features, and the

Marine Life Conservation District Program (MLCD, Chapter 190, HRS) which preserves unique areas of Hawaii's marine environment.

The Office of Environmental Quality Control coordinates and directs State agencies in matters concerning environmental quality while the Department of Transportation regulates activities in the shore waters, including boating and recreation, and maintains, regulates, and issues licenses and permits for the construction of harbors and related facilities. The Department of Agriculture carries out programs to conserve, develop, and utilize the State's agricultural resources, many aspects of which interact with CZMP objectives and policies.

The counties of Hawaii, Maui, Kauai, and the City and County of Honolulu also have numerous responsibilities in the management of Hawaii's coastal zone. The county planning departments determine the Shoreline Management Area boundaries and directly administer land and water use controls through the issuance of development permits consistent with State CZMP objectives and policies. State-mandated county regulatory programs dealing with a variety of issues and important planning and zoning activities are also under county jurisdiction.

Oregon

In Oregon, the primary State coastal management regulation is the Oregon Coastal Management Program (OCMP). The program is based primarily on the Oregon Land Use Planning Act (ORS 197) and relies on a partnership among the public, local governments, and State and Federal agencies to resolve general and often competing interests through land use plans and implementing measures. The objective of the OCMP is to develop, implement, and continuously improve a management program that will preserve, conserve, develop, and restore the natural resources of the coastal zone. The program attempts to create and maintain a balance between conservation and development, and between conflicting private and public interests.

Several State laws for managing coastal resources are included in the OCMP. These laws include the Removal-Fill Law (ORS 196.800-196.990, 541.605 et seq.) which regulates alterations to estuaries, lakes, and other waterways, and the Oregon Beach Bill (ORS 390) which regulates uses and alterations along the ocean shore. The Oregon Beach Bill also established public ownership of the intertidal area and a public easement to the "dry land" area below the vegetation line. This substantially limits development in sensitive coastal areas, such as coastal barriers.

The primary implementing State agencies are the Division of State Lands and the Parks Division of the Department of Transportation. The Division of State Lands has ownership and management responsibilities for submerged and submersible lands. The Parks Division of the Department of Transportation manages the perpetual public easement to ocean shores and beaches established through the Beach Bill. Additional coastal resource management agencies include the Health Division and the Departments of Water Resources, State Forestry,

Environmental Quality, Energy, Fish and Wildlife, and Agriculture. The Oregon Endangered Species Act, passed in 1987, also can affect uses of coastal barriers.

Land use planning and development in Oregon are regulated by local governments through Local Comprehensive Plans. Specific plan provisions for regulating development and shore protection structures vary. Some cities and counties require their own shore protection permits, while others just review and comment on State permit applications. All counties have required construction setbacks, either fixed or variable. Lincoln County, for example, bases its setback for new construction on a line determined by landform height and long-term erosion rates, whereas Tillamook County bases construction setbacks on ocean view maintenance or a line drawn between existing structures (Good 1992).

Washington

The Department of Ecology (WDOE) manages the State's coastal zone responsibilities primarily through the Shoreline Management Act (SMA) of 1971 (RCW Chapter 90.58). The SMA emphasizes the preservation of natural shoreline values and public uses of the shoreline. Although the law provides a number of mechanisms for managing activities on coastal barriers, these mechanisms are generally only guidelines. The ultimate responsibility for regulation and the issuing of permits in coastal areas is given to local jurisdictions.

The State's public lands, including State-owned tidelands and shorelands, are managed by the Department of Natural Resources (DNR). These lands may be leased for port development, boat moorage, shellfish harvesting, and other activities regulated by the DNR. The DNR is required to manage State-owned lands for the public benefit and must conform with the SMA in identifying appropriate uses. State-owned tidelands of the ocean coast from Cape Flattery to the Columbia River were placed under the jurisdiction of the Parks and Recreation Commission upon passage of the Seashore Conservation Act (RCW 43.51). The tidelands are reserved for public recreation and benefit; only activities consistent with public recreational use are permitted.

The State has enacted a number of laws and regulations pertaining to coastal areas: the Growth Management Act (GMA), the Seashore Conservation Act (RCW 43.51), the State Hydraulics Code (RCW 75.20), and the State Environmental Policy Act (SEPA) (RCW 43.21C, WAC 197-11). GMA requires the identification and mapping of critical areas including wetlands, geologically hazardous areas, and flood zones. The GMA is similar to the SMA in that it establishes guidelines and provides oversight, but leaves the development of comprehensive coastal plans to the local communities.

Under the State Hydraulics Code, all activities that significantly impact the beds of State waters require a Hydraulics Approval Permit from the Washington Department of Fish and Wildlife. Activities can only be restricted based on demonstrated harm to fish life. With respect to coastal barriers, the application of activities is limited to tidelands and submerged lands, except to the degree they affect the locations of bulkheads for fastland development. SEPA also guides coastal activities by requiring full disclosure and consideration of the

adverse environmental impacts of a project. While SEPA has no regulatory authority, it does provide a process by which local governments must obtain the advice or comments of the WDOE and other agencies. Possible mitigation strategies must also be considered under SEPA. SEPA can be applied to any non-exempt shoreline project, including subdivisions, construction activities, and shoreline modifications.

In addition to State regulations, local governments also regulate activity in the coastal zone. Each local jurisdiction must develop a Shoreline Master Program under the SMA to establish guidelines for shoreline uses and activities. Local jurisdictions also develop comprehensive plans which include zoning designations that are generally intended to limit development in certain areas or direct certain types of development toward more appropriate areas. Communities also establish criteria to meet building codes and health codes.

Several Tribes have reservations along the Washington coastline. State authority on fee lands within reservations is unclear. Federal actions on reservations may be subject to Federal consistency requirements with the State CZMP.

3.3 Differences Between Pacific and Atlantic/Gulf Coasts

In Section 6 of the CBIA, Congress asked that the study of Pacific coastal barriers include an assessment of the need to protect barriers given the differences from the Atlantic and Gulf coasts in geology and climate, especially in relation to the susceptibility to coastal hazards that could result in loss of human life, destruction of natural resources, and wasteful Federal expenditures. Sections 2.4 and 2.5 previously discussed the variation in geological and climatic conditions that affect coastal barrier formation and maintenance and the geographic variation in coastal barriers along the Pacific and Atlantic coasts, respectively.

The following sections discuss the variation in geologic and climatic hazards associated with the Pacific and Atlantic coasts.

3.3.1 Geological Hazard Differences

There are primarily three types of geological hazards that could affect Pacific coastal barriers: seismic activity, landslides/erosion, and sediment accretion. Each of these is briefly described below.

One of the primary differences between Atlantic/Gulf and Pacific coastal hazards is that the Pacific coast is much more seismically active than the Atlantic coast. The increased seismicity on the Pacific coast is a result of numerous major faults, such as the Cascadia subduction zone along the Oregon and Washington coasts, the San Andreas Fault, and the Mendocino shear zone. Large earthquakes can create coastal surges and tsunamis that pose significant hazards to coastal barriers and other areas near the coast. Earthquakes also cause ground shaking, subsidence, and liquefaction which can affect coastal and inland areas, damaging human-built structures and causing loss of human life.

Tsunami waves have the potential to reach 55 feet in height (Manson 1994). A model for the southwest Washington coast predicts tsunami run-up as far as 19 feet above sea level (Thorsen 1988). Major tsunamis along the Pacific mainland coast are rare, occurring once every 300 to 400 years, especially relative to the frequency of Atlantic hurricanes. The last major tsunami to strike the mainland was in 1964.

Along the Pacific continental coast, the area near Crescent City, California seems particularly susceptible to tsunamis, as the wave height of the 1964 and previous recorded tsunamis have been much greater there than along other sections of the coast (Noson et al. 1988). While the outer portions of the mainland coast are most susceptible, Murty and Hebenstreit (1989) reported that major tsunamis are not likely to affect the Strait of Georgia, Juan de Fuca Strait, or Puget Sound of Washington unless a large seismic event involving bluff or underwater landslide were to occur within the Puget Sound region itself (Thorsen 1988).

Hawaii may be more prone to tsunamis than any of the continental areas since tsunamis originating from the seismically active Japan, Alaska, and South America areas can strike Hawaii. Six tsunamis have hit Hawaii since 1946.

The second primary geologic hazard is erosion of coastal landforms. The U.S. Geological Survey (USGS) classifies much more of the Atlantic and Gulf coasts as having severe erosion problems than the Pacific coast (USGS 1985). On the Atlantic coast, much development has occurred on the expansive coastal barrier complexes, increasing susceptibility of man-made structures to erosional forces. Although seemingly less severe than on the Atlantic coast, landslides do occur occasionally at specific sites along the Pacific coast, as development alters bluff stability and surface and groundwater patterns. These landslides are normally associated with winter storms along the coast from northern California to Washington, and summer precipitation in southern California. Landslides and coastal erosion have been identified as a problem by each of the four affected States in their Section 309 CZM Assessments, which are required by the Federal CWA.

The third hazard is accretion of sediment. In natural environments, cycles of erosion and accretion of coastal barriers are normal processes that can maintain themselves. However, in some areas of the Pacific coast, development has altered the littoral drift or wind transport of sediment to the extent that not only is erosion a hazard, but also the accretion of sediment. Often, shoreline stabilization structures result in erosion on one side of the jetty and accretion on the other and can substantially damage nearby development. The stabilization of dunes through vegetation establishment (e.g., European beach grass [*Ammophila arenaria*]) also leads to sediment inundation, threatening development (OCMP 1992).

3.3.2 Climatic Hazard Differences

Many hazards affecting coastal areas and the mapped coastal barrier units are climatic in nature and are the same as those that affect formation and maintenance of coastal barriers (see Section 2.4). Climatic hazards are more pervasive and occur much more regularly on the Atlantic than the Pacific coast. The primary hazards along the Atlantic coast are hurricanes

and "Nor'easters." Both types of storms can cause waves over 20 feet high and substantially damage coastal areas. Nor'easters generally strike north of the Carolina coast, while the entire Atlantic coast is susceptible to hurricanes. Certain areas of Florida, North Carolina, and the Gulf coast are most often affected by hurricanes; Florida was hit by 43 hurricanes in 60 years, and in some years specific locations on the Atlantic coast are hit by multiple hurricanes (DOI 1983). Between 1949 and 1994, the Atlantic/Gulf coasts were hit by 138 hurricanes and tropical storms with as many as 9 such storms in one year. The repetitive occurrence of hurricanes and Nor'easters has resulted in substantial Federal expenditures for disaster relief and rebuilding, reaching several billion dollars for an individual storm.

Hawaii was hit by 12 hurricanes and tropical storms and southern California was hit by 4 such storms during the same time period (1949 to 1994). There were only two years in which multiple hurricanes or storms hit Pacific coastal areas (both in Hawaii). The Pacific coast is typically most affected by winter storms called "Aleutian lows" that bring heavy rains, storm surges, and strong south to southwesterly winds. Since 1900 there have been 60 winter storms with wave heights more than 10 feet that have hit the Pacific coast, with 18 storms over 20 feet (Hedgpeth 1988). The Pacific coast's steep, narrow continental shelf decreases the large wave set up that occurs on the Atlantic Coast, thus reducing the potential for catastrophic events relative to the Atlantic/Gulf coasts (Shipman 1991). These Pacific coast storms have the capacity to cause substantial beach erosion/accretion that can damage coastal landforms. Strong ENSOs can compound coastal erosion by removing buffering sandy beaches during winter over successive years. Nonetheless, along much of the Pacific coast, there is little data to suggest that ocean-caused flooding is a significant or recurring hazard. For example, there are no records from FEMA or other sources indicating significant direct damage from waves in Oregon and Washington, although freshwater flooding along coastal streams is a relatively frequent problem.

The relative susceptibility of the two coasts to climatic hazards is also a function of the level of development in high hazard areas as well as the different regulatory environments that affect development. On the Atlantic coast, much development occurred immediately on the expansive depositional coastal barriers prior to, and even after, the implementation of CBRA, resulting in numerous man-made structures directly in the path of oncoming storms and other hazards. On the Pacific coast, less development has occurred on coastal barriers due to a high percentage of OPAs, relative inaccessibility of many areas, and the establishment of regulations prior to the greater development pressures.

3.4 Effects of Implementing CBRA on the Pacific Coast

Given the wide variation in the locations and conditions of the Pacific coastal barrier units proposed for inclusion in the CBRS, the regulatory environment, and development pressures, a site-specific detailed analysis is not practicable. Individual assessments of the impacts of the potential implementation of the CBRA on the Pacific coast on any specific coastal barrier unit are not included in this evaluation. Future proposed projects on any specific unit included in the CBRS may require separate environmental review at the Federal, State, or local level, depending on the nature of the proposed project, the jurisdiction of the unit, and

the governing legislation and regulations. Such review, however, would be related to the proposed development within that barrier unit rather than the action of extending the CBRS to the Pacific Coast.

The CBRA is non-regulatory in nature and does not impose land use regulations or require permits for developments. Therefore, development on any barrier would still be allowed regardless of the implementation of the CBRA, but only in accordance with existing Federal, State, and local regulations such as local zoning codes, State CZM programs, the Clean Water Act, and others.

Although the CBRA is non-regulatory, the analysis of environmental effects does assume a scenario where the prohibition of Federal expenditures affects the development process. By denying Federal financial assistance for development, such as Federal assistance for road and bridge construction or wastewater treatment facilities, the cost of development would fall on other sources, either private developers, property owners, or State or local governments. This analysis assumes that neither State or local governments nor private interests would be willing or able to replace the full level of Federal financial assistance. Therefore, fewer developments would likely occur on coastal barriers if the CBRA were implemented on the Pacific coast.

Because the CBRA denies Federal flood insurance, developers and/or private property owners would need to seek flood insurance in the private sector indemnity industry. It is assumed that without flood insurance, few private financial institutions would be willing to extend financing. As a result, financing for developments on coastal barrier units would be more difficult and expensive to obtain or, in some cases, may be impossible to obtain. The increased costs of development without the availability of such assistance would be expected to reduce development.

Evidence from CBRS units on the Atlantic and Gulf coasts indicates that future development is usually high-cost development by wealthy individuals or large developers who can afford the costs and risks associated with unassisted development and the lack of Federal flood insurance (DOI 1988). A study by the General Accounting Office (GAO) in 1992 that revisited several CBRS units on the Atlantic and Gulf coasts discovered that, despite the prohibitions against Federal assistance, development had continued to occur on several units. The GAO also found that some units were not likely to be developed at all because of access problems and the lack of developable land (GAO 1992). This trend would likely occur on the Pacific coast if the CBRS were expanded, so that some privately held units would remain undeveloped while development on others would be characterized by high-cost development.

Therefore, this evaluation assumes that some future development on coastal barrier units would occur regardless of the CBRA restrictions. However, that development would be less than would occur without the restrictions. Thus, the primary focus for the Environmental Evaluation is whether the difference in development that would result from the implementation of the CBRA on the Pacific coast would be sufficient to meet the Congressional intent:

- To reduce the potential for loss of human life;
- To reduce damage to fish, wildlife, and other natural resources; and
- To reduce wasteful expenditures of Federal revenues.

Discussion of these three items occurs in the following sections.

3.4.1 Potential for Loss of Human Life

As noted in Section 3.3, Pacific coastal barriers are subject to a wide range of hazards that create the potential for the loss of human life, including storms, landslides, floods, earthquakes, and tsunamis. Such hazards, however, are generally sporadic. For example, in the last 50 years, only seven significant tsunamis that claimed lives have hit the Pacific coast. Six have hit Hawaii and one hit California, Oregon, and Washington. Volcanism in Hawaii also can cause loss of life, although such events are limited to specific areas and are not tied to coastal barriers. Winter storms, transpacific storms, and occasional hurricanes can also cause damage and death along the Pacific coast, but these events are not as frequent as Atlantic hurricanes. Other than these sporadic events, there are no data that indicate any commonly occurring loss of life due to coastal hazards on the Pacific coast.

The potential for loss of human life due to hazards affecting coastal barriers is different for the Pacific coast than for the Atlantic and Gulf coasts. On those coasts, the primary threat is associated with frequent hurricanes that strike portions of the Atlantic coast as often as once every six years on average (DOI 1983). Coastal barriers are especially subject to the destructive power of hurricanes whereas other, more inland areas are less likely to feel the brunt of a hurricane's force. On the Pacific coast, however, the primary hazards include bluff and cliff erosion, landslides, earthquakes, or tsunamis, which can affect large areas, not limited to barriers.

As stated above, it is assumed that implementation of the CBRA would reduce, curtail, or prevent some development on coastal barriers. However, given the small extent of coastal barrier units (approximately 3 percent of the shoreline) and low amount of private developable land (as little as 4,500 to 12,000 acres) combined with the existing regulations, the actual amount of development that would be prevented is low. Therefore, the potential for reducing public safety risks is minimal. Furthermore, other landforms along the coast would still be subject to development. These areas are often equally or more subject to hazards than coastal barriers. As such, implementation of CBRA would have little effect on reducing the loss of human life.

3.4.2 Damage to Fish, Wildlife, and Other Natural Resources

The following sections briefly summarize the ecosystems and biota associated with Pacific coastal barriers and assess the effects of implementing CBRA on minimizing the damage to fish, wildlife, and other natural resources. See FWS (1993), Holthus (1988), and Hedgpeth (1988) for additional descriptions of the ecosystems and biota.

3.4.2.1 Resource Descriptions

The following sections briefly describe the ecosystems and biota, as well as Federally listed plant and wildlife species that are often associated with coastal barrier units.

Ecosystems and Biota

The mapped Pacific coastal barrier units contain a complex of wetland, maritime, and aquatic components. The aquatic and wetland components can be broadly defined by the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and include marine, estuarine, palustrine, lacustrine, and riverine ecosystems. The maritime ecosystem is the mostly upland community located between the high-tide line and the inland aquatic habitat. Coastal barriers either help form or are associated with various coastal features. The following briefly summarizes these features and ecosystems as well as representative biota that at least partially depend on coastal barriers and associated habitats.

Estuaries and River Deltas (Estuarine) - Estuarine ecosystems are typically associated with lagoons, which are shallow bodies of brackish or sea water partially separated from an ocean by barriers of sand, with only narrow openings through which seawater can flow (Colombo 1977), and river deltas.

Estuaries typically support a high total biomass of species that are well adapted to the ever-changing water levels and salinities. One of the most important functions of Pacific coastal estuaries is to provide buffering and acclimating zones for anadromous fish, including the Federally listed Snake River spring/summer and fall chinook salmon runs (*Oncorhynchus tshawytscha*) and Snake River Sockeye (*O. nerka*). Estuaries are often stabilized by eelgrass (*Zostera marina*), which provides shelter for numerous crustaceans, mollusks, and juvenile fish (Hedgpeth 1988). Numerous species of shorebirds and waterbirds use these areas for nesting and foraging (FWS 1993). Large concentrations of shorebirds use emergent marsh estuaries during migration. One of the more conspicuous birds of coastal estuaries is the black brant (*Branta bernicla*), which feeds on eelgrass in the winter and spring. Estuaries also provide habitat for mammals such as the river otter (*Lutra canadensis*).

Vegetation of many Hawaiian estuaries is heavily influenced by exotic species, such as water hyacinth (*Eichornia crassipes*). The wildlife diversity of Hawaiian estuaries is relatively low compared to the continental Pacific coastal habitats (Holthus 1988); however, many of the organisms found in Hawaii are endemic to the islands. Hawaiian estuaries provide important feeding and nesting habitat for the endemic Hawaiian stilt (*Himantopus himantopus knudseni*),

Hawaiian coot (*Fulica americana alai*), Hawaiian gallinule (*Gallinula chloropus sandvicensis*), and the Hawaiian duck (*Anas wyvilliana*), along with black-crowned night-heron (*Nycticorax nycticorax hoactli*); all but the last species are Federally endangered.

Because of their position in the landscape, estuaries and deltas are often associated with bay mouths and beach barriers and therefore depend on functioning coastal barriers. These habitats and the species that depend on them are most affected by alteration in river flow or changes in saltwater-freshwater exchange.

Marine Ecosystems (subtidal zones) - The subtidal marine waters near coastal barriers support organisms ranging from microscopic marine fauna to large marine mammals such as California sea lions (*Zalophus californianus*), harbor seals (*Phoca vitulina*), gray whales (*Eschrichtius robustus*), minke whales (*Balaenoptera acutorostrata*), and killer whales (*Orcinus orca*). Kelp beds provide critical habitat for numerous invertebrates, fish, and marine mammals such as sea otters (*Enhydra lutris*). Activities on adjacent coastal barriers have the potential to affect water and habitat quality.

Riverine/Lacustrine/Palustrine - Freshwater habitats behind coastal barriers include vernal pools and perennial ponds, lakes, and streams. These areas and their associated wetlands often support abundant fauna of amphibians and reptiles, minnows, Sculpins, and suckers (Hedgpeth 1988). These areas also provide important habitat for a variety of wildlife species. Development on or near these areas can degrade water quality, negatively affecting wildlife.

Sandy Beaches (intertidal zones of Marine and Estuarine Systems) - The numerous sandy beach ecosystems along the Pacific coast that occur between rocky headlands are totally dependent on uninterrupted sediment supply and can be negatively affected by shoreline stabilization. Some of these beaches have associated aquatic habitat and are included as mapped coastal barrier units. These areas often support dense populations of razor clams (*Siliqua patula*) on northern beaches and Pismo clams (*Tivela stultorum*) on California beaches. The most conspicuous species on sandy beaches is the sand crab (*Emerita analoga*), which filter-feeds on plankton and detritus. Other common species include crustaceans, copepods and mysids, and amphipods. Harbor seals and elephant seals (*Mirounga angustirostris*) haul out on selected beaches on a seasonal basis, and sea otters make regular use of beaches along California. Various seabirds and shorebirds use the beach strand vegetation for roosting and nesting. Green sea turtles (*Chelonia mydas*) formerly nested on many sandy beaches throughout the Hawaiian islands but are less common now (Holthus 1988). These sandy beach habitats are especially vulnerable to beach management practices and development that affects sediment supply.

Sand Dunes - Coastal dunes result from the vegetation stabilization of wind-transported sediment (Boaden and Seed 1985, Hedgpeth 1988) and can be degraded or destroyed by development that blocks sand movement. The native dune grass (*Elymus mollis*) found on sand dunes partially stabilizes hillocks or low mounds in Washington and, to a lesser extent, Oregon (Hedgpeth 1988). The most effective foredune stabilizer is the European beach grass, which was introduced from Europe in 1869 to stabilize the San Francisco dunes that are now

a part of Golden Gate Park. In addition to stabilizing dune vegetation, European beach grass has, over time, formed deflation plain wetlands and forested dune areas. This species has spread along the Pacific coast and, in recent years, is believed to have altered the Oregon dune systems by halting the movement of sand into the back dune fields (Hedgpeth 1988). Federal agencies have initiated programs to remove European beach grass to restore the native dune habitat of the endangered pink sand verbena (*Abronia umbellata* ssp. *breviflora*). Although this vegetative stabilization significantly alters the geomorphology and ecology and affects the erosion of dune systems, the DOI had not considered such stabilization to have the same effect as structural stabilization. Many other plant species have been introduced and incorporated into the dunes of Washington, Oregon, and northern California, including gorse (*Ulex europaeus*), which is poisonous to livestock, encroaches on pastureland, and is easily ignitable (Hedgpeth 1988).

Few wildlife species are exclusively associated with dunes. Shorebirds, crustaceans, mollusks, and marine and terrestrial mammals that occur in both marine systems and sandy beaches are likely to also forage, reproduce, and rear their young in wetlands and habitats within the dune environment. Dune systems of Oregon are known to support over 400 species (mostly invertebrates) (Hedgpeth 1988). Well-developed dunes found behind the barrier beaches at Kahuku on the northernmost shore of Oahu support various seabirds and shorebirds that nest and forage in these dunes (Holthus 1988). A number of the more extensive mapped units include sand dunes. These areas are potentially at risk from development.

Other landforms that are themselves not coastal barriers but are important in coastal ecology are rock and earth cliffs, coral reefs, and anchialine pools. These are briefly discussed below.

Rock and Earth Cliffs - Rock and earth cliffs, although not mapped as coastal barrier units along the Pacific coast, comprise approximately 950 of the 1,500 miles of continental Pacific coastline and two-thirds of the Hawaiian coast (FWS 1993). Rock cliffs along the Pacific coast provide a unique habitat component for many species, particularly nesting sea birds such as belted kingfisher (*Ceryle alcyon*), glaucous-winged gull (*Larus glaucenscens*), and Caspian tern (*Sterna caspia*) (Goldsmith 1977). Cliffs and bluffs are prone to extensive erosion by waves, currents, and heavy rain, especially where development alters shorelines, surface run-off, or groundwater patterns. Much development occurs at the top of coastal bluffs in all four affected States.

Coral Reefs - Coral reefs protect coastlines and can be negatively affected by development; however, they are not defined as coastal barriers by CBRA/CBIA criteria. The diverse coral reefs, with their three-dimensional structure, provide suitable habitat for thousands of invertebrate and fish species (Boaden and Seed 1985). This diversity is a result of a mosaic of habitat types; wave-swept hard surfaces, sheltered sediments, and carpets of algae and sea-grasses can often be found within a relatively small area. Flourishing live coral communities, often dominated by *Porites* spp., are found on reef slopes, especially on protected and leeward coasts (Holthus 1988). In addition to corals, other reef organisms include sea urchins (e.g.,

Strongyloceatrotus spp.), clams (*Saxidomus* spp.), sea snails (Class *Gastropoda*), and a tremendous variety of fish (FWS 1993, Holthus 1988).

Many of the mapped units identified in the Hawaiian Islands include native Hawaiian fishponds. Most fishponds are artificial wetlands/ponds that have been structurally modified by an arc-shaped wall extending from the shore onto the reef for fish production. These mapped units were included in the inventory because they support a complex of fringing mangroves, a CBRA criterion developed for the native fringing mangroves of Florida. Currently, Federal funding is being provided to eradicate invasive and exotic species such as fringing mangroves from native fishponds to restore the native vegetation. Such activities would not be affected by implementation of the CBRA.

Anchialine pools - Anchialine pools are exposed portions of the groundwater table predominantly found on geologically young, porous lavas in the coastal tropics and subtropics. Anchialine pools, usually located on lava flows, do not fit the current criteria used to designate coastal barriers. Although anchialine pools have no direct surface connection to the sea, they exhibit tidal fluctuations and contain water with measurable salinity, indicating a subsurface connection. Between 600 and 650 anchialine pools are estimated to exist in Hawaii. The anchialine pools often support unique species assemblages. Many anchialine pools have been filled or otherwise adversely affected by resort and other development in the coastal area.

Species with Federal Status

The FWS identified a total of 93 wildlife and 62 plant species that are threatened, endangered, proposed for listing, candidates for listing, or considered to be species of concern (formerly Category 2 candidate species) that potentially occur in the mapped coastal barrier units (Attachment Tables 1 and 2).

Wildlife - With the exception of the sea turtles and whales, all species that are listed, candidates for listing, or species of concern are found along either the continental Pacific or Hawaiian coasts, but not both. Thirteen of the species occur in Hawaii, 65 occur in California, 46 occur in Oregon, and 32 occur in Washington. The coastal barrier units provide breeding and foraging habitat for several of the listed or candidate bird, mammal, and insect species. Sandy beaches provide haul-out opportunities for Federally protected pinnipeds (e.g., sea lions, seals, etc.), and nesting, foraging, and stop-over sites for migrating shorebirds. The ecosystems of river deltas and estuaries that are often associated with coastal barriers support a host of species adapted to the unique salinity gradients; for example, some Federally listed salmon runs use these areas to acclimate between fresh and salt water during up- and downstream migration. Wetlands associated with Hawaiian estuaries are important for the Federally listed endemic waterbirds, including the Hawaiian stilt, Hawaiian coot, Hawaiian gallinule, and Hawaiian duck (Holthus 1988). These estuaries not only provide feeding and nesting habitats, but also afford sufficient isolation from human disturbance and protection from introduced predators, such as cats, dogs, rats, and mongooses. The following list of species does not represent all species associated with Pacific coastal barriers but

presents a sample of sensitive species that rely on coastal barriers for one or more life requisite, or stage in their life cycle and that would be negatively affected by development.

- The California brown pelican (*Pelecanus occidentalis californica*) once held a breeding range from Monterey through Baja California, Mexico. This range has been drastically reduced with principal breeding areas occurring on Anacapa Island, Coronado Islands, and Elkhorn Slough National Estuarine Sanctuary.

- The California least tern (*Sterna albifrons browni*), the smallest of the terns, breeds in California. It nests in bare areas of mixed sand, shells, and pebbles. There were only 2,792 pairs in 1994 (Caffrey 1995). Breeding sanctuaries have been established in San Francisco, Bolsa Chica, and a number of coastal military reservations.

- The snowy plover (*Charadruis alexandrinus*) inhabits barren sandy beaches and tideflats. The FWS has identified 28 critical habitat areas totaling approximately 20,000 acres and about 210 miles of coastline. Of the 28 areas, 19 critical habitat areas are proposed in California, seven in Oregon, and two in Washington.

- The light-footed clapper rail (*Rallus longirostris levipes*) is on both the Federal and State endangered species lists. It is a year-round resident of the *Salicornia* marshes from Goleta Slough, Santa Barbara County, California to San Quintin Bay, Baja California, Mexico. Key breeding colonies within the State occur at Upper Newport Bay, Bolsa Chica, and Tijuana Slough National Wildlife Refuge.

- The Oregon silverspot butterfly (*Speyeria zerene hippolyta*) is a Federally listed threatened species found in northern California, Oregon, and Washington. The species requires a combination of salt-spray meadows and old-growth forests for food and shelter. Salt-spray meadows on old dunes and rocky headlands support the western blue violet (*Viola adunca*) upon which the butterfly feeds. These remaining open meadows are subject to residential and golf course development.

Certain salmon species are also at risk from a variety of cumulative and secondary effects of continued development. Native salmon stocks are threatened primarily by the cumulative effects of the following activities: (1) timber and agricultural management practices in coastal watersheds; (2) increased fishing harvest pressure; (3) operation of hydroelectric dams throughout the Northwest, and especially in the Columbia River watershed, without adequate upstream and downstream passage facilities for the salmon; and (4) management practices and harvest rates directed at artificially produced fish. The cumulative effects of these activities have brought many wild runs of salmon to the brink of extinction. The NMFS has issued a proposed rule to list three evolutionarily significant units of coho salmon (*Oncorhynchus*

kisutch) as threatened on the Oregon coast, southern Oregon/northern California, and central California coasts. The Snake River chinook and sockeye salmon (*O. tshawytscha* and *O. nerka*) are also protected under the Federal ESA.

Plants - Of the 62 plant species that are listed, proposed, candidate, or species of concern that potentially occur in the mapped barrier units, 14 are found in Hawaii (Attachment Table 2). Forty-one species are potentially found in California, 7 are potentially found in Oregon, and one, the golden paintbrush (*Castilleja levisecta*), is found in Washington. Sand dunes along the continental Pacific coast support a number of the plant species, including the Wolf's evening primrose (*Oenothera wolfii*), golden paintbrush, Presidio manzanita (*Arctostaphylos hookeri* var. *ravenii*), and coastal dune rattleweed (*Astragalus tener* var. *titi*). River deltas and estuaries also support unique plant species compositions and are home to the salt marsh bird's-beak (*Cordylanthus maritimus*) and California seablite (*Suaeda californica*), two endangered plants found only in California. It is unknown how many mapped units actually support these species, but potential for destruction of habitat and loss of populations exists with development in the mapped units prior to more definitive surveys.

3.4.2.2 Summary of Effects of CBRA Implementation on Fish, Wildlife, and Ecosystems

Without implementation of the CBRA on the Pacific coast, development on some privately held mapped units would likely continue over the long term. The actual level of development is difficult to predict but most would occur outside the most environmentally sensitive areas due to regulatory restrictions already in place (Section 3.2). If the CBRA were implemented on the Pacific coast, development may be somewhat less likely to occur on at least a portion of the 140 units that contain private land. This could affect a maximum of approximately 23,700 acres (37 square miles) (more likely the amount affected would be 4,500 to 12,000 acres) of developable fastland and 93 square miles of associated aquatic habitat along 240 miles of shoreline. However, based on observations on the Atlantic coast, the most desirable sites in some units could be developed regardless of inclusion in the CBRS as long as existing regulations do not restrict such activities.

The CBRA implementation would also ensure that Federally owned OPAs that are excessed are included into the CBRS according to Section 4(d) of the CBIA. This would encompass a maximum of 55 units that are total OPAs and 74 partial OPAs. State, local, and private OPAs, however, would not fall under Section 4(d).

Any future development directly on coastal barrier units has the potential to negatively impact natural ecosystems and biota that occur on and near the unit, including species protected by the ESA or otherwise sensitive or at risk. In addition to direct loss of coastal barrier habitat caused by construction, other types of impacts from development could include changes in the erosion and accretion patterns that are vital to the maintenance of barriers and associated aquatic habitats, changes in the flora and fauna species composition due to armoring of intertidal and subtidal areas, increased human disturbance to nearby plants and wildlife, and increased pollution. Section 2.4 discusses the effects of human manipulation on coastal barrier formation. Impacts would most likely affect intertidal marine and estuarine habitats,

sand dunes, and maritime ecosystems and those species that rely on them. Species with restrictive ranges would be the most likely to be affected.

CBRA implementation could result in a limited reduction in development on coastal barriers, which may result in fewer negative effects to wetlands, marine and estuarine intertidal habitat, sand dunes, and maritime forests, as well as some of the 93 fish and wildlife and 62 plant (listed) species that potentially occur in coastal barrier units. The relative effect would be minimal since listed species are protected by the ESA, and wetlands and other sensitive areas are protected by Federal, State, and local regulations. Any decrease in development would result in less interference with wind and water transport of sediments performed by natural processes in building and maintaining coastal barriers and thus would help protect the important wildlife and plant habitat (see Section 2.4). The immediate effects of such disincentive would be minimal since most of the undeveloped areas are not under immediate development pressure.

Reductions in future negative impacts to ecosystems and biota brought about by implementing CBRA would vary between States and localities depending on regulatory restrictions, access, and development pressure. Existing Federal, State, and local regulations such as the ESA, CWA, State coastal setbacks, and local zoning regulations would likely prevent development in many of the wetlands and most sensitive areas, including sites known to support Federally listed wildlife or plants, associated with each unit. Since such a high percentage of Oregon's mapped units are OPAs or military lands (as much as 93 percent), and those sites that are not OPAs are on the ocean side of regulatory beach lines, it is unlikely that the CBRA would have much effect in that State, except in a few sites (pers. comm., P. Klarin, Oregon Coastal Program Specialist, Oregon Department of Land Conservation and Development, Salem, OR, November 2, 1995). Similarly, in Hawaii, even though approximately 49 percent of the mapped units are privately held, many units are relatively inaccessible due to the steep terrain, are protected by State regulations, and are thus unlikely to be developed with or without CBRA. Impacts to mapped units along the Washington and California coasts would also be limited to those sites under the most intense development pressures and not adequately protected by existing regulations.

Overall, the implementation of CBRA would have a relatively small beneficial effect on fish, wildlife, and other natural resources due to the following:

- Many existing threats to the integrity of mapped barrier units are caused by development outside the units, which would not be affected by CBRA; such development on bluffs, cliffs, and other landforms can substantially alter sediment availability and longshore drift that can deprive coastal barriers of sediment.

- Most of the truly sensitive units along the coast are either in OPA status or protected by one or more Federal, State, or local regulation that would preclude most development.

- The existing CBRA criteria do not allow for inclusion of depositional barriers that are less than 0.25 mile long, bluffs, cliffs, areas protected by coral reefs without fringing mangroves, Hawaiian anchialine pools, river floodplains, and other geologically unstable coastal landforms that do not have associated aquatic habitat. These areas are all often under extreme development pressure, support important fish and wildlife resources, and susceptible to coastal hazards, but are not addressed by CBRA. Only 3 percent of the entire Pacific shoreline is composed of mapped barrier units, very little of which is actually developable fastland.

3.4.3 Wasteful Expenditures of Federal Revenues

The Federal government provides a variety of programs and assistance available throughout the United States. The areas affected by the potential implementation of the CBRA on the Pacific coast are eligible for most Federal programs, including financing and flood insurance. As the areas under consideration are undeveloped, they currently require little Federal expenditure, although Federal funds in small amounts are occasionally used in the units for management or maintenance purposes. Moreover, the potential implementation of the CBRA on the Pacific coast would have no effect on current Federal expenditures; rather, it would only limit new Federal expenditures within the units.

The FWS has identified several specific Federal program expenditures that currently might occur but would be prohibited in the CBRS units if the CBRA is applied to the Pacific coast (Table 3-6). This list, however, is not all inclusive and each Federal department or agency would be required to review its programs to ensure compliance with the CBRA. The CBRA, however, includes several specific exceptions that, if met, would allow Federal expenditure in the units (Section 2.1 of the Report to Congress). Federal programs and assistance potentially affected by the implementation of the CBRA on the Pacific Coast, therefore, fall outside of these exceptions.

Given the available data, estimating the potential savings to the Federal treasury of the implementation of the CBRA on the Pacific coast is not possible. Expenditures of Federal revenues are generally related to two issues: development assistance and disaster relief.

General cost estimates are complicated by variables such as infrastructure costs and build-out scenarios associated with Pacific coastal barriers that may be different than those associated with Atlantic and Gulf coast barriers. Moreover, as mentioned above, not all fastland is eligible for development because some is already under conservation status and existing land use regulations would prevent or severely limit development at certain barriers. Therefore, with the available data, accurate estimates of the savings to the Federal treasury in development assistance cannot be completed.

Most importantly, the nature of hazards on the Pacific coast compared to the Atlantic and Gulf coasts makes the speculation of potential disaster relief expenditures very difficult. Coastal barriers on the Atlantic and Gulf coasts are subject to periodic and repeated assaults

Table 3-6. Identified Federal assistance programs potentially subject to CBRA restrictions.

Department	Agency	Programs
Agriculture	• Rural Economic and Community Development Program • Rural Utilities Service	• Loans for rural disaster relief, water systems, wastewater systems, commercial development, community services, and subdivision development. • Loans for new or expanded electrical systems that would encourage development.
Commerce	• Economic Development Administration • Office of Coastal Zone Management	• Grants for planning and administering local economic development programs. • Coastal Energy Improvement Program (CEIP) grants. • Small Scale Acquisition and Construction grants.
Defense	• U.S. Army Corps of Engineers	• Construction and financial assistance involving beach erosion control, hurricane protection, flood control works, and new or expanded navigation projects.
Energy		• Energy development programs.
Housing and Urban Development		• Community Development Block Grants (CDBG), mortgage insurance, housing assistance or rehabilitation subsidy programs, Urban Development Action Grants.
Interior	• National Park Service	• Grants to States for historic preservation, survey, and planning, land acquisition and development of protected areas, and for preparation of State Comprehensive Outdoor Recreation Plans through the Land and Water Conservation Fund *where development of coastal barriers is addressed.*

Table 3-6. Identified Federal assistance programs potentially subject to CBRA restrictions (continued).

Department	Agency	Programs
Transportation	• Federal Aviation Administration • Federal Highway Administrations • Urban Mass Transit Administration	• Grants for airport planning and development. • Federal assistance to States for highway construction. • Capital improvement and operating grants.
Environmental Protection Agency		• Grants for wastewater treatment construction (Section 201) grants for water quality management planning (Section 208).
Federal Emergency Management Agency		• Federal National Insurance Program, disaster assistance program.
Federal Home Loan Administration		• Guaranteed housing loans.
General Services Administration		• Construction or reconstruction of Federal property, Exchange or sale of Federal property for development purposes.
Small Business Administration		• Loans to small businesses for disaster relief, upgrading of water treatment systems, and other purposes. Disaster assistance to homeowners.
Veterans Administration		• Guaranteed housing loans.
Source: 48 FR 45664 (October 6, 1983)		

by hurricanes. A great deal of information regarding the frequency, strength, and costs associated with Atlantic and Gulf hurricanes is available. The destructive power of these storms is often focused on the extensive and sometimes highly developed coastal barriers. On the Pacific coast, however, the hazards are not necessarily focused on coastal barriers. Seismic disturbances, landslides, and other Pacific coast hazards occur over wide areas, many of which do not meet the definition of coastal barriers. Moreover, these hazards are generally not predictable or episodic in nature. As a result, any potential savings of disaster relief associated with CBRA would represent a small amount of the total disaster relief associated with any given event.

The Federal Emergency Management Agency (FEMA) is responsible for distributing most Federal disaster relief funds. However, FEMA does not categorize its expenditures by geographic location beyond the county level. Therefore, the existing data do not indicate what amount of disaster relief has been spent on coastal barriers versus in other hazardous areas. Therefore, the amount of Federal expenditures on disaster relief potentially saved by implementing the CBRA on the Pacific coast cannot be estimated.

Overall, the available evidence does not lead to a conclusion that the implementation of the CBRA on the Pacific coast under the existing definitions of coastal barriers would lead to any significant reduction in wasteful Federal expenditures.

3.5 Additional Issues

Several other issues not directly related to the Congressional mandate were also raised during the public involvement process. Summaries of these issues follow. More detail is provided in the Public Involvement Summary (Appendix B to the Report to Congress).

3.5.1 Tribal Lands

Several issues were raised regarding the appropriateness of including undeveloped coastal barriers on Tribal lands. The FWS determined that including Tribal lands in the CBRS was not warranted since Native American Tribes are sovereign nations. Therefore, the DOI directed the FWS to not include reserved Tribal lands in the inventory of mapped units. As a result, 13 units comprising roughly 1,895 acres with 8.5 miles of shoreline that were mapped in 1991 and reviewed by the affected Tribes in 1992 have not been included in the mapped coastal barrier units. All 13 units are in Washington. No known tribal lands were included in the 1993 draft maps. Some of the mapped coastal barrier units may include Native American usual and accustomed fishing or hunting grounds (U.S. v. Washington, the Bolt Decision of 1974), although no known reserved Tribal lands are included in the inventory. Future consideration of Tribal lands would require the appropriate level of government-to-government coordination.

3.5.2 Otherwise Protected Areas

During the public involvement process, several reviewers recommended that coastal barrier units that are OPAs should also be included in the CBRS if the CBRA were implemented on to the Pacific coast. On the Atlantic and Gulf coasts, OPAs were mapped but not included in the CBRS. The CBRA provisions disallow Federal flood insurance for development on any mapped OPAs, although other types of Federal financing and assistance would remain available. The CBIA does allow for the inclusion of Federally owned OPAs or portions of OPAs into the CBRS if they are ever transferred out of Federal control (Section 4(d) of the CBIA). Section 4(d), however, does not contain provisions for inclusion in the CBRS of non-Federally owned OPAs if their protection status should ever change.

Since such a high percentage of the mapped Pacific coast units are OPAs, their exclusion from the CBRS may fail to meet the intent of the CBRA and its amendments. Numerous public comments received suggested OPAs be included in a revised definition of coastal barriers for the Pacific coast, as discussed in Section 4.2 of the Report to Congress._

3.5.3 Technical Criteria

During the course of the study, several issues arose regarding the technical criteria used to identify coastal barrier units.

One issue is the geologic differences between the Atlantic/Gulf coasts and the Pacific coast. Researchers determined that a great number of areas of the Pacific coast perform the same protective functions of a coastal barrier but fail to meet the established criteria. This is especially applicable with regard to Hawaii, which has a very different environment and geology than the Atlantic, continental Pacific, Gulf, and Great Lakes coasts. However, although the Pacific coast has a unique geology and ecology that would warrant additional study to identify all landforms that function as coastal barriers, expanding the definition is not authorized under the CBRA. A separate study that identified all undeveloped Pacific coastal hazardous areas, including but not limited to coastal barriers, has not been authorized.

Another issue surrounding the technical criteria is fringing mangroves found in Hawaii. The CBRA originally defined a coastal barrier as a primarily unconsolidated, depositional feature. Subsequent study noted that this definition did not adequately cover various geological formations that serve the same functions as a coastal barrier. Therefore, the CBRA was amended to delete the depositional requirement from the definition of a coastal barrier. This amendment also identified certain additional criteria to define coastal barriers, such as areas containing carbonate-cemented deposits, areas consisting primarily of silt and clay, and areas containing glacial and bedrock deposits. When the new definition was applied to the Atlantic and Gulf coasts, it was noted that, primarily in the Florida Keys, barriers consisting of silt and clay were often indicated by the presence of fringing mangroves, a plant species native to that environment. The mangroves serve to stabilize the coastal barrier. Many such areas are located near coral reefs. Thus, the combination of the silt and clay landform with the mangroves and associated coral reefs forms a coastal barrier that protects the mainland from

storm impact (Legislative History of the CBIA. 1990). The units in the Florida Keys were included in the CBRS because of their geological characteristics (silt and clay composition), but the units were largely identified and mapped based on the presence of fringing mangroves and associated coral reefs.

When these same mapping criteria were applied to the Pacific coast, coastal areas in Hawaii that exhibited fringing mangroves with associated coral reefs were identified and mapped as coastal barrier units. In Hawaii, however, mangroves are an introduced, invasive species. Moreover, the mangroves in Hawaii are not necessarily associated with areas composed of silt and clay. Some of the units identified by the presence of fringing mangroves may, in fact, have a geological composition that does not fit the legislative definition of a coastal barrier because their usual inundation conditions do not provide the fastland component of a coastal barrier. Such areas may include intertidal mudflats or cobble or coral reefs. If the mangrove plants were removed from these units, as planned for some areas as part of ongoing ecological restoration, these units would most likely not technically constitute a coastal barrier under the existing definitions and would, therefore, be ineligible for inclusion in the CBRS. However, for other units the landforms exposed by the eradication of the mangroves include sand spits, river mouth bars, or other fastland with a higher elevation than high tide, that would still constitute a coastal barrier according to the definition.

While it may be appropriate to not include the mapped units in Hawaii that contain fringing mangroves in the CBRS, the Congressional mandate requires that the study of the implementation of the CBRA on the Pacific coast be based on the existing definitions. Neither the DOI nor the FWS was authorized to alter, expand, or modify the definitions of a coastal barrier for the purposes of the study.

3.5.4 Public Concerns Regarding Coastal Development

3.5.4.1 Aquaculture

Many of the mapped units in Hawaii include fish ponds built and operated by Native Hawaiians for hundreds of years. These ponds are formed by building a semi-circular rock wall enclosing a portion of a bay or lagoon, creating a protected pond. Sluice gates allow for water flow between the pond and the ocean for young fry to enter the pond but contain passages too narrow for mature fish to escape. Harvesting the fish, therefore, becomes a relatively easy task. Many of these fish ponds are commercial businesses, with major varieties of harvested fish including milkfish (*Chanos chanos)* and mullet (*Mugil* sp.) (FWS files). Aquaculture is also important in areas such as Puget Sound where shellfish and mollusks are raised for commercial or private use.

Concern has been raised that implementation of the CBRA on the Pacific coast would limit Federal financial assistance for aquaculture enterprises. The FWS has attempted to clarify this issue. The FWS' interpretation is that it is not the intent of the CBRA to prohibit Federal assistance for aquaculture projects within coastal barrier units, provided that the project does not change the geomorphology of the coastal barrier. Funding for nets, traps, pens, and other

non-permanent, non-altering modifications to coastal barrier units would likely be allowed. Eradication of mangroves and restoration of Hawaiian fishponds, which are found in 18 mapped coastal barrier units, for aquacultural purposes would likely be allowed under the exceptions to the CBRA as a natural resource conservation activity.

If, however, an aquaculture project required development of a unit that would alter the geomorphology of the unit, Federal assistance would not be allowed. In some cases, this may result in a lack of Federal funding for an aquaculture enterprise.

3.5.4.2 Surface and Marine Transportation

Coastal barriers typically lie in relatively inaccessible areas. As such, they normally do not form part of critical surface transportation routes. In several cases, however, roads or other transportation facilities lie in or near identified coastal barrier units. In California, major roadways lie near approximately 20 mapped units and travel through six units. Seven units in Hawaii are adjacent to a roadway, while four have a roadway running through them. In Oregon, 11 units have boundaries near major roadways, while three units in Washington have a roadway located in or adjacent to them. In some cases, the affected States have plans for expansion and upgrade of some of the roadways.

Although the CBRA generally does not allow Federal financing of new construction in coastal barrier units, it does contain exceptions for certain previously described transportation-related projects. Furthermore, the CBRA specifically exempts Federal expenditures for maintaining, repairing, or replacing essential links in public transportation facilities, including roads, that are part of a larger network from the stipulations of the CBRA. Therefore, transportation systems that are part of larger networks would still be eligible for Federal assistance.

Furthermore, maintenance of existing channels, aids to navigation, and Coast Guard activities are also specifically exempted from the CBRA and would continue to be eligible for Federal funding. However, plans for expansion of roadways, such as the expansion of Highway 101 in California, would be negatively impacted by implementation of the CBRA since Federal funding would not be allowed for expansion. Construction of new port facilities, new navigation channels, or other water transportation facilities within coastal barrier units would also be negatively impacted. The lack of Federal assistance for such projects may delay or halt the projects.

3.5.4.3 Recreation

The primary issue of concern for recreation is Federal grants and assistance for State recreation plans, particularly in parks or other facilities that fall within a coastal barrier unit. Concern was expressed by State agencies that the inclusion of OPAs in the CBRS would preclude future Federal assistance for recreation developments in OPAs. Federal assistance for recreation developments that did not change the geomorphology of a coastal barrier unit would likely be exempt from the provisions of the CBRA.

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PACIFIC COASTAL BARRIERS

ENVIRONMENTAL EVALUATION

ATTACHMENTS

Attachment Table 1. Threatened, endangered, or sensitive wildlife species potentially occurring in the mapped units.

Common Name	*Scientific Name*	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
INSECTS						
Brown tassel trigonoscuta weevil	*Trigonoscuta brunnotasselata*			X		SC
California diplectronan caddisfly	*Diplectrona californica*			X		SC
Dorothy's El Segundo dune weevil	*Trigonoscuta dorothea dorothea*			X		SC
Ford's sand dune moth	*Psammobotys eunus eunus*			X		SC
Globose dune beetle	*Coelus globosus*			X		SC
Lange's El Segundo dune weevil	*Onychobaris langei*			X		SC
Wandering (salt marsh) skipper	*Panoquina errans*			X		SC
MOLLUSKS						
Mimic tryonia	*Tyronia imitator*			X		SC
BUTTERFLIES						
Oregon silverspot butterfly	*Speyeria zerene hippolyta*	X	X	X		T
Smith's blue butterfly	*Euphilotes enoptes smithi*			X		E
Myrtles silverspot butterfly	*Speyeria zerene myrtleae*			X		E
Behren's silverspot butterfly	*Speyeria zerene behrensii*			X		Proposed E
Lotis blue butterfly	*Lycaeides argyrognomon lotis*			X		E
SNAILS						
Newcomb's littorine snail	*Algamorda newcombiana*	X	X	X		SC
Morro shoulderband snail	*Helminthoqlypta walteriana*			X		E
FISH						
Tidewater goby	*Eucylogobius newberri*			X		E
Green sturgeon	*Acipenser medirostris*	X	X			SC
Pacific lamprey	*Lampetra tridentata*	X	X			SC

Attachment Table 1. Threatened, endangered, or sensitive wildlife species potentially occurring in the mapped units (continued)

Common Name	Scientific Name	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
River lamprey	*Lampetra ayresi*	X	X			SC
Bull trout	*Salvelinus confluentus*	X				C1
Cutthroat trout (Umpqua River run)	*Oncorhynchus clarki*		X			Proposed E
Chinook salmon (Sacramento River winter run stock)	*Oncorhynchus tshawytscha*			X		E
Sockeye salmon (Snake River run stock)	*Oncorhynchus nerka*	X	X			E
Chinook salmon (Snake River fall run stock)	*Oncorhynchus tshawytscha*	X	X			T
Chinook salmon (Snake River spring/summer run stock)	*Oncorhynchus tshawytscha*	X	X			T
Klamath Province Steelhead	*Salmo gairdneri*		X	X		Proposed T
Coho Salmon	*Oncorhynchus kisutch*		X	X		Proposed T
AMPHIBIANS						
Santa Cruz long-toed salamander	*Ambystoma macrodactylum croceum*			X		E
Del Norte salamander	*Plethodon elongatus*		X	X		SC
Tailed frog	*Ascaphus truei*		X			SC
Southern torrent salamander	*Phyacotriton variegatus*		X			SC
Foothills yellow-legged frog	*Rana boylii*		X	X		SC
Northern red-legged frog	*Rana aurora*	X	X	X		SC
California red-legged frog	*Rana aurora draytoni*			X		Proposed E
REPTILES						
Northern sagebrush lizard	*Sceloporus graciosus graciosus*		X			SC
Green sea turtle	*Chelonia mydas*			X	X	T
Hawksbill sea turtle	*Eretmochelys imbricata*				X	E

Attachment Table 1. Threatened, endangered, or sensitive wildlife species potentially occurring in the mapped units (continued).

Common Name	*Scientific Name*	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
Leatherback sea turtle	*Dermochelys coriacea*	X	X	X	X	E
Loggerhead sea turtle	*Caretta caretta*	X	X	X	X	T
Olive ridley sea turtle	*Lepidochelys olivacea*			X	X	T
Northwestern pond turtle	*Clemmys marmorata marmorata*	X	X	X		SC
Southwestern pond turtle	*Clemmys marmorata pallida*			X		SC
BIRDS						
Aleutian Canada goose	*Branta canadensis leucopareia*	X	X	X		T
Bald eagle	*Haliaeetus leucocephalus*	X	X	X		T
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*			X		SC
California clapper rail	*Rallus longirostris obsoletus*			X		E
Coastal California gnatcatcher	*Polioptila californica*			X		T
Light-footed clapper rail	*Rallus longirostris levipes*			X		E
California least tern	*Sterna antillarum browni*			X		E
Northern spotted owl	*Strix occidentalis caurina*	X	X	X		T
Marbled murrelet	*Brachyramphus marmoratus*	X	X	X		T
Peregrine falcon	*Falco peregrinus*	X	X	X		Proposed to be removed from list
Western snowy plover	*Charadrius alexandrinus nivosus*	X	X	X		T
Harlequin duck	*Histrionicus histrionicus*	X	X	X		SC
Brown pelican	*Pelecanus occidentalis*	X	X	X		E
Hawaiian coot	*Fulican americana alai*				X	E
Hawaiian stilt	*Himanpopus mexicanus knudseni*				X	E
Hawaiian duck	*Anas wyvilliana*				X	E

A ıent Table 1. Threatened, endangered, or sensitive wil pecies potentially occurring in the mapped units (continu

Common Name	Scientific Name	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
Hawaiian hawk	*Buteo solitarius*				X	E
Ashy storm petrel	*Oceanodroma homochroa*			X		SC
Black rail	*Laterallus jamaicensis*			X		SC
Black tern	*Chilodonias niger*			X		SC
Reddish egret	*Egretta rufescens*			X		SC
Xantus murrelet	*Synthliboramphus hypoleuca scrippsi*			X		SC
Northern goshawk	*Accipiter gentilis*	X		X		SC
Hawaiian common moorhen	*Gallinula chloropus sandvicensis*				X	E
San Clemente loggerhead shrike	*Lanius ludovicianus mearnsi*			X		E
Little willow flycatcher	*Epidonax traillii brewsteri*		X			SC
San Clemente sage sparrow	*Amphispiza belli clementeae*			X		T
MAMMALS						
Stephen's California vole	*Microtus californicus stephensi*			X		SC
Pacific pocket mouse	*Perognathus longimembris pacificus*			X		E
Columbian white-tailed deer	*Odocoileus virginianus leucurus*	X	X			E
Point Arena mountain beaver	*Aplodontia rufa nigra*			X		E
Northern sea lion	*Eumetopias jubatus*	X	X	X		T
Blue whale	*Balaenoptera musculus*	X	X	X	X	E
Finback whale	*Balaenoptera physalus*	X	X	X	X	E
Humpback whale	*Megaptera novaeangliae*	X	X	X	X	E
Right whale	*Balaena glacialis*	X	X	X		E
Sei whale	*Balaenoptera borealis*	X	X	X	X	E
Sperm whale	*Physeter macrocephalus*	X	X	X	X	E

Attachment Table 1. Threatened, endangered, or sensitive wildlife species potentially occurring in the mapped units (continued).

Common Name	*Scientific Name*	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
White-footed vole	*Arborimus albipes*		X			SC
Long-eared myotis	*Myotis evotis*		X			SC
Fringed myotis	*Myotis thysandodes*		X			SC
Long-legged myotis	*Myotis volans*		X			SC
Pacific western big-eared bat	*Plecotus townsendii townsendii*		X			SC
Gold Beach western pocket gopher	*Thomomys mazama helleri*		X			SC
Pistol River pocket gopher	*Thomomys umbrinus detumidus*		X			SC
Salt marsh harvest mouse	*Reithrodontomys raviventris*			X		E
Guadalupe fur seal	*Arctocephalus townsendi*			X		T
Southern sea otter	*Enhydra lutris nereis*	X	X	X		T
Pacific fisher	*Martes pennanti pacifica*	X	X	X		SC
Hawaiian monk seal	*Monachus schauinslandi*				X	E
Hawaiian hoary bat	*Lasiurus cinereus semotus*				X	E

Source: U.S. Fish and Wildlife Service field offices.

Federal Status: **E**–Endangered; **T**–Threatened; **C1**–Category 1 candidate for listing, taxa for which the USFWS has substantial information to support listing as threatened or endangered; **SC**–Species of Concern, previously listed as Category 2 (C2) candidate species.

Attachn Table 2. Threatened, endangered, or sensitive plant spe potentially occurring in the mapped units.

Common Name	Scientific Name	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
Western Lily	*Lilium occidentale*		X	X		PE
Wolf's evening-primrose	*Oenothera wolfii*		X	X		C1
Dwarf naupaka	*Scaevola coriacea*				X	E
Ewa hinahina	*Achyranthes splendens var. rotundata*				X	E
Awiwi	*Centaurium sebaeoides*				X	E
Hilo ischaemum	*Ischaemum byrone*				X	E
Ohai	*Sesbania tomentosa*				X	E
N/A	*Tetramolopium rockii*				X	T
Pink sand verbena	*Abronia umbellata* ssp. *breviflora*		X	X		SC
North Coast bird's-beak	*Cordylanthus maritimus* ssp. *palustris*		X	X		SC
Large-flowered goldfields	Lasthenia macrantha ssp. *prisca*		X			SC
N/A	*Limbella fryei*		X			SC
Silvery phacelia	*Phacelia argentea*		X			SC
Golden paintbrush	*Castilleja levisecta*	X				Proposed T
Prostrate navarretia	*Navarretia fossalis*			X		Proposed E
Salt marsh bird's-beak	*Cordylanthus maritimus*			X		E
Presidio manzanita	*Arctostaphylos hookeri* var. *ravenii*			X		E
Howell's spineflower	*Chorizanthe howellii*			X		E
Sonoma spineflower	*Chorizanthe valida*			X		E
Santa Cruz cypress	*Cupressus abramsiana*			X		E
Menzies' wallflower	*Erysimum menziesii*			X		E
Clover lupine	*Lupinus tidestromii*			X		E

Attachment Table 2. Threatened, endangered, or sensitive plant species potentially occurring in the mapped units (continued).

Common Name	Scientific Name	Potential Species Occurrence				Federal Status
		Washington	Oregon	California	Hawaii	
Beach layia	*Layia carnosa*			X		E
Marsh sandwort	*Arenaria paludicola*			X		E
Marin dwarf-flax	*Hesperolinon congestum*			X		T
Coastal dunes rattleweed	*Astragalus tener* var. *titi*			X		CI
Monterey spineflower	*Chorizanthe pungens* var. *pungens*			X		E
Robust spineflower	*Chorizanthe robusta* var. *robusta*			X		E
Gambel's watercress	*Rorippa gambelli*			X		E
California seablite	*Suaeda californica*			X		E
La Graciosa thistle	*Cirsium loncholepis*			X		CI
Siusun thistle	*Cirsium hydrophilum* var. *hydrophilum*			X		Proposed E
Surf thistle	*Cirsium rhothophilum*			X		CI
Nipomo Mesa lupine	*Lupinus nipomensis*			X		CI
Laurel Hill manzanita	*Arctostaphylos uva-ursi* var. *franciscana*			X		SC
Baker's larkspur	*Delphinium bakeri*			X		CI
Yellow larkspur	*Delphinium luteum*			X		CI
Santa Cruz tarweed	*Holocarpha macradenia*			X		CI
Contra Costa goldfields	*Lasthenia conjugens*			X		Proposed E
Coast lily	*Lilium maritimum*			X		CI
Hickman's cinquefoil	*Potentilla hickmanii*			X		CI
Beach spectaclepod	*Dithyrea maritima*			X		CI
Hispid Bird's-beak	*Cordylanthus mollis* ssp. *hispidus*			X		SC
Soft Bird's-beak	*Cordylanthus mollis* ssp. *mollis*			X		PE

APPENDIX D

COASTAL BARRIER IMPROVEMENT ACT OF 1990

PUBLIC LAW 101-591

Public Law 101-591
101st Congress

An Act

To reauthorize the Coastal Barrier Resources Act, and for other purposes.

Nov. 16, 1990
[H.R. 2840]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Coastal Barrier Improvement Act of 1990.
16 USC 3501 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Coastal Barrier Improvement Act of 1990".

SEC. 2. DEFINITION AMENDMENTS.

(a) UNDEVELOPED COASTAL BARRIER.—The Coastal Barrier Resources Act is amended in section 3(1)(A) (16 U.S.C. 3502(1)(A))—

(1) by striking clause (i); and

(2) by redesignating clauses (ii) and (iii) as clauses (i) and (ii), respectively.

(b) SYSTEM MAPS; SYSTEM.—

(1) REPEAL AND ADDITION OF DEFINITION.—Section 3(6) of the Coastal Barrier Resources Act (16 U.S.C. 3502(6)) is amended to read as follows:

"(6) The term 'System' means the Coastal Barrier Resources System established by section 4(a).".

(2) CONFORMING AMENDMENTS.—Section 5 of the Coastal Barrier Resources Act (16 U.S.C. 3504) is amended—

(A) in subsection (a), by striking "Coastal Barrier Resources";

(B) in subsection (b)(1), by striking "of the enactment of this Act" and inserting in lieu thereof "on which the relevant System unit or portion of the System unit was included within the System under this Act or the Coastal Barrier Improvement Act of 1990"; and

(C) at the end of subsection (b)(2), by striking "of enactment".

(c) OTHERWISE PROTECTED AREAS.—Section 3(1) of the Act (16 U.S.C. 3502(1)) is amended—

(1) by striking "(i)" immediately before "contain few"; and

(2) by inserting a period immediately following "ecological processes" and striking the balance of the sentence.".

SEC. 3. COASTAL BARRIER RESOURCES SYSTEM, GENERALLY.

Section 4 of the Coastal Barrier Resources Act (16 U.S.C. 3503) is amended to read as follows:

"SEC. 4. ESTABLISHMENT OF COASTAL BARRIER RESOURCES SYSTEM.

"(a) ESTABLISHMENT.—There is established the Coastal Barrier Resources System, which shall consist of those undeveloped coastal barriers and other areas located on the coasts of the United States that are identified and generally depicted on the maps on file with the Secretary entitled 'Coastal Barrier Resources System', dated

October 24, 1990, as such maps may be revised by the Secretary under section 4 of the Coastal Barrier Improvement Act of 1990.

Records.

"(b) SYSTEM MAPS.—The Secretary shall keep the maps referred to in subsection (a) on file and available for public inspection in the Office of the Director of the United States Fish and Wildlife Service, and in such other offices of that service as the Director considers appropriate.

Intergovernmental relations.

"(c) BOUNDARY REVIEW AND MODIFICATION.—At least once every 5 years, the Secretary shall review the maps referred to in subsection (a) and shall make, in consultation with the appropriate State, local, and Federal officials, such minor and technical modifications to the boundaries of System units as are necessary solely to reflect changes that have occurred in the size or location of any System unit as a result of natural forces.".

16 USC 3503 note.

SEC. 4. TECHNICAL REVISION OF MAPS; MODIFICATION OF BOUNDARIES; ADDITIONS TO SYSTEM.

(a) TECHNICAL REVISION OF MAPS AND PROVISION TO STATE AND LOCAL GOVERNMENT.—Not later than 180 days after the date of the enactment of this Act, the Secretary shall—

(1) make such technical revisions to the maps referred to in section 4(a) of the Coastal Barrier Resources Act (as amended by section 3 of this Act) as may be necessary to correct existing clerical and typographical errors in the maps; and

(2) provide copies of the maps, as so revised, to—

(A) each State and each local government in which is located a unit of the System;

(B) the coastal zone management agency of each State—

(i) in which is located a unit of the System; and

(ii) which has a coastal zone management program approved pursuant to section 306 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1455); and

(C) appropriate Federal agencies.

(b) RECOMMENDATIONS OF STATE AND LOCAL GOVERNMENTS FOR BOUNDARY MODIFICATIONS.—(1) Not later than 1 year after the date of the enactment of this Act—

(A) a local government in which is located a unit of the System and which is in a State which has a coastal zone management program approved pursuant to section 306 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1455); and

(B) the coastal zone management agency of a State in which is located a unit of the System and which has such a program approved;

may each submit to the Secretary recommendations for minor and technical modifications to the boundaries of existing units of the System located in that local government or State, respectively.

(2) If, in the case of any minor and technical modification to the boundaries of System units made under the authority of subsection (d) of this section, an appropriate chief executive officer of a State, county or equivalent jurisdiction, or State coastal zone management agency to which notice was given in accordance with this subsection files comments disagreeing with all or part of the modification and the Secretary makes a modification which is in conflict with such comments, or if the Secretary fails to adopt a modification pursuant to a proposal submitted by an appropriate State coastal zone management agency under paragraph (1) of this subsection, the Secretary shall submit to the chief executive officer a written

justification for the failure to make modifications consistent with such comments or proposals.

(c) ELECTIONS TO ADD TO SYSTEM.—

(1) PROVISION OF MAPS BY SECRETARY.—Not later than 180 days after the date of the enactment of this Act, the Secretary shall provide—

(A) to each local government in which is located an undeveloped coastal barrier not included within the System; and

(B) to the Governor of each State in which such an area is located;

maps depicting those undeveloped coastal barriers not included within the System located in that local government or State, respectively.

(2) ELECTIONS.—Not later than 18 months after the date of the enactment of this Act, a local government and the Governor of any State referred to in paragraph (1), and any qualified organization—

(A) may each elect to add to the System, as a new unit or as an addition to an existing unit, any area of qualified coastal barrier (or any portion thereof) which is owned or held by the local government, State, or qualified organization, respectively;

(B) shall notify the Secretary of that election; and

(C) shall submit to the Secretary a map depicting the area, if—

(i) the area (or portion) is not depicted on a map provided by the Secretary under paragraph (1); or

(ii) the local government, State, or qualified organization was not provided maps under paragraph (1).

(3) EFFECTIVE DATE OF ELECTION.—An area elected by a local government, Governor of a State, or qualified organization to be added to the System under this subsection shall be part of the System effective on the date on which the Secretary publishes notice in the Federal Register under subsection (e)(1)(C) with respect to that election.

(d) ADDITION OF EXCESS FEDERAL PROPERTY.—

(1) CONSULTATION AND DETERMINATION.—Prior to transfer or disposal of excess property under the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.) that may be an undeveloped coastal barrier, the Administrator of General Services shall consult with and obtain from the Secretary a determination as to whether and what portion of the property constitutes an undeveloped coastal barrier. Not later than one hundred and eighty days after the initiation of such consultation, the Secretary shall make and publish notice of such determination. Immediately upon issuance of a positive determination, the Secretary shall—

(A) prepare a map depicting the undeveloped coastal barrier portion of such property; and

(B) shall publish in the Federal Register notice of the addition of such property to the System. Federal Register, publication.

(2) EFFECTIVE DATE OF INCLUSION.—An area to be added to the System under this subsection shall be part of the System effective on the date on which the Secretary publishes notice in the Federal Register under subsection (d)(1)(B) with respect to that area.

(3) REVISION OF MAPS.—As soon as practicable after the date on which a unit is added to the System under subsection (d)(2), the Secretary shall revise the maps referred to in section 4(a) of the Act (as amended by section 3 of this Act) to reflect each such addition.

(e) MODIFICATION OF BOUNDARIES, REVISION OF MAPS, AND PUBLICATION OF NOTICE.—

(1) IN GENERAL.—Not later than 2 years after the date of the enactment of this Act, the Secretary—

(A) based on recommendations submitted by local governments and State coastal zone management agencies under subsection (b), may make such minor and technical modifications to the boundaries of existing units of the System as are consistent with the purposes of the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.) and are necessary to clarify the boundaries of those units;

(B) shall revise the maps referred to in section 4(a) of the Act (as amended by section 3 of this Act)—

(i) to reflect those modifications; and

(ii) to reflect each election of a local government, Governor of a State, or qualified organization to add an area to the System pursuant to subsection (c); and

Federal Register, publication.

(C) shall publish in the Federal Register notice of each such modification or election.

(2) EFFECTIVE DATE OF MODIFICATIONS.—A modification of the boundaries of a unit of the System under paragraph (1)(A) shall take effect on the date on which the Secretary published notice in the Federal Register under paragraph (1)(C) with respect to that modification.

(f) NOTIFICATION REGARDING MODIFICATIONS AND ELECTIONS.—Not less than 30 days before the effective date of any modification of the boundaries of a unit of the System under subsection (d)(1)(A), or of an election of a local government, Governor of a State, or qualified organization to add an area of qualified coastal barrier to the System pursuant to subsection (c) or of an addition to the System pursuant to subsection (d), the Secretary shall submit written notice of such modification or election to—

(1) the Committee on Merchant Marine and Fisheries of the House of Representatives and the Committee on Environment and Public Works of the Senate; and

(2) appropriate State and Federal officials.

SEC. 5. EXCEPTIONS TO LIMITATIONS ON FEDERAL EXPENDITURES.

(a) EXCEPTIONS, GENERALLY.—Section 6 of the Coastal Barrier Resources Act (16 U.S.C. 3505) is amended to read as follows:

"SEC. 6. EXCEPTIONS TO LIMITATIONS ON EXPENDITURES.

"(a) IN GENERAL.—Notwithstanding section 5, the appropriate Federal officer, after consultation with the Secretary, may make Federal expenditures and may make financial assistance available within the System for the following:

"(1) Any use or facility necessary for the exploration, extraction, or transportation of energy resources which can be carried out only on, in, or adjacent to a coastal water area because the use or facility requires access to the coastal water body.

"(2) The maintenance or construction of improvements of existing Federal navigation channels (including the Intracoastal

Waterway) and related structures (such as jetties), including the disposal of dredge materials related to such maintenance or construction.

"(3) The maintenance, replacement, reconstruction, or repair, but not the expansion, of publicly owned or publicly operated roads, structures, or facilities that are essential links in a larger network or system.

"(4) Military activities essential to national security.

"(5) The construction, operation, maintenance, and rehabilitation of Coast Guard facilities and access thereto.

"(6) Any of the following actions or projects, if a particular expenditure or the making available of particular assistance for the action or project is consistent with the purposes of this Act:

"(A) Projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats, including acquisition of fish and wildlife habitats and related lands, stabilization projects for fish and wildlife habitats, and recreational projects.

"(B) Establishment, operation, and maintenance of air and water navigation aids and devices, and for access thereto.

"(C) Projects under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4 through 11) and the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.).

"(D) Scientific research, including aeronautical, atmospheric, space, geologic, marine, fish and wildlife, and other research, development, and applications.

"(E) Assistance for emergency actions essential to the saving of lives and the protection of property and the public health and safety, if such actions are performed pursuant to sections 402, 403, and 502 of the Disaster Relief and Emergency Assistance Act and section 1362 of the National Flood Insurance Act of 1968 (42 U.S.C. 4103) and are limited to actions that are necessary to alleviate the emergency.

"(F) Maintenance, replacement, reconstruction, or repair, but not the expansion (except with respect to United States route 1 in the Florida Keys), of publicly owned or publicly operated roads, structures, and facilities.

"(G) Nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system.

"(b) EXISTING FEDERAL NAVIGATION CHANNELS.—For purposes of subsection (a)(2), a Federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System unit or portion of the System unit was included within the System.

"(c) EXPANSION OF HIGHWAYS IN MICHIGAN.—The limitations on the use of Federal expenditures or financial assistance within the System under subsection (a)(3) shall not apply to a highway—

"(1) located in a unit of the System in Michigan; and

"(2) in existence on the date of the enactment of the Coastal Barrier Improvement Act of 1990.

"(d) SERVICES AND FACILITIES OUTSIDE SYSTEM.—

"(1) IN GENERAL.—Except as provided in paragraphs (2) and (3) of this subsection, limitations on the use of Federal expenditures or financial assistance within the System under section 5

shall not apply to expenditures or assistance provided for services or facilities and related infrastructure located outside the boundaries of unit T-11 of the System (as depicted on the maps referred to in section 4(a)) which relate to an activity within that unit.

"(2) PROHIBITION OF FLOOD INSURANCE COVERAGE.—No new flood insurance coverage may be provided under the National Flood Insurance Act of 1968 (42 U.S.C. 4001 et seq.) for any new construction or substantial improvements relating to services or facilities and related infrastructure located outside the boundaries of unit T-11 of the System that facilitate an activity within that unit that is not consistent with the purposes of this Act.

"(3) PROHIBITION OF HUD ASSISTANCE.—

"(A) IN GENERAL.—No financial assistance for acquisition, construction, or improvement purposes may be provided under any program administered by the Secretary of Housing and Urban Development for any services or facilities and related infrastructure located outside the boundaries of unit T-11 of the System that facilitate an activity within that unit that is not consistent with the purposes of this Act.

"(B) DEFINITION OF FINANCIAL ASSISTANCE.—For purposes of this paragraph, the term 'financial assistance' includes any contract, loan, grant, cooperative agreement, or other form of assistance, including the insurance or guarantee of a loan, mortgage, or pool of mortgages.".

(b) CONFORMING AMENDMENT.—Subsection (d) of section 204 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (16 U.S.C. 3505 note) is repealed.

(c) APPLICATION OF EXISTING LOUISIANA EXCEPTION.—Section 5(a)(3) of the Coastal Barrier Resources Act (16 U.S.C. 3504(a)(3)) is amended by inserting "and LA07" after "S01 through S08".

16 USC 3503 note.

SEC. 6. PACIFIC COASTAL BARRIER PROTECTION STUDY AND MAPS.

IN GENERAL.—

(1) STUDY.—Not later than 6 months after the date of the enactment of this Act, the Secretary shall prepare and submit to the Committee on Merchant Marine and Fisheries of the House of Representatives and to the Committee on Environment and Public Works of the Senate a study which examines the need for protecting undeveloped coastal barriers along the Pacific coast of the United States south of 49 degrees north latitude through inclusion in the System. Such study shall examine—

(A) the potential for loss of human life and damage to fish, wildlife, other natural resources, and the potential for the wasteful expenditure of Federal revenues given the geologic differences of the coastal barriers along the Pacific coast as opposed to those found along the Atlantic and Gulf coasts; and

(B) the differences in extreme weather conditions which exist along the Pacific coast as opposed to those found along the Atlantic and Gulf coasts.

(2) PREPARATION AND SUBMISSION OF MAPS.—

(A) As soon as practicable after the date of the enactment of this Act, the Secretary shall prepare maps identifying

the boundaries of those undeveloped coastal barriers (as that term is defined in section 3(1) of the Coastal Barrier Resources Act (16 U.S.C. 3502(1)) of the United States bordering the Pacific Ocean south of 49 degrees north latitude.

(B) Not later than 12 months after the date of enactment of this Act, the Secretary shall submit to the Committee on Merchant Marine and Fisheries of the House of Representatives and to the Committee on Environment and Public Works of the Senate maps identifying the boundaries of those undeveloped coastal barriers of the United States bordering the Pacific Ocean south of 49 degrees north latitude which the Secretary and the appropriate Governor consider to be appropriate for inclusion in the System.

Florida.

SEC. 7. SPECIAL UNIT.

(a) DESIGNATION.—The southernmost portion of unit P-11 of the System, as depicted on the maps referred to in section 4(a) of the Coastal Barrier Resources Act (as amended by this Act), located on Hutchinson Island north of St. Lucie Inlet in Florida, is designated as the "Frank M. McGilvrey Unit". In revising those maps under section 4(a) of this Act, the Secretary shall so identify that unit.

(b) REFERENCES.—Any reference in a law, map, regulation, document, paper, or other record of the United States to the unit of the System referred to in subsection (a) is deemed to be a reference to the "Frank M. McGilvrey Unit" of the System.

16 USC 3503 note.

SEC. 8. REPORT REGARDING COASTAL BARRIER MANAGEMENT.

(a) COASTAL BARRIERS TASK FORCE.—

(1) ESTABLISHMENT.—There is established an interagency task force to be known as the Coastal Barriers Task Force (hereinafter in this section referred to as the "Task Force").

(2) MEMBERSHIP.—The Task Force shall be composed of 11 individuals as follows:

(A) A designee of the Secretary of Agriculture.

(B) A designee of the Secretary of Commerce.

(C) A designee of the Secretary of Defense.

(D) A designee of the Secretary of Energy.

(E) A designee of the Secretary of Housing and Urban Development.

(F) A designee of the Secretary of the Interior.

(G) A designee of the Secretary of Transportation.

(H) A designee of the Secretary of the Treasury, who shall represent the Internal Revenue Service.

(I) A designee of the Administrator of the Environmental Protection Agency.

(J) A designee of the Director of the Federal Emergency Management Agency.

(K) A designee of the Administrator of the Small Business Administration.

(3) CHAIRPERSON.—The chairperson of the Task Force shall be the designee of the Secretary of the Interior.

(b) REPORT.—

(1) IN GENERAL.—Not later than the expiration of the 2-year period beginning on the date of the enactment of this Act, the Task Force shall submit to the Congress a report regarding the Coastal Barrier Resources System.

(2) CONTENTS.—The report required under paragraph (1) shall include the following:

(A) An analysis of the effects of any regulatory activities of the Federal Government on development within units of the System, for the period from 1975 to 1990.

(B) An analysis of the direct and secondary impacts of tax policies of the Federal Government on development (including development of second home and investment properties) within units of the System, for the period from 1975 to 1990.

(C) An estimate and comparison of the costs to the Federal Government with respect to developed coastal barriers on which are located units of the System, for the period from 1975 to 1990, which shall include costs of shore protection activities, beach renourishment activities, evacuation services, disaster assistance, and flood insurance subsidies under the national flood insurance program.

(D) A determination of the number of structures for which flood insurance under the national flood insurance program has been unavailable since the enactment of the National Flood Insurance Act of 1968 because of the prohibition, under section 1321 of such Act, of the provision of insurance for structures located on coastal barriers within the System.

(E) An estimate of the number of existing structures located on coastal barriers that are included within the System because of the expansion of the System under this Act and the amendments made by this Act.

(F) A summary of the opinions and comments expressed pursuant to paragraph (3).

(G) Recommendations for Federal policies and legislative action with respect to developed and undeveloped coastal barriers to promote the protection of coastal barriers and minimize activities of the Federal Government that contribute to the destruction and degradation of coastal barriers.

(3) HEARINGS.—In carrying out its responsibilities under this subsection, the Task Force shall hold hearings to provide opportunity for State and local governments and members of the public to express their opinions and comment on Federal policy regarding coastal barriers.

(c) TERMINATION.—The Task Force shall terminate 90 days after submission of the report required under subsection (b)(1).

SEC. 9. PROHIBITION OF FLOOD INSURANCE COVERAGE IN CERTAIN COASTAL BARRIERS.

Section 1321 of the National Flood Insurance Act of 1968 (42 U.S.C. 4028) is amended—

(1) by inserting "(a)" after the section designation; and

(2) by adding at the end the following new subsection:

"(b) No new flood insurance coverage may be provided under this title after the expiration of the 1-year period beginning on the date of the enactment of the Coastal Barrier Improvement Act of 1990 for any new construction or substantial improvements of structures located in any area identified and depicted on the maps referred to in section 4(a) of the Coastal Barrier Resources Act as an area that is (1) not within the Coastal Barrier Resources System and (2) is in an otherwise protected area. Notwithstanding the preceding sentence, new flood insurance coverage may be provided for structures

in such protected areas that are used in a manner consistent with the purpose for which the area is protected.".

SEC. 10. RTC AND FDIC PROPERTIES. 12 USC 1441a-3.

(a) REPORTS.—

(1) SUBMISSION.—The Resolution Trust Corporation and the Federal Deposit Insurance Corporation shall each submit to the Congress for each year a report identifying and describing any property that is covered property of the corporation concerned as of September 30 of such year. The report shall be submitted on or before March 30 of the following year.

(2) CONSULTATION.—In preparing the reports required under this subsection, each corporation concerned may consult with the Secretary of the Interior for purposes of identifying the properties described in paragraph (1).

(b) LIMITATION ON TRANSFER.—

(1) NOTICE.—The Resolution Trust Corporation and the Federal Deposit Insurance Corporation may not sell or otherwise transfer any covered property unless the corporation concerned causes to be published in the Federal Register a notice of the availability of the property for purchase or other transfer that identifies the property and describes the location, characteristics, and size of the property. Federal Register, publication.

(2) EXPRESSION OF SERIOUS INTEREST.—During the 90-day period beginning on the date that notice under paragraph (1) concerning a covered property is first published, any governmental agency or qualified organization may submit to the corporation concerned a written notice of serious interest for the purchase or other transfer of a particular covered property for which notice has been published. The notice of serious interest shall be in such form and include such information as the corporation concerned may prescribe.

(3) PROHIBITION OF TRANSFER.—During the period under paragraph (2), a corporation concerned may not sell or otherwise transfer any covered property for which notice has been published under paragraph (1). Upon the expiration of such period, the corporation concerned may sell or otherwise transfer any covered property for which notice under paragraph (1) has been published if a notice of serious interest under paragraph (2) concerning the property has not been timely submitted.

(4) OFFERS AND PERMITTED TRANSFER.—If a notice of serious interest in a covered property is timely submitted pursuant to paragraph (2), the corporation concerned may not sell or otherwise transfer such covered property during the 90-day period beginning upon the expiration of the period under paragraph (2) except to a governmental agency or qualified organization for use primarily for wildlife refuge, sanctuary, open space, recreational, historical, cultural, or natural resource conservation purposes, unless all notices of serious interest under paragraph (2) have been withdrawn.

(c) DEFINITIONS.—For purposes of this section:

(1) CORPORATION CONCERNED.—The term "corporation concerned" means—

(A) the Federal Deposit Insurance Corporation, with respect to matters relating to the Federal Deposit Insurance Corporation; and

(B) the Resolution Trust Corporation, with respect to matters relating to the Resolution Trust Corporation.

(2) COVERED PROPERTY.—The term "covered property" means any property—

(A) to which—

(i) the Resolution Trust Corporation has acquired title in its corporate or receivership capacity; or

(ii) the Federal Deposit Insurance Corporation has acquired title in its corporate capacity or which was acquired by the former Federal Savings and Loan Insurance Corporation in its corporate capacity; and

(B) that—

(i) is located within the Coastal Barrier Resources System; or

(ii) is undeveloped, greater than 50 acres in size, and adjacent to or contiguous with any lands managed by a governmental agency primarily for wildlife refuge, sanctuary, open space, recreational, historical, cultural, or natural resource conservation purposes.

(3) GOVERNMENTAL AGENCY.—The term "governmental agency" means any agency or entity of the Federal Government or a State or local government.

(4) UNDEVELOPED.—The term "undeveloped" means—

(A) containing few manmade structures and having geomorphic and ecological processes that are not significantly impeded by any such structures or human activity; and

(B) having natural, cultural, recreational, or scientific value of special significance.

Wildlife refuges.

SEC. 11. ACQUISITION OF PROPERTY BY SECRETARY OF THE INTERIOR.

The Secretary of the Interior may purchase any property within the area added to unit T-12 of the System by this Act, as depicted on the maps referred to in section 4(a) of the Coastal Barrier Resources Act. The Secretary of the Interior shall provide that any property purchased under this section is used and administered in accordance with the provisions of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee).

16 USC 3503 note.

SEC. 12. DEFINITIONS.

For purposes of this Act—

(1) the term "undeveloped coastal barrier" means—

(A) a depositional geologic feature (such as a bay barrier, tombolo, barrier spit, or barrier island) that—

(i) is subject to wave, tidal, and wind energies, and

(ii) protects landward aquatic habitats from direct wave attack; and

(B) all associated aquatic habitats including the adjacent wetlands, marshes, estuaries, inlets, and nearshore waters;

but only if such features and associated habitats contain few manmade structures and these structures, and man's activities on such features and within such habitats, do not significantly impede geomorphic and ecological processes.

(2) the term "otherwise protected area" means an undeveloped coastal barrier within the boundaries of an area established under Federal, State, or local law, or held by a qualified organization, primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes;

(3) the term "qualified organization" means such an organization under section 170(h)(3) of the Internal Revenue Code of 1986 (26 U.S.C. 170(h)(3));

(4) the term "Secretary" means the Secretary of the Interior; and

(5) the term "System" means the Coastal Barrier Resources System established by the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.), as amended by this Act.

SEC. 13. AUTHORIZATIONS OF APPROPRIATIONS.

(a) COASTAL BARRIER RESOURCES ACT.—Section 12 of the Coastal Barrier Resources Act (16 U.S.C. 3510) is amended to read as follows:

"SEC. 12. AUTHORIZATION OF APPROPRIATIONS.

"There is authorized to be appropriated to the Secretary for carrying out this Act not more than $1,000,000 for each of the fiscal years 1990, 1991, 1992, and 1993.".

(b) THIS ACT.—

(1) IN GENERAL.—There is authorized to be appropriated to the Secretary for carrying out this Act not more than $1,000,000 for each of the fiscal years 1991 and 1992.

(2) PROPERTY ACQUISITION.—In addition to the amounts authorized to be appropriated under paragraph (1), there is authorized to be appropriated to the Secretary of the Interior during fiscal years 1991, 1992, and 1993 an aggregate amount of $15,000,000 to carry out section 11.

SEC. 14. CERTIFICATION OF COMPLIANCE.

Section 7 of the Coastal Barrier Resources Act (16 U.S.C. 3506) is amended to read as follows:

"SEC. 7. CERTIFICATION OF COMPLIANCE.

"(a) REGULATIONS.—Not later than 12 months after the date of enactment of the Coastal Barrier Improvement Act of 1990, the head of each Federal agency affected by this Act shall promulgate regulations to assure compliance with the provisions of this Act.

"(b) CERTIFICATION.—The head of each Federal agency affected by this Act shall report and certify that each such agency is in compliance with the provisions of this Act. Such reports and certifications shall be submitted annually to the Committees and the Secretary.". Reports.

SEC. 15. DARE COUNTY, NORTH CAROLINA, TRANSFER.

Notwithstanding another law, the Secretary of Transportation shall transfer without consideration by quitclaim deed to Dare County, North Carolina, all rights, title, and interest of the United States in Coast Guard property and improvements located on the northern end of Pea Island east side of State road 1257, 0.3 miles north of North Carolina Highway 12 in Rodanthe, Dare County,

North Carolina. The Secretary shall require the property to be surveyed before it is transferred.

Approved November 16, 1990.

LEGISLATIVE HISTORY—H.R. 2540 (S. 2729):

HOUSE REPORTS: No. 101-657, Pt. 1 (Comm. on Merchant Marine and Fisheries) and Pt. 2 (Comm. on Banking, Finance and Urban Affairs).

SENATE REPORTS: No. 101-529 accompanying S. 2729 (Comm. on Environment and Public Works).

CONGRESSIONAL RECORD, Vol. 136 (1990):

Sept. 28, considered and passed House.

Oct. 26, considered and passed Senate, amended. House concurred in Senate amendments.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 26 (1990):

Nov. 16, Presidential remarks.

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