



ECONOMIC ANALYSIS OF REVISED
CRITICAL HABITAT DESIGNATION FOR
THE PACIFIC COAST POPULATION OF
THE WESTERN SNOWY PLOVER

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prepared for:

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LIST OF ACRONYMS AND ABBREVIATIONS

BLM	U.S. Bureau of Land Management
Carlsbad HMP	The Habitat Management Plan for Natural Communities in the City of Carlsbad
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CHD	Critical habitat designation
Clam and Moonstone Beach Management Plan	Clam and Moonstone Beach County Parks Recreational Facilities and Resource Management Master Plan
Coal Oil Point Reserve SPMP	Coal Oil Point Reserve Snowy Plover Management Plan
Corps	U.S. Army Corps of Engineers
DOI	U.S. Department of the Interior
EIR	Environmental Impact Report
ESA	Endangered Species Act
Fort Ord Plan	Fort Ord Dunes State Park Preliminary General Plan and Environmental Impact Report
FWS	Fish and Wildlife Service
HCPs	Habitat Conservation Plans
HPP	Habitat Protection Plan
INRMPs	Integrated Natural Resources Management Plans
LCP	Local Coastal Program
MMRP	Military Munitions Response Program
New River ACEC Plan	New River Area of Critical Environmental Concern Management
NSA	Naval Support Activity
NSP	North Spit Plan
ODFW	Oregon Department of Fish and Wildlife

ODNRA	Oregon Dunes National Recreation Area
OHVs	Off-highway vehicles
OMB	U.S. Office of Management and Budget
OPRD	Oregon Parks and Recreation Department
OPRD HCP	Oregon Parks and Recreation Department Habitat Conservation Plan for the Western Snowy Plover
OSMP	Oregon Parks and Recreation Department Ocean Shore Management Plan
PDM Plan	Predator Damage Management Plan to Protect the Pacific Coast Population of the Western Snowy Plover
Plover	Western snowy plover
RFA	Regulatory Flexibility Act
RHA	Rivers and Harbors Act
Salinas River NWR CCP	Salinas River National Wildlife Refuge Comprehensive Conservation Plan
SBREFA	Small Business Regulatory Enforcement Fairness Act
Service	U.S. Fish and Wildlife Service
SNG	Security National Guaranty
SVRA	State Vehicular Recreation Area
Torrey Pines Plan	Torrey Pines State Reserve Wildlife Management Plan
USBR	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
VAFB	Vandenberg Air Force Base
Willapa NWR FCCP	Willapa National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement
WSP	Western Snowy Plover

EXECUTIVE SUMMARY

1. The purpose of this report is to evaluate the potential economic impacts associated with the designation of critical habitat for the western snowy plover (*Charadrius alexandrinus nivosus*) (hereafter, “plover”). This report was prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service (Service).
2. The Service listed the plover as endangered on March 5, 1993.¹ Critical habitat was originally designated in 1999 and then revised in 2005.^{2,3} The Service published the current proposed rule revising the 2005 critical habitat designation on March 22, 2011.⁴ The 2011 proposed revised critical habitat designation includes 68 units totaling approximately 28,313 acres.⁵
3. This final economic analysis analyzes the proposed revised designation as described in the proposed rule. This analysis does not reflect changes to the proposed critical habitat designation made in the final rule. Consequently, description of the habitat designation in the final rule may differ from maps and figures presented in this analysis.⁶
4. This analysis first describes existing plans and regulations that provide protection for the plover and its habitat. For example, several Habitat Conservation Plans (HCPs) and land management plans cover the plover. These and any other protections afforded to the plover that will continue to be implemented regardless of whether critical habitat is designated are considered “baseline” protections. For a complete definition of baseline protections, please see Section 2.4.1.
5. The discussion of the regulatory baseline provides context for the evaluation of economic impacts expected to result from critical habitat designation, which are the focus of this analysis. These “incremental” economic impacts are those not expected to occur absent the designation of critical habitat. This information is intended to assist the Secretary of

¹ 1993 Final Listing Rule, 58 FR 12864-12874.

² 1999 Final Critical Habitat Rule, 64 FR 68508-68544.

³ 2005 Final Critical Habitat Rule, 70 FR 56970-57119.

⁴ 2011 Proposed Revised Critical Habitat Rule, 76 FR 16046

⁵ Acreage figures in this analysis differ from those in the Proposed Rule due to summing errors in the Proposed Rule. In addition, the analysis provides up-to-date acreages for subunits within Unit CA 46, which have been revised by the Service since publication of the Proposed Rule. Acreages used in this analysis correspond to those published in the Notice of Availability.

⁶ For a detailed discussion of public comments on the draft economic analysis and associated responses, refer to the responses to public comment section of the final rule.

the U.S. Department of the Interior (DOI) in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.⁷

OVERVIEW OF THE PROPOSED REVISED CRITICAL HABITAT

6. The 68 proposed units are located along the coast of Washington (4 units), Oregon (13 units), and California (51 units). They contain several types of habitat, including stretches of coastal beaches and inland brackish or fresh water wetlands, such as river mouths, estuaries, and tidal marshes.⁸ Approximately 47 percent of the proposed area is located on state-owned lands; 33 percent occurs on federally-owned lands; 19 percent intersects private, county, and city lands; and one percent occurs on Tribal lands. The proposed critical habitat is presented by State and landowner in Exhibit ES-1.

EXHIBIT ES-1. LANDOWNERSHIP WITHIN PROPOSED CRITICAL HABITAT BY STATE

STATE	FEDERAL	TRIBAL	STATE	OTHER	TOTAL	PERCENT OF TOTAL
Washington	2,930	336	2,694	305	6,265	22%
Oregon	2,954	0	1,353	911	5,218	18%
California	3,433	0	9,260	4,142	16,830	59%
Total	9,317	336	13,307	5,358	28,313	100%
Percent of Total	33%	1%	47%	19%	100%	

Source: Personal Communication with U.S. Fish and Wildlife Service, Carlsbad Field Office biologist, July 13, 2011; Personal Communication with U.S. Fish and Wildlife Service, Regional Office, August 16, 2011.

Notes:

- Totals may not sum due to rounding.

- Acreage figures in this analysis differ from those in the Proposed Rule due to summing errors in the Proposed Rule. In addition, the analysis provides up-to-date acreages for subunits within Unit CA 46, which have been revised by the Service since publication of the Proposed Rule. Acreages used in this analysis correspond to those published in the Notice of Availability.

7. Review of the proposed rule, consultation history, and existing conservation plans identified the following economic activities as potential threats to the plover and its habitat within the study area (defined as areas proposed for designation). We therefore focus this analysis of potential impacts of plover conservation on these activities.
 - (1) **Recreation.** Human recreational activities disturb foraging and nesting activities, and may attract predators. The use of off-highway vehicles (OHVs) has been documented to crush plover nests and strike plover adults. Beach raking or grooming

⁷ 16 U.S.C. §1533(b)(2).

⁸ 2011 Proposed Critical Habitat Rule, 76 FR 16046-16165.

can remove wrack, reducing food resources and cover, and contributing to beach erosion. Pets (leashed and unleashed) can cause incubating adults to leave the nest, making the nest more susceptible to predation. Fishing can disturb plovers and can attract predators by the presence of fish offal and baiting.⁹

- (2) **Development.** Urban development permanently removes important nesting habitat above the high tide line. Development may also affect beach accretion processes by removing areas in which sand normally accumulates.¹⁰ In addition, water diversions, stabilized dunes and watercourses associated with urban development represent a threat to the plover. Water diversions reduce the transport of sediments which contribute to suitable nesting and foraging substrates. Stabilized dunes and watercourses alter the dynamic process of beach and river systems, thereby reducing the open nature of suitable habitat needed for predator detection.¹¹ Development also represents an indirect threat to the plover by increasing human use of nearby beach areas and attracting predators.¹² Documented plover predators such as domestic cats, corvids, raccoons, skunks, and fox are attracted to trash and pet food associated with development.¹³
- (3) **Mining.** Gravel mining activities along riverbanks eliminates nesting habitat within the area subject to mining, degrades nearby habitat by removing replenishing sand, and disturbs adjacent nesting due to noise and vehicle traffic.¹⁴
- (4) **Military Activities.** Military operations pose a threat to the plover. Note that many military installations that include suitable habitat for the plover have Service-approved Integrated Natural Resources Management Plans (INRMPs) that provide a benefit to the plover and are exempt from critical habitat designation under section 4(a)(3) of the Act. Vandenberg Air Force Base (VAFB) manages lands located within proposed Units CA 32 and 33. At the time of publication of the Proposed Rule, Vandenberg's draft INRMP had not been finalized and therefore the base was not exempt from the proposed critical habitat designation.¹⁵ In addition, 7.8 acres of Naval Support Activity Monterey is located within proposed Unit CA 22.¹⁶

⁹ 2011 Proposed Critical Habitat Rule, 76 FR 16046-16165.

¹⁰ 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

¹¹ Proposed Rule, 76 FR 16052.

¹² 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

¹³ Email Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 17, 2011.

¹⁴ 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

¹⁵ Since this time, VAFB has finalized their INRMP and the Service has indicated that lands managed by VAFB will be exempt from the final critical habitat designation (Personal Communication with U.S. Fish and Wildlife Service, Regional Office, March 26, 2012). Because this economic analysis reflects the proposed critical habitat designation, lands managed by VAFB are analyzed in this report.

¹⁶ Public Comment on the Proposed Rule from the Department of the Navy, FWS-R8-ES-2010-0070-0114, May 19, 2011.

- (5) **Habitat and Species Management.** Nonnative vegetation reduces the visibility plovers need to detect predators, and occupies otherwise suitable habitat.¹⁷ It also creates cover and habitat for potential predators of the plover. The spread of nonnative vegetation can often happen involuntarily; however, it is a threat listed in the Proposed Rule and is commonly addressed during section 7 consultation. Therefore, this analysis considers impacts associated with nonnative vegetation. Although no specific future projects related to nonnative vegetation management are identified, a number of existing baseline regulations call for nonnative vegetation control programs. In addition, several existing dune restoration projects are identified within the proposed critical habitat. Although these efforts generally aim to benefit the species, the Service often consults on such projects.

KEY FINDINGS

8. Baseline protections for the plover address a broad range of habitat threats within a significant portion of the proposed critical habitat area. A total of 21 HCPs and management plans, as well as various Federal and State regulations currently provide protection for the plover within the proposed critical habitat area. Currently, 50 of the 102 subunits are at least partially managed for plover conservation based on the presence of the listed species, as described in Chapter 3 of this analysis.
9. A key factor in the incremental analysis is that for projects with a Federal nexus (e.g., section 404 permits under the Clean Water Act), the Service asserts that their consideration of the potential for destruction or adverse modification during section 7 consultation will differ depending on a number of variables, including project duration (short-term versus long-term) and whether project impacts are temporary or permanent. Thus, the direct incremental impacts of section 7 consultation will vary depending upon a project's nature.
- **Short-term activities.** For short-term activities that can be scheduled for periods when plovers do not use the project site, the Service may analyze effects to critical habitat without analyzing effects to members of the species. Thus, all costs associated with consultation are considered incremental impact of the designation.
 - **Activities having temporary impacts.** For activities having temporary impacts, measures to address impacts to members of the species and critical habitat will likely be the same. Thus, incremental impacts are likely to be limited to the administrative cost of considering the adverse modification standard during consultation.
 - **Long-term activities or activities having permanent impacts.** For long-term activities having permanent impacts, the Service may request additional project modifications to specifically address adverse modification of critical habitat. Costs associated with these project modifications as well as the administrative costs of

¹⁷ 2004 Proposed Critical Habitat Rule, 69 FR 75608-75656.

addressing the adverse modification standard are considered incremental impacts of the designation.

10. Exhibit ES-2 summarizes total present value and annualized incremental impacts of critical habitat designation for the plover. Per unit impacts are summarized in Exhibit ES-3. Quantified present value impacts of critical habitat designation in areas proposed for designation over the 20-year time frame of this analysis (2012 through 2031) are \$266,000 (\$25,100 on an annualized basis), assuming a seven percent discount rate or \$288,000 (\$19,400 on an annualized basis) assuming a three percent discount rate. Impacts to military activities represent the greatest percent of these overall cost estimates – approximately 71 percent. Impacts to development activities represent approximately 19 percent, habitat and species management six percent, and mining four percent of the overall impacts.

EXHIBIT ES-2. TOTAL ESTIMATED INCREMENTAL IMPACTS (2012-2031, \$2011)

IMPACT TYPE	7 PERCENT DISCOUNT RATE	3 PERCENT DISCOUNT RATE
Present Value Impacts	\$266,000	\$288,000
Annualized Impacts	\$25,100	\$19,400

11. The incremental impacts quantified in this analysis are limited to the administrative cost of considering adverse modification during section 7 consultation with the Service as well as the additional effort necessary to include analysis of critical habitat in three future HCPs and one future INRMP. Most of the costs will be incurred by the Service and Federal action agencies, specifically, the U.S. Army Corps of Engineers (the Corps) and the U.S. Department of Defense (DOD). In general, projects with permanent or long-term impacts may require additional project modifications to address adverse modification. However, for the specific projects identified in this analysis, it appears that all proposed modifications would also be requested to reduce impacts to plover during the jeopardy analysis. Thus, no incremental project modification costs are anticipated.
12. The analysis also identifies three activities that may incur indirect incremental impacts: recreation at Oceano Dunes State Vehicular Recreation Area (SVRA) (Unit CA 31); development of the Sterling/McDonald site (Unit CA 22); and development of the Security National Guaranty (SNG) site (Unit CA 22). Incremental indirect impacts resulting from future litigation or increased scrutiny from State agencies may include prohibiting OHV use at Oceano Dunes SVRA and denial of development permits for the Sterling/McDonald and SNG sites. Due to uncertainty surrounding the likelihood and extent of such indirect impacts, the data necessary to quantify these impacts are unavailable.

EXHIBIT ES-3. TOTAL ESTIMATED INCREMENTAL IMPACTS BY SUBUNIT (2012-2031, \$2011)

SUBUNIT NUMBER	UNIT NAME	7 PERCENT DISCOUNT RATE		3 PERCENT DISCOUNT RATE	
		PRESENT VALUE	ANNUALIZED	PRESENT VALUE	ANNUALIZED
WA 1	Copalis Spit	\$0	\$0	\$0	\$0
WA 2	Damon Point	\$0	\$0	\$0	\$0
WA 3A	Midway Beach	\$0	\$0	\$0	\$0
WA 3B	Shoalwater/Graveyard	\$1,760	\$167	\$1,830	\$123
WA 4A	Leadbetter Spit	\$0	\$0	\$0	\$0
WA 4B	Gunpowder Sands Island	\$0	\$0	\$0	\$0
Washington Subtotal		\$1,760	\$167	\$1,830	\$123
OR 1	Columbia River Spit	\$3,530	\$333	\$3,670	\$246
OR 2	Necanicum River Spit	\$0	\$0	\$0	\$0
OR 3	Nehalem River Spit	\$0	\$0	\$0	\$0
OR 4	Bayocean Spit	\$2,080	\$197	\$3,270	\$220
OR 5	Netarts Spit	\$0	\$0	\$0	\$0
OR 6	Sand Lake South	\$0	\$0	\$0	\$0
OR 7	Sutton/Baker Beaches	\$0	\$0	\$0	\$0
OR 8A	Siltcoos Breach	\$0	\$0	\$0	\$0
OR 8B	Siltcoos River Spit	\$0	\$0	\$0	\$0
OR 8C	Dunes Overlook/Tahkenitch Creek Spit	\$0	\$0	\$0	\$0
OR 8D	North Umpqua River Spit	\$0	\$0	\$0	\$0
OR 9	Tenmile Creek Spit	\$0	\$0	\$0	\$0
OR 10	Coos Bay North Spit	\$1,760	\$167	\$1,830	\$123
OR 11	Bandon to New River	\$0	\$0	\$0	\$0
OR 12	Elk River Spit	\$0	\$0	\$0	\$0
OR 13	Euchre Creek	\$0	\$0	\$0	\$0
Oregon Subtotal		\$7,380	\$696	\$8,770	\$589
CA 1	Lake Earl	\$0	\$0	\$0	\$0
CA 2	Gold Bluffs Beach	\$0	\$0	\$0	\$0
CA 3A	Humboldt Lagoons - Stone Lagoon	\$0	\$0	\$0	\$0
CA 3B	Humboldt Lagoons - Big Lagoon	\$0	\$0	\$0	\$0
CA 4A	Clam Beach/Little River	\$0	\$0	\$0	\$0
CA 4B	Mad River	\$0	\$0	\$0	\$0
CA 5A	Humboldt Bay South Spit	\$0	\$0	\$0	\$0
CA 5B	Eel River North Spit/Beach	\$0	\$0	\$0	\$0
CA 5C	Eel River South Spit/Beach	\$0	\$0	\$0	\$0
CA 6	Eel River Gravel Bars	\$10,500	\$995	\$14,900	\$999

SUBUNIT NUMBER	UNIT NAME	7 PERCENT DISCOUNT RATE		3 PERCENT DISCOUNT RATE	
		PRESENT VALUE	ANNUALIZED	PRESENT VALUE	ANNUALIZED
CA 7	MacKerricher Beach	\$0	\$0	\$0	\$0
CA 8	Manchester Beach	\$0	\$0	\$0	\$0
CA 9	Dillon Beach	\$0	\$0	\$0	\$0
CA 10A	Pt Reyes	\$0	\$0	\$0	\$0
CA 10B	Limantour	\$0	\$0	\$0	\$0
CA 11	Napa	\$0	\$0	\$0	\$0
CA 12	Hayward	\$0	\$0	\$0	\$0
CA 13A	Eden Landing	\$0	\$0	\$0	\$0
CA 13B	Eden Landing	\$0	\$0	\$0	\$0
CA 13C	Eden Landing	\$0	\$0	\$0	\$0
CA 14	Ravenswood	\$0	\$0	\$0	\$0
CA 15	Warm Springs	\$0	\$0	\$0	\$0
CA 16	Half Moon Bay	\$0	\$0	\$0	\$0
CA 17	Waddell Creek Beach	\$0	\$0	\$0	\$0
CA 18	Scott Creek Beach	\$0	\$0	\$0	\$0
CA 19	Wilder Creek Beach	\$0	\$0	\$0	\$0
CA 20	Jetty Road to Aptos	\$3,210	\$303	\$3,920	\$264
CA 21	Elkhorn Slough Mudflats	\$0	\$0	\$0	\$0
CA 22	Monterey to Moss Landing	\$17,100	\$1,610	\$19,000	\$1,270
		<i>Potentially significant unquantified indirect costs</i>			
CA 23	Point Sur Beach	\$0	\$0	\$0	\$0
CA 24	San Carpoforo Creek	\$0	\$0	\$0	\$0
CA 25	Arroyo Laguna Creek	\$0	\$0	\$0	\$0
CA 26	San Simeon State Beach	\$0	\$0	\$0	\$0
CA 27	Villa Creek Beach	\$0	\$0	\$0	\$0
CA 28	Toro Creek	\$0	\$0	\$0	\$0
CA 29	Atascadero Beach/Morro Strand SB	\$4,350	\$410	\$5,430	\$365
CA 30	Morro Bay Beach	\$0	\$0	\$0	\$0
CA 31	Pismo Beach/Nipomo Dunes	\$9,580	\$904	\$9,950	\$669
		<i>Potentially significant unquantified indirect costs</i>			
CA 32	Vandenberg North	\$93,400	\$8,820	\$97,000	\$6,520
CA 33	Vandenberg South	\$93,400	\$8,820	\$97,000	\$6,520
CA 34	Devereaux Beach	\$0	\$0	\$0	\$0
CA 35	Santa Barbara Beaches	\$13,600	\$1,280	\$17,400	\$1,170
CA 36	Santa Rosa Island Beaches	\$0	\$0	\$0	\$0
CA 37	San Buenaventura Beach	\$0	\$0	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	7 PERCENT DISCOUNT RATE		3 PERCENT DISCOUNT RATE	
		PRESENT VALUE	ANNUALIZED	PRESENT VALUE	ANNUALIZED
CA 38	Mandalay to Santa Clara River	\$0	\$0	\$0	\$0
CA 39	Ormond Beach	\$7,230	\$683	\$8,310	\$559
CA 43	Zuma Beach	\$0	\$0	\$0	\$0
CA 44	Malibu Beach	\$0	\$0	\$0	\$0
CA 45A	Santa Monica Beach	\$0	\$0	\$0	\$0
CA 45B	Dockweiler North	\$0	\$0	\$0	\$0
CA 45C	Dockweiler South	\$0	\$0	\$0	\$0
CA 45D	Hermosa State Beach	\$0	\$0	\$0	\$0
CA 46A	Bolsa Chica State Beach	\$0	\$0	\$0	\$0
CA 46B	Bolsa Chica Reserve	\$0	\$0	\$0	\$0
CA 46C	Bolsa Chica Reserve	\$0	\$0	\$0	\$0
CA 46D	Bolsa Chica Reserve	\$0	\$0	\$0	\$0
CA 46E	Bolsa Chica Reserve	\$0	\$0	\$0	\$0
CA 46F	Bolsa Chica Reserve	\$0	\$0	\$0	\$0
CA 47	Santa Ana River Mouth	\$0	\$0	\$0	\$0
CA 48	Balboa Beach	\$0	\$0	\$0	\$0
CA 50A	Batiquitos Lagoon	\$0	\$0	\$0	\$0
CA 50B	Batiquitos Lagoon	\$0	\$0	\$0	\$0
CA 50C	Batiquitos Lagoon	\$0	\$0	\$0	\$0
CA 51A	San Elijo Lagoon Ecological Reserve	\$0	\$0	\$0	\$0
CA 51B	San Elijo Lagoon Ecological Reserve	\$0	\$0	\$0	\$0
CA 51C	San Elijo Lagoon Ecological Reserve	\$0	\$0	\$0	\$0
CA 52A	San Dieguito Lagoon	\$0	\$0	\$0	\$0
CA 52B	San Dieguito Lagoon	\$0	\$0	\$0	\$0
CA 52C	San Dieguito Lagoon	\$0	\$0	\$0	\$0
CA 53	Los Penasquitos Lagoon	\$0	\$0	\$0	\$0
CA 54A	Fiesta Island	\$0	\$0	\$0	\$0
CA 54B	Mariner's Point	\$0	\$0	\$0	\$0
CA 54C	South Mission Beach	\$0	\$0	\$0	\$0
CA 54D	San Diego River Channel	\$0	\$0	\$0	\$0
CA 55B	Coronado Beach	\$4,670	\$441	\$4,850	\$326
CA 55E	Sweetwater Marsh National Wildlife Refuge and D Street Fill	\$0	\$0	\$0	\$0
CA 55F	Silver Strand State Beach	\$0	\$0	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	7 PERCENT DISCOUNT RATE		3 PERCENT DISCOUNT RATE	
		PRESENT VALUE	ANNUALIZED	PRESENT VALUE	ANNUALIZED
CA 55G	Chula Vista Wildlife Reserve	\$0	\$0	\$0	\$0
CA 55I	San Diego National Wildlife Refuge, South Bay Unit	\$0	\$0	\$0	\$0
CA 55J	Tijuana Estuary and Beach	\$0	\$0	\$0	\$0
California Subtotal		\$257,000	\$24,300	\$278,000	\$18,700
GRAND TOTAL		\$266,000	\$25,100	\$288,000	\$19,400
Note: Estimates are rounded to three significant digits and may not sum due to rounding.					

13. This analysis also considers the potential for the designation to have a significant economic impact on a substantial number of small businesses as required by the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA). As Federal agencies, the Service, the Corps, and DOD are not considered to be small entities. Of the approximately 75 anticipated consultations over the 20-year period of analysis, only eight will involve third parties. These entities include the State of California (CDPR), Santa Barbara County, Monterey County, and Santa Cruz County, none of these which meet the RFA's definition of a small governmental jurisdiction.
14. Indirect effects to small entities may result if critical habitat serves as a lever for future litigation aimed at reducing or eliminating OHV-recreation at Oceano Dunes SVRA or influences the review of permits for the two development projects in Sand City. The potential impacts associated with the SVRA and the Sand City developments are highly uncertain, and the data required to quantify such impacts are not readily available. Furthermore, these impacts are unlikely to be considered direct effects of the critical habitat rule under the RFA based on recent case law.
15. Pursuant to Executive Order No. 13211, "Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use," Federal agencies must prepare and submit a "Statement of Energy Effects" for all "significant energy actions." No changes in energy use, production, or distribution are anticipated to result from the designation of critical habitat for the plover. Direct incremental costs of the designation are limited to the administrative costs of conducting section 7 consultations. No energy entities are involved in forecast consultations.
- KEY ASSUMPTIONS**
16. The economic costs presented in this report are based on a number of assumptions that may affect the impact estimates. Exhibit ES-4 presents the key assumptions and the

extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation.

EXHIBIT ES-4. KEY ASSUMPTIONS ASSOCIATED WITH THE ESTIMATED INCREMENTAL IMPACTS OF CRITICAL HABITAT DESIGNATION FOR THE PLOVER

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
<p>We note that indirect impacts to Oceano Dunes SVRA are possible, but do not quantify the impacts due to considerable uncertainty surrounding the probability that CCC will alter their current permit or Oceano Dunes will face legal action due to the designation of critical habitat.</p>	<p>May lead to an underestimate of incremental impacts</p>	<p>Potentially major. Reducing or eliminating the area available for riding will result in welfare losses and regional economic impacts. Beach users will incur social welfare losses due to forgone trips or a diminished beach experience (for example, due to crowding). Regional economic impacts arise due to reductions in beach recreation-related expenditures caused by fewer recreation-related trips.</p>
<p>We note that indirect impacts to the Sterling/McDonald and SNG development projects are possible, but do not quantify the impacts due to considerable uncertainty surrounding the probability that the development permits will be denied or the developments will face legal action due to the designation of critical habitat.</p>	<p>May lead to an underestimate of incremental impacts</p>	<p>Potentially major. If these projects are ultimately prohibited due to permit denial or a lawsuit stemming from the designation of critical habitat, the indirect economic impacts will be equal to the loss in the land’s option value for development plus any resources that have already been sunk into the permitting process. When construction is complete, the Sterling/McDonald project is anticipated to be valued at \$106 million and the SNG project is anticipated to be valued at \$350 to 430 million. The lost option value of development is roughly equal to the current market value of the undeveloped parcels, assuming the sites have no other potential uses. The value of the undeveloped parcels is less than values provided above for the fully built-out projects. In addition, if these developments are prohibited regional economic impacts could arise due to reductions in tourism- and construction-related expenditures.</p>
<p>We note that indirect impacts may result if Corps dredging and beach nourishment projects are severely delayed due to consultation. These impacts are not quantified because it seems unlikely that major delays will occur.</p>	<p>May lead to an underestimate of incremental impacts</p>	<p>Probably minor. Many of the Corps dredging projects are necessary to maintain navigable channels. Beach nourishment projects maintain beaches that are enjoyed by recreators and attract tourists. If beach nourishment projects are delayed long enough, the Corps may opt to dispose of dredged materials inland instead of on the beach.</p>
<p>We do not identify any project modifications that will be requested by the Service to avoid adverse modification that would not be requested due to jeopardy.</p>	<p>May lead to an underestimate of incremental impacts</p>	<p>Probably minor. In general, projects with permanent or long-term impacts may require additional project modifications to address adverse modification. However, for the specific projects identified in this analysis, it appears that all proposed modifications would also be requested to reduce impacts to plover during the jeopardy analysis. To the extent that this is not true, some additional incremental impacts may occur.</p>

ORGANIZATION OF THIS REPORT

17. This report is organized into five chapters. Chapter 1 provides background on the proposed critical habitat rule. Chapter 2 discusses the framework employed in the analysis. Chapter 3 describes the baseline protections currently afforded the plover and its habitat, while Chapter 4 discusses the potential incremental impacts of critical habitat designation for the plover. Chapter 5 provides a brief discussion of potential benefits of the designation. Finally, five appendices highlight the distributional impacts, summarize results at a three percent discount rate, provide undiscounted impacts by economic activity, provide information from the Service related to the potential for changes in conservation following critical habitat designation, and detail the effort involved in collecting information for this analysis.

CHAPTER 1 | INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

18. This chapter provides an overview of the proposed critical habitat for the Pacific Coast population of the western snowy plover (*Charadrius alexandrinus nivosus*) (hereafter, “plover”). It includes a summary of past Federal actions that relate to the current proposal, a description of the area proposed for designation, and a discussion of threats to the plover and its proposed critical habitat. This section also includes a discussion of the differences between this economic analysis of the likely impacts of critical habitat designation (“2011 Economic Analysis”) and the previous economic analysis, which was developed concurrent with the 2005 proposed critical habitat rule (“2005 Economic Analysis”). The information contained in this chapter provides context for the analysis. All official definitions and boundaries should be taken from the Proposed Rule.¹⁸
19. This final economic analysis analyzes the proposed revised designation as described in the proposed rule. This analysis does not reflect changes to the proposed critical habitat designation made in the final rule. Consequently, description of the habitat designation in the final rule may differ from maps and figures presented in this analysis.¹⁹

1.1.1 PREVIOUS FEDERAL ACTIONS

20. Below, we summarize key milestone in the regulatory history for the plover.
- **Listing:** The U.S. Fish and Wildlife Service (Service) published a rule listing the plover as threatened on March 5, 1993.²⁰
 - **Original critical habitat designation:** The Service published a final rule designating 12,145 acres of critical habitat for the plover on December 7, 1999.²¹
 - **Critical habitat designation remanded and partially vacated:** The United States District Court for the District of Oregon remanded and partially vacated critical habitat on July 2, 2003 in response to a lawsuit brought by the Coos County Board of County Commissioners.²²

¹⁸ 2011 Proposed Critical Habitat Rule, 76 FR 16046-16165.

¹⁹ For a detailed discussion of public comments on the draft economic analysis and associated responses, refer to the responses to public comment section of the final rule.

²⁰ 1993 Final Listing Rule, 58 FR 12864-12874.

²¹ 1999 Final Critical Habitat Rule, 64 FR 68508-68544.

²² Coos County Board of County Commissioners et. al. v. Department of the Interior et al., CV 02-6128, M. Hogan.

- **Proposed rule revising critical habitat:** On December 17, 2004, the Service published a rule proposing to revise the designation of critical habitat to include approximately 17,299 acres.²³
- **Final revised critical habitat:** The Service published a final rule on September 29, 2005 revising critical habitat to include 12,145 acres.²⁴
- **Proposed rule revising critical habitat:** The Service published the current proposed rule revising the critical habitat designation on March 22, 2011, as a result of legal action initiated by the Center for Biological Diversity.²⁵

1.1.2 PROPOSED REVISED CRITICAL HABITAT DESIGNATION

21. The 2011 proposed revised critical habitat designation includes 68 units totaling approximately 28,313 acres. This area is defined as the “study area” for this analysis. These units are located along the coast of Washington (4 units), Oregon (13 units), and California (51 units). They contain several types of habitat, including stretches of coastal beaches and inland brackish or fresh water wetlands, such as river mouths, estuaries, and tidal marshes.²⁶ Exhibit 1-1 provides a map of the proposed units in Washington and Oregon and Exhibit 1-2 provides a map of the proposed units in California. Exhibit 1-3 provides information on land ownership within the proposed revised critical habitat. This exhibit shows that, overall, the majority of the habitat is federally- and state-owned (80 percent). The remaining acres are owned by private entities, counties, and Tribes.

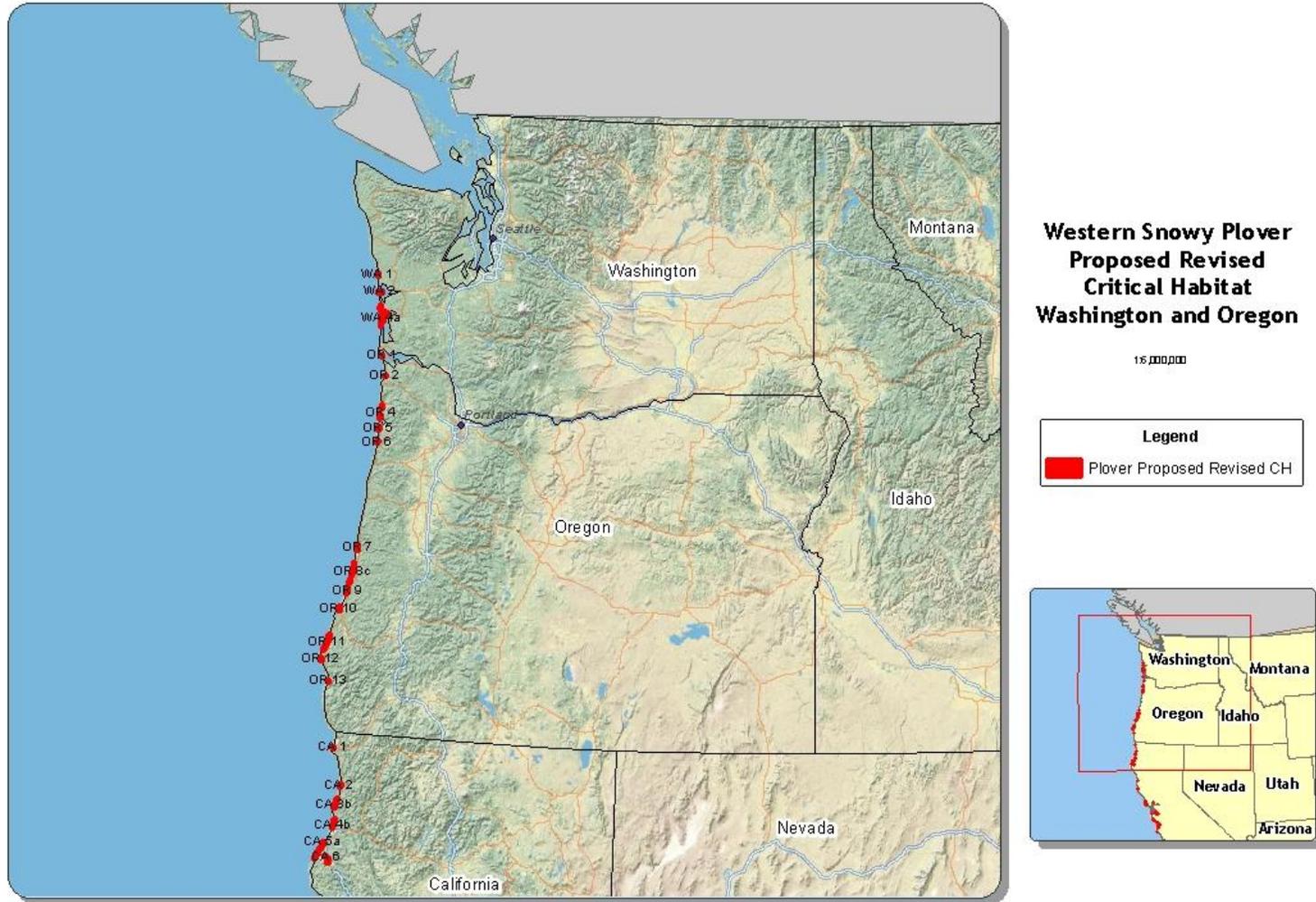
²³ 2004 Proposed Critical Habitat Rule, 69 FR 75608-75656.

²⁴ 2005 Final Critical Habitat Rule, 70 FR 56970-57119.

²⁵ Center for Biological Diversity v. Kempthorne, et al., No. C-08-4594 PJH.

²⁶ 2011 Proposed Critical Habitat Rule, 76 FR 16046-16165.

EXHIBIT 1-1. OVERVIEW OF PLOVER PROPOSED REVISED CRITICAL HABITAT: WASHINGTON AND OREGON



Source:
 1. US Fish and Wildlife Service, Field Office
 2. Environmental Systems Research Institute, Inc. (ESRI), Redlands, California, USA



EXHIBIT 1-2. OVERVIEW OF PLOVER PROPOSED REVISED CRITICAL HABITAT: CALIFORNIA

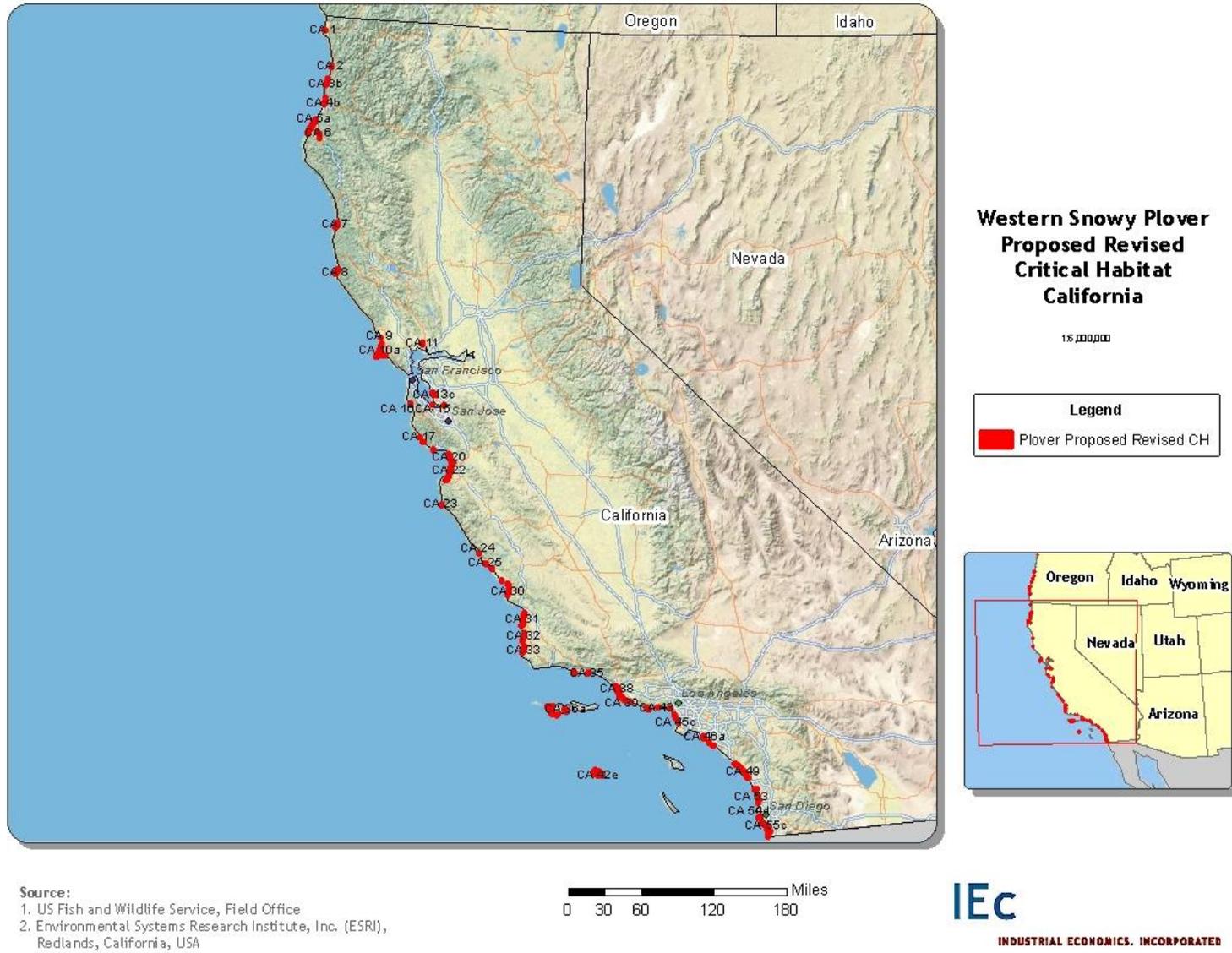


EXHIBIT 1-3. LANDOWNERSHIP WITHIN PROPOSED CRITICAL HABITAT BY SUBUNIT

SUBUNIT NUMBER	UNIT NAME	2011 PCH (ACRES) ¹				
		TOTAL	FEDERAL	TRIBAL	STATE	OTHER
WA 1	Copalis Spit	407	0	0	407	0
WA 2	Damon Point	673	0	0	648	25
WA 3A	Midway Beach	697	0	0	697	0
WA 3B	Shoalwater/Graveyard	1,121	0	336	505	280
WA 4A	Leadbetter Spit	2,463	2,026	0	437	0
WA 4B	Gunpowder Sands Island	904	904	0	0	0
Washington Subtotal²		6,265	2,930	336	2,694	305
OR 1	Columbia River Spit	169	169	0	0	0
OR 2	Necanicum River Spit	211	0	0	161	50
OR 3	Nehalem River Spit	299	0	0	299	0
OR 4	Bayocean Spit	367	279	0	0	88
OR 5	Netarts Spit	541	0	0	541	0
OR 6	Sand Lake South	200	0	0	0	200
OR 7	Sutton/Baker Beaches	372	372	0	0	0
OR 8A	Siltcoos Breach	15	15	0	0	0
OR 8B	Siltcoos River Spit	241	241	0	0	0
OR 8C	Dunes Overlook/Tahkenitch Creek Spit	716	716	0	0	0
OR 8D	North Umpqua River Spit	236	151	0	85	0
OR 9	Tenmile Creek Spit	244	244	0	0	0
OR 10	Coos Bay North Spit	308	308	0	0	0
OR 11	Bandon to New River	1,016	459	0	267	290
OR 12	Elk River Spit	167	0	0	0	167
OR 13	Euchre Creek	116	0	0	0	116
Oregon Subtotal²		5,219	2,955	0	1,353	911
CA 1	Lake Earl	74	0	0	22	52
CA 2	Gold Bluffs Beach	144	0	0	144	0
CA 3A	Humboldt Lagoons - Stone Lagoon	52	0	0	52	0
CA 3B	Humboldt Lagoons - Big Lagoon	212	0	0	174	38
CA 4A	Clam Beach/Little River	194	0	0	79	115
CA 4B	Mad River	456	0	0	152	304
CA 5A	Humboldt Bay South Spit	419	20	0	383	16
CA 5B	Eel River North Spit/Beach	259	0	0	252	7
CA 5C	Eel River South Spit/Beach	339	0	0	317	22
CA 6	Eel River Gravel Bars	1,139	0	0	82	1,057

SUBUNIT NUMBER	UNIT NAME	2011 PCH (ACRES) ¹				
		TOTAL	FEDERAL	TRIBAL	STATE	OTHER
CA 7	MacKerricher Beach	1,176	0	0	1,102	74
CA 8	Manchester Beach	482	68	0	402	12
CA 9	Dillon Beach	39	0	0	0	39
CA 10A	Pt Reyes	460	460	0	0	0
CA 10B	Limantour	156	156	0	0	0
CA 11	Napa	618	0	0	618	0
CA 12	Hayward	1	0	0	0	1
CA 13A	Eden Landing	237	0	0	228	8
CA 13B	Eden Landing	171	0	0	171	0
CA 13C	Eden Landing	609	0	0	602	7
CA 14	Ravenswood	89	0	0	0	89
CA 15	Warm Springs	168	168	0	0	0
CA 16	Half Moon Bay	36	0	0	36	0
CA 17	Waddell Creek Beach	25	0	0	19	7
CA 18	Scott Creek Beach	23	0	0	15	8
CA 19	Wilder Creek Beach	15	0	0	15	0
CA 20	Jetty Road to Aptos	399	0	0	369	30
CA 21	Elkhorn Slough Mudflats	281	0	0	281	0
CA 22	Monterey to Moss Landing	967	423	0	285	260
CA 23	Point Sur Beach	72	0	0	38	34
CA 24	San Carpoforo Creek	24	4	0	18	3
CA 25	Arroyo Laguna Creek	28	0	0	18	10
CA 26	San Simeon State Beach	24	0	0	24	0
CA 27	Villa Creek Beach	20	0	0	20	0
CA 28	Toro Creek	34	0	0	11	23
CA 29	Atascadero Beach/Morro Strand SB	213	0	0	65	149
CA 30	Morro Bay Beach	1,076	0	0	948	129
CA 31	Pismo Beach/Nipomo Dunes	1,652	242	0	552	858
CA 32	Vandenberg North	711	711	0	0	0
CA 33	Vandenberg South	423	373	0	0	50
CA 34	Devereaux Beach	52	0	0	43	9
CA 35	Santa Barbara Beaches	65	0	0	30	35
CA 36	Santa Rosa Island Beaches	586	586	0	0	0
CA 37	San Buenaventura Beach	70	0	0	70	0
CA 38	Mandalay to Santa Clara River	672	0	0	459	213
CA 39	Ormond Beach	320	0	0	159	161

SUBUNIT NUMBER	UNIT NAME	2011 PCH (ACRES) ¹				
		TOTAL	FEDERAL	TRIBAL	STATE	OTHER
CA 43	Zuma Beach	73	0	0	1	72
CA 44	Malibu Beach	13	0	0	13	0
CA 45A	Santa Monica Beach	48	0	0	29	19
CA 45B	Dockweiler North	34	0	0	34	0
CA 45C	Dockweiler South	65	0	0	54	11
CA 45D	Hermosa State Beach	27	0	0	8	19
CA 46A ¹	Bolsa Chica State Beach	93	0	0	93	0
CA 46B ¹	Bolsa Chica Reserve	2	0	0	2	0
CA 46C ¹	Bolsa Chica Reserve	222	0	0	222	0
CA 46D ¹	Bolsa Chica Reserve	2	0	0	2	0
CA 46E ¹	Bolsa Chica Reserve	247	0	0	247	0
CA 46F ¹	Bolsa Chica Reserve	3	0	0	3	0
CA 47	Santa Ana River Mouth	19	0	0	18	1
CA 48	Balboa Beach	25	0	0	0	25
CA 50A	Batiquitos Lagoon	24	0	0	18	6
CA 50B	Batiquitos Lagoon	23	0	0	15	8
CA 50C	Batiquitos Lagoon	19	0	0	0	19
CA 51A	San Elijo Lagoon Ecological Reserve	3	0	0	3	0
CA 51B	San Elijo Lagoon Ecological Reserve	5	0	0	1	4
CA 51C	San Elijo Lagoon Ecological Reserve	7	0	0	7	0
CA 52A	San Dieguito Lagoon	4	0	0	0	4
CA 52B	San Dieguito Lagoon	3	0	0	0	3
CA 52C	San Dieguito Lagoon	4	0	0	4	0
CA 53	Los Penasquitos Lagoon	32	0	0	32	1
CA 54A	Fiesta Island	2	0	0	1	1
CA 54B	Mariner's Point	7	0	0	1	6
CA 54C	South Mission Beach	38	0	0	8	30
CA 54D	San Diego River Channel	51	0	0	38	13
CA 55B	Coronado Beach	74	0	0	74	0
CA 55E	Sweetwater Marsh National Wildlife Refuge and D Street Fill	132	77	0	1	54
CA 55F	Silver Strand State Beach	82	74	0	8	0
CA 55G	Chula Vista Wildlife Reserve	10	0	0	10	0
CA 55I	San Diego National Wildlife Refuge, South Bay Unit	5	0	0	0	5
CA 55J	Tijuana Estuary and Beach	150	71	0	58	21

SUBUNIT NUMBER	UNIT NAME	2011 PCH (ACRES) ¹				
		TOTAL	FEDERAL	TRIBAL	STATE	OTHER
California Subtotal ²		16,830	3,433	0	9,260	4,142
TOTAL ACRES ²		28,313	9,317	336	13,307	5,358
TOTAL PERCENT ²		100%	33%	1%	47%	19%
<p>Source: Personal Communication with U.S. Fish and Wildlife Service, Carlsbad Field Office biologist, July 13, 2011; Personal Communication with U.S. Fish and Wildlife Service, Regional Office, August 16, 2011.</p> <p>Notes:</p> <p>1. Acreage figures in this analysis differ from those in the Proposed Rule due to summing errors in the Proposed Rule. In addition, the analysis provides up-to-date acreages for subunits within Unit CA 46, which have been revised by the Service since publication of the Proposed Rule. Acreages used in this analysis correspond to those published in the Notice of Availability.</p> <p>2. Totals may not sum due to rounding.</p>						

1.2 ECONOMIC ACTIVITIES CONSIDERED IN THIS ANALYSIS

22. Review of the proposed rule, consultation history, and existing conservation plans identified the following economic activities as potential threats to the plover and its habitat within the study area.

- (1) **Recreation.** Human recreational activities disturb foraging and nesting activities, and may attract predators. The use of off-highway vehicles (OHVs) has been documented to crush plover nests and strike plover adults. Beach raking or grooming can remove wrack, reducing food resources and cover, and contributing to beach erosion. Pets (leashed and unleashed) can cause incubating adults to leave the nest and establish trails in the sand that can lead predators to the nest. Fishing can disturb plovers and can attract predators by the presence of fish offal and baiting.²⁷
- (2) **Development.** Urban development permanently removes important nesting habitat above the high tide line. Development may also affect beach accretion processes by removing areas in which sand normally accumulates.²⁸ In addition, water diversions, stabilized dunes and watercourses associated with urban development represent a threat to the plover. Water diversions reduce the transport of sediments which contribute to suitable nesting and foraging substrates. Stabilized dunes and watercourses alter the dynamic process of beach and river systems, thereby reducing the open nature of suitable habitat needed for predator detection.²⁹ Development also represents an indirect threat to the plover by increasing human use of nearby beach areas and attracting predators.³⁰ Documented plover predators such as domestic cats,

²⁷ 2011 Proposed Critical Habitat Rule, 76 FR 16046-16165.

²⁸ 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

²⁹ Proposed Rule, 76 FR 16052.

³⁰ 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

corvids, raccoons, skunks, and fox are attracted to trash and pet food associated with development.³¹

- (3) **Mining.** Gravel mining activities along riverbanks eliminates nesting habitat within the area subject to mining, degrades nearby habitat by removing replenishing sand, and disturbs adjacent nesting due to noise and vehicle traffic.³²
- (4) **Military Activities.** Military operations pose a threat to the plover. Note that many military installations in the area have Service-approved Integrated Natural Resources Management Plans (INRMPs) that provide a benefit to the plover and are exempt from critical habitat designation under section 4(a)(3) of the Act. Vandenberg Air Force Base (VAFB) manages lands located within proposed Units CA 32 and 33. At the time of publication of the Proposed Rule, Vandenberg's draft INRMP had not been finalized and therefore the base was not exempt from the proposed critical habitat designation.³³ In addition, 7.8 acres of Naval Support Activity Monterey is located within proposed Unit CA 22 and is not exempt.³⁴
- (5) **Habitat and Species Management.** Nonnative vegetation reduces the visibility plovers need to detect predators, and occupies otherwise suitable habitat.³⁵ The spread of nonnative vegetation can often happen involuntarily; however, it is a threat listed in the Proposed Rule and is commonly addressed during section 7 consultation. Therefore, this analysis considers impacts associated with nonnative vegetation. Although no specific future projects related to nonnative vegetation management are identified, a number of existing baseline regulations call for nonnative vegetation control programs. In addition, several existing dune restoration projects are identified within the proposed critical habitat. Although these efforts generally aim to benefit the species, the Service often consults on such projects.

1.3 DIFFERENCES BETWEEN THE 2005 ECONOMIC ANALYSIS AND THIS 2011 ECONOMIC ANALYSIS

23. The 2011 proposed rule revises the boundaries of several units and expands the total acreage of the 2004 proposed critical habitat by 11,014 acres (nearly double the current amount) to 28,313 acres.³⁶ In particular, many units are expanded eastward, or inland, to account for the likely disappearance of shoreline habitat due to future sea level rise

³¹ Email Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 17, 2011.

³² 12-Month Finding on a Petition to Delist the Pacific Coast Population of the Western Snowy Plover, 71 FR 20618.

³³ Since this time, VAFB has finalized their INRMP and the Service has indicated that lands managed by VAFB will be exempt from the final critical habitat designation (Personal Communication with U.S. Fish and Wildlife Service, Regional Office, March 26, 2012). Because this economic analysis reflects the proposed critical habitat designation, lands managed by VAFB are analyzed in this report.

³⁴ Public Comment on the Proposed Rule from the Department of the Navy, FWS-R8-ES-2010-0070-0114, May 19, 2011.

³⁵ 2004 Proposed Critical Habitat Rule, 69 FR 75608-75656.

³⁶ *Ibid.*

associated with climate change. Additionally, the 2005 Economic Analysis and this 2011 Economic Analysis differ in terms of the framework applied to estimate impacts. The 2005 Economic Analysis quantified impacts of all plover conservation in the areas proposed as critical habitat, including conservation efforts undertaken due to baseline regulations or conservation plans (e.g., the Federal listing of the plover, existing HCPs). This 2011 Economic Analysis, however, only quantifies impacts resulting incrementally from critical habitat designation. The difference in analytic framework is described further in Chapter 2.

1.4 ORGANIZATION OF THE REPORT

24. The remainder of this report proceeds through four additional chapters. Chapter 2 discusses the framework employed in the analysis. Chapters 3 and 4 describe the baseline protections currently afforded the plover and its habitat, and the incremental impacts of critical habitat designation for the plover, respectively. Chapter 5 discusses potential benefits of critical habitat designation. In addition, the report includes five appendices: Appendix A, which considers potential impacts on small entities and the energy industry; Appendix B, which provides information on the sensitivity of the economic impact estimates to alternative discount rates; Appendix C, which provides undiscounted impacts by economic activity; Appendix D, which provides the Service's memorandum to IEC describing the likely incremental effects of critical habitat in the context of future section 7 consultations; and Appendix E, which provides a detailed description of the effort to collect information for this analysis.

- **Chapter 2** – Framework for the Analysis
- **Chapter 3** – Baseline Conservation for the Plover within Proposed Critical Habitat
- **Chapter 4** – Incremental Impacts of Critical Habitat Designation for the Plover
- **Chapter 5** – Potential Benefits of Critical Habitat Designation
- **Appendix A** – Small Business and Energy Impacts Analyses
- **Appendix B** – Sensitivity of Results to Discount Rate Assumption
- **Appendix C** – Undiscounted Impacts by Economic Activity
- **Appendix D** – Incremental Effects Memorandum
- **Appendix E** – Detailed Summary of Data Collection Effort

CHAPTER 2 | FRAMEWORK FOR THE ANALYSIS

25. The purpose of this report is to estimate the economic impact of actions taken to protect the plover and its habitat. This analysis examines the impacts of restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the proposed critical habitat area. This analysis employs "without critical habitat" and "with critical habitat" scenarios. The "without critical habitat" scenario represents the baseline for the analysis, considering protections afforded the plover absent critical habitat designation; for example, under the Federal listing and other Federal, State, and local regulations. The "with critical habitat" scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the plover. This document uses the term "conservation efforts" to describe a variety of measures that may be suggested or required by the Service to address impacts to critical habitat during informal or formal consultations under section 7 of the Act.
26. According to section 4(b)(2) of the Endangered Species Act (ESA), the Service must consider the economic impacts, impacts to national security, and other relevant impacts of designating any particular area as critical habitat. An area may be excluded from designation as critical habitat if the benefits of exclusion (i.e., the impacts that would be avoided if an area were excluded from the designation) outweigh the benefits of designation so long as exclusion of the area will not result in extinction of the species. **The purpose of the economic analysis is to provide information to assist the Secretary of the U.S. Department of the Interior (DOI) in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation.**³⁷ In addition, this information allows the Service to address the requirements of Executive Orders 12866 and 13211, and the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA).³⁸
27. This chapter describes the framework for this analysis. The chapter first discusses the differences in the analytic framework between the 2005 and 2011 Economic Analyses. We then provide background on the case law that led to the selection of the framework

³⁷ 16 U.S.C. §1533(b)(2).

³⁸ Executive Order 12866, Regulatory Planning and Review, September 30, 1993; Executive Order 13563, Improving Regulation and Regulatory Review, January 18, 2011; Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001; 5. U.S.C. §5601 *et seq*; and Pub Law No. 104-121.

applied in this report. Next, the chapter describes in economic terms the general categories of economic effects that are the focus of the impact analysis, including a discussion of both efficiency and distributional effects. This chapter then defines the analytic framework used to measure these impacts in the context of critical habitat regulation and the consideration of benefits. It concludes with a description of the information sources relied upon in the analysis and notes on the presentation of the results.

2.1 DIFFERENCES BETWEEN THE 2005 AND 2011 ECONOMIC ANALYSES

28. This analysis (2011 Economic Analysis) applies a fundamentally different analytical approach from that applied in the 2005 Economic Analysis.³⁹ Exhibit 2-1 summarizes how the 2011 Economic Analysis reflects new framework and policy decisions that the Service has adopted since the 2005 Economic Analysis.
29. The 2011 Economic Analysis considers and estimates the impacts of the rule as currently proposed and as if the existing 2005 critical habitat designation does not exist. In other words, this analysis considers and estimates the impacts associated with designating areas as critical habitat versus not designating these areas. This analysis is intended to assist the Secretary of the DOI in determining whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation. These particular areas include those already designated as critical habitat under the 2005 designation and subject to re-examination by the Secretary (i.e., areas currently designated as critical habitat could cease to receive critical habitat protection in the future). As a result, costs incurred as a result of the 2005 designation are not separately documented in this analysis.

³⁹ Industrial Economics, Inc., "Economic Analysis of Critical Habitat Designation for the Western Snowy Plover," prepared for the U.S. Fish and Wildlife Service, July 20, 2005.

EXHIBIT 2-1. DIFFERENCES BETWEEN THE 2005 AND 2011 ECONOMIC ANALYSES

CHANGE IN ANALYTICAL APPROACH

- The 2011 Economic Analysis distinguishes the *incremental* costs of designation from baseline costs whereas the 2005 Economic Analysis evaluated all plover conservation costs collectively. That is, the impacts estimated in the 2005 Economic Analysis captured costs of plover conservation regardless of whether they resulted specifically from critical habitat designation or from other Federal, State, or local regulations. This 2011 Economic Analysis instead characterizes all potential future plover conservation as either baseline (i.e., expected to occur even without the designation of critical habitat) or incremental (i.e., expected to occur only if critical habitat is designated). This analysis qualitatively discusses baseline plover conservation. The quantitative analysis focuses on incremental impacts of the plover. The Service provided guidance on distinguishing the incremental costs of the designation, as described later in this chapter.
- The 2011 Economic Analysis reflects a change in geographic scope. The revised proposed critical habitat designation is larger than that proposed in 2004 (28,261 acres are currently proposed versus 17,299 acres proposed in 2004). The increase in acreage is due to the addition of units as well as the eastward expansion of existing units in anticipation of climate change-related sea level rise.
- The 2005 Economic Analysis considered both pre-designation (from the listing of the species through 2004) and post-designation (2005 through 2025) impacts to activities occurring within the study area. This 2011 Economic Analysis considers only post-designation activities that are “reasonably foreseeable” over a 20-year time horizon, beginning in 2012 and ending in 2031.

2.2 BACKGROUND

30. This analysis examines the impacts of restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the proposed critical habitat area. The U.S. Office of Management and Budget’s (OMB) guidelines for conducting economic analysis of regulations direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the “best assessment of the way the world would look absent the proposed action.”⁴⁰ In other words, the baseline includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed regulation. Significant debate has occurred regarding whether assessing the impacts of the Service’s proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

⁴⁰ OMB, “Circular A-4,” September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

31. In 2001, the U.S. Tenth Circuit Court of Appeals instructed the Service to conduct a full analysis of all of the economic impacts of proposed critical habitat, regardless of whether those impacts are attributable co-extensively to other causes.⁴¹ Specifically, the court stated,

“The statutory language is plain in requiring some kind of consideration of economic impact in the CHD [critical habitat designation] phase. Although 50 C.F.R. 402.02 is not at issue here, the regulation’s definition of the jeopardy standard as fully encompassing the adverse modification standard renders any purported economic analysis done utilizing the baseline approach virtually meaningless. We are compelled by the canons of statutory interpretation to give some effect to the congressional directive that economic impacts be considered at the time of critical habitat designation. . . . Because economic analysis done using the FWS’s [Fish and Wildlife Service’s] baseline model is rendered essentially without meaning by 50 C.F.R. § 402.02, we conclude Congress intended that the FWS conduct a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable co-extensively to other causes. Thus, we hold the baseline approach to economic analysis is not in accord with the language or intent of the ESA [Endangered Species Act].”⁴²

32. Since that decision, however, courts in other cases have held that an incremental analysis of impacts stemming solely from the critical habitat rulemaking is proper.⁴³ For example, in the March 2006 ruling that the August 2004 critical habitat rule for the Peirson's milk-vetch was arbitrary and capricious, the United States District Court for the Northern District of California stated,

“The Court is not persuaded by the reasoning of *New Mexico Cattle Growers*, and instead agrees with the reasoning and holding of *Cape Hatteras Access Preservation Alliance v. U.S. Dep’t of the Interior*, 344 F. Supp 2d 108 (D.D.C. 2004). That case also involved a challenge to the Service’s baseline approach and the court held that the baseline approach was both consistent with the language and purpose of the ESA and that it was a reasonable method for assessing the actual costs of a particular critical habitat designation *Id* at 130. ‘To find the true cost of a

⁴¹ *New Mexico Cattle Growers Assn v. United States Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001).

⁴² *Ibid.*

⁴³ In explanation of their differing conclusion, later decisions note that in *New Mexico Cattle Growers*, the U.S. Tenth Circuit Court of Appeals relied on a Service regulation that defined “destruction and adverse modification” in the context of section 7 consultation as effectively identical to the standard for “jeopardy.” Courts had since found that this definition of “adverse modification” was too narrow. For more details, see the discussion of *Gifford Pinchot Task Force v. United States Fish and Wildlife Service* provided later in this section.

designation, the world with the designation must be compared to the world without it.”⁴⁴

33. More recently, in 2010, the U.S. Ninth Circuit Court of Appeals came to similar conclusions during its reviews of critical habitat designations for the Mexican spotted owl and 15 vernal pool species.⁴⁵ Plaintiffs in both cases requested review by the Supreme Court, which declined to hear the cases in 2011.
34. In order to address the divergent opinions of the courts and provide the most complete information to decision-makers, this economic analysis will employ “without critical habitat” and “with critical habitat” scenarios:
- The "**without critical habitat**" scenario represents the **baseline** for the analysis, considering protections already accorded the plover. The baseline for this analysis is the state of regulation, absent designation of critical habitat, that provides protection to the species under the Act, as well as under other Federal, State and local laws and conservation plans. The baseline includes sections 7, 9, and 10 of the Act to the extent that they are expected to apply absent the designation of critical habitat for the species. The analysis will qualitatively describe how baseline conservation for the plover is currently implemented across the proposed designation in order to provide context for the incremental analysis (Chapter 3).
 - The "**with critical habitat**" scenario describes and monetizes the **incremental** impacts due specifically to the designation of critical habitat for the species. The incremental plover conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat. This report focuses on the incremental analysis (Chapter 4).
35. Incremental effects of critical habitat designation are determined using the Service's December 9, 2004 interim guidance on “Application of the ‘Destruction or Adverse Modification’ Standard Under Section 7(a)(2) of the Endangered Species Act” and information from the Service regarding what potential consultations and project modifications may be imposed as a result of critical habitat designation over and above those associated with the listing.⁴⁶ Specifically, in *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, the Ninth Circuit invalidated the Service’s regulation defining destruction or adverse modification of critical habitat, and the Service no longer

⁴⁴ *Center for Biological Diversity et al, Plaintiffs, v. United States Bureau of Land Management et. al, Defendants and American Sand Association, et al, Defendant Intervenors*. Order re: Cross Motions for Summary Judgment, Case 3:03-cv-02509 Document 174 Filed 03/14/2006, pages 44-45.

⁴⁵ *Home Builders Association of Northern California v. United States Fish and Wildlife Service*, 616 F.3d 983 (9th Cir. 2010), cert. denied, 179 L. Ed 2d 301, 2011 U.S. Lexis 1392, 79 U.S.L.W. 3475 (2011); *Arizona Cattle Growers v. Salazar*, 606 F. 3d 1160 (9th Cir. 2010), cert. denied, 179 L. Ed. 2d 300, 2011 U.S. Lexis 1362, 79 U.S.L.W. 3475 (2011).

⁴⁶ Director, U.S. Fish and Wildlife Service, Memorandum to Regional Directors and Manager of the California-Nevada Operations Office, Subject: Application of the “Destruction or Adverse Modification” Standard under Section 7(a)(2) of the Endangered Species Act, dated December 9, 2004.

relies on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat.⁴⁷ Under the statutory provisions of the Act, the Service determines destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species.

36. A detailed description of the methodology used to define baseline and incremental impacts is provided in Section 3.4.

2.3 CATEGORIES OF POTENTIAL ECONOMIC EFFECTS OF SPECIES CONSERVATION

37. This economic analysis considers both the economic efficiency and distributional effects that may result from efforts to protect the plover and its habitat (hereinafter referred to collectively as “plover conservation efforts”). Economic efficiency effects generally reflect “opportunity costs” associated with the commitment of resources required to accomplish species and habitat conservation. For example, if the set of activities that may take place on a parcel of land is limited as a result of the designation or the presence of the species, and thus the market value of the land is reduced, this reduction in value represents one measure of opportunity cost or change in economic efficiency. Similarly, the costs incurred by a Federal action agency to consult with the Service under section 7 represent opportunity costs of plover conservation efforts.
38. This analysis also addresses the distribution of impacts associated with the designation, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation efforts on small entities and the energy industry. This information may be used by decision-makers to assess whether the effects of species conservation efforts unduly burden a particular group or economic sector. For example, while conservation efforts may have a small impact relative to the national economy, individuals employed in a particular sector of the regional economy may experience relatively greater impacts. The differences between economic efficiency effects and distributional effects, as well as their application in this analysis, are discussed in greater detail below.

2.3.1 EFFICIENCY EFFECTS

39. At the guidance of OMB and in compliance with Executive Order 12866 "Regulatory Planning and Review," Federal agencies measure changes in economic efficiency in order to understand how society, as a whole, will be affected by a regulatory action. In the context of regulations that protect plover habitat, these efficiency effects represent the opportunity cost of resources used or benefits foregone by society as a result of the

⁴⁷ *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, No. 03-35279 (9th Circuit 2004).

regulations. Economists generally characterize opportunity costs in terms of changes in producer and consumer surpluses in affected markets.⁴⁸

40. In some instances, compliance costs may provide a reasonable approximation for the efficiency effects associated with a regulatory action. For example, a Federal land manager may enter into a consultation with the Service to ensure that a particular activity will not adversely modify critical habitat. The effort required for the consultation is an economic opportunity cost because the landowner or manager's time and effort would have been spent in an alternative activity had the parcel not been included in the designation. When compliance activity is not expected to significantly affect markets -- that is, not result in a shift in the quantity of a good or service provided at a given price, or in the quantity of a good or service demanded given a change in price -- the measurement of compliance costs can provide a reasonable estimate of the change in economic efficiency.
41. Where habitat protection measures are expected to significantly impact a market, it may be necessary to estimate changes in producer and consumer surpluses. For example, protection measures that reduce or preclude the development of large areas of land may shift the price and quantity of housing supplied in a region. In this case, changes in economic efficiency (i.e., social welfare) can be measured by considering changes in producer and consumer surplus in the market.
42. This analysis begins by measuring impacts associated with efforts undertaken to protect the plover and its habitat. As noted above, in some cases, compliance costs can provide a reasonable estimate of changes in economic efficiency. However, if the cost of conservation efforts is expected to significantly impact markets, the analysis will consider potential changes in consumer and/or producer surplus in affected markets.

2.3.2 DISTRIBUTIONAL AND REGIONAL ECONOMIC EFFECTS

43. Measurements of changes in economic efficiency focus on the net impact of conservation efforts, without consideration of how certain economic sectors or groups of people are affected. Thus, a discussion of efficiency effects alone may miss important distributional considerations. OMB encourages Federal agencies to consider distributional effects separately from efficiency effects.⁴⁹ This analysis considers several types of distributional effects, including impacts on small entities; impacts on energy supply, distribution, and use; and regional economic impacts. It is important to note that these are fundamentally different measures of economic impact than efficiency effects, and thus cannot be added to or compared with estimates of changes in economic efficiency.

⁴⁸ For additional information on the definition of "surplus" and an explanation of consumer and producer surplus in the context of regulatory analysis, see: Gramlich, Edward M., *A Guide to Benefit-Cost Analysis* (2nd Ed.), Prospect Heights, Illinois: Waveland Press, Inc., 1990; and U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, EPA 240-R-00-003, September 2000, available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html>.

⁴⁹ U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>.

Impacts on Small Entities and Energy Supply, Distribution, and Use

44. This analysis considers how small entities, including small businesses, organizations, and governments, as defined by the RFA, might be affected by future species conservation efforts.⁵⁰ In addition, in response to Executive Order 13211 "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," this analysis considers the future impacts of conservation efforts on the energy industry and its customers.⁵¹

Regional Economic Effects

45. Regional economic impact analysis can provide an assessment of the potential localized effects of conservation efforts. Specifically, regional economic impact analysis produces a quantitative estimate of the potential magnitude of the initial change in the regional economy resulting from a regulatory action. Regional economic impacts are commonly measured using regional input/output models. These models rely on multipliers that represent the relationship between a change in one sector of the economy (e.g., expenditures by recreators) and the effect of that change on economic output, income, or employment in other local industries (e.g., suppliers of goods and services to recreators). These economic data provide a quantitative estimate of the magnitude of shifts of jobs and revenues in the local economy.
46. The use of regional input/output models in an analysis of the impacts of species and habitat conservation efforts can overstate the long-term impacts of a regulatory change. Most importantly, these models provide a static view of the economy of a region. That is, they measure the initial impact of a regulatory change on an economy but do not consider long-term adjustments that the economy will make in response to this change. For example, these models provide estimates of the number of jobs lost as a result of a regulatory change, but do not consider re-employment of these individuals over time or other adaptive responses by impacted businesses. In addition, the flow of goods and services across the regional boundaries defined in the model may change as a result of the regulation, compensating for a potential decrease in economic activity within the region.
47. Despite these and other limitations, in certain circumstances regional economic impact analysis may provide useful information about the scale and scope of localized impacts. It is important to remember that measures of regional economic effects generally reflect shifts in resource use rather than efficiency losses. Thus, these types of distributional effects are reported separately from efficiency effects (i.e., not summed). In addition, measures of regional economic impact cannot be compared with estimates of efficiency effects, but should be considered as distinct measures of impact.

⁵⁰ 5 U.S.C. §§601 *et seq.*

⁵¹ Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, May 18, 2001.

2.4 ANALYTIC FRAMEWORK AND SCOPE OF THE ANALYSIS

48. This analysis: 1) identifies those economic activities most likely to threaten the plover and its habitat; 2) describes the baseline regulation protection for the species; and 3) monetizes the incremental economic impacts to avoid adverse modification of the proposed critical habitat area. This section provides an overview of the methodology used to separately identify baseline protections from the incremental impacts stemming from the proposed designation of critical habitat for the plover. This evaluation of impacts in a "with critical habitat designation" versus a "without critical habitat designation" framework effectively measures the net change in economic activity associated with the proposed rulemaking. A more detailed discussion of the specific regulations and plans currently providing baseline protection for the plover is provided in Chapter 3.

2.4.1 IDENTIFYING BASELINE IMPACTS

49. The baseline for this analysis is the existing state of regulation, prior to the designation of critical habitat, which provides protection to the species under Act, as well as under other Federal, State and local laws and guidelines. This "without critical habitat designation" scenario also considers a wide range of additional factors beyond the compliance costs of regulations that provide protection to the listed species. As recommended by OMB, the baseline incorporates, as appropriate, trends in market conditions, implementation of other regulations and policies by the Service and other government entities, and trends in other factors that have the potential to affect economic costs and benefits, such as the rate of regional economic growth in potentially affected industries.

50. Baseline protections include sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections to the extent that they are expected to occur absent the designation of critical habitat for the species. This analysis describes these baseline regulations and, where possible, provides examples of the potential magnitude of the costs of these baseline protections. The primary focus, however, is not on baseline costs, since these will not be affected by the proposed regulation. Instead, the focus of this analysis is on monetizing the incremental impacts forecast to result from the proposed critical habitat designation.

- Section 7 of Act, absent critical habitat designation, requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. Consultations under the jeopardy standard result in administrative costs, as well as impacts of conservation efforts resulting from consideration of this standard.
- Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the "take" of endangered wildlife, where "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in

any such conduct."⁵² Subsequent regulation has made prohibitions against take of endangered species under section 9 applicable to threatened species, such as the plover, as well.⁵³ The economic impacts associated with this section manifest themselves in sections 7 and 10.

- Under section 10(a)(1)(B) of the Act, an entity (e.g., a landowner or local government) may develop a HCP for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with a land or water use activity or project.⁵⁴ The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately avoided or minimized. The development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.

Enforcement actions taken in response to violations of the Act are not included in this analysis.

51. The protection of listed species and habitat is not limited to the Act. Other Federal agencies, as well as State and local governments, may also seek to protect the natural resources under their jurisdiction. If compliance with the Clean Water Act or State environmental quality laws, for example, protects habitat for the species, such protective efforts are considered to be baseline protections and costs associated with these efforts are categorized accordingly. Of note, however, is that such efforts may not be considered baseline in the case that they would not have been triggered absent the designation of critical habitat. In these cases, they are considered incremental impacts and are discussed below.

2.4.2 IDENTIFYING INCREMENTAL IMPACTS

52. This analysis quantifies the potential incremental impacts of this rulemaking. The focus of the incremental analysis is to determine the impacts on land uses and activities from the designation of critical habitat that are above and beyond those impacts resulting from existing required or voluntary conservation efforts being undertaken due to other Federal, State, and local regulations or guidelines.
53. When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat (in addition to considering whether the actions are likely to jeopardize the continued existence of the species). The added administrative costs of including consideration of critical habitat in section 7 consultations, and the additional impacts of implementing

⁵² 16 U.S.C. 1532.

⁵³ 16 U.S.C. 1538(a)(1)(G); 50 C.F.R. 17.31(a).

⁵⁴ U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

conservation efforts (i.e., reasonable and prudent alternatives) resulting from the protection of critical habitat are the direct compliance costs of designating critical habitat. These costs are not in the baseline and are considered incremental impacts of the rulemaking.

54. To inform the economic analysis, the Service has provided a memorandum describing its expected approach to conservation for the plover following critical habitat designation.⁵⁵ Specifically, this memorandum provides information on how the Service intends to address projects that might lead to adverse modification of critical habitat as distinct from projects that pose jeopardy to the species. The Service's memorandum is provided in Appendix D. Based on the information provided in Appendix D, the designation of critical habitat will result in additional plover conservation efforts in some cases, especially in the event of short-term projects carried out when plovers are absent or when the effects of a project are permanent. A detailed description of the methodology used to define baseline and incremental impacts is provided in Section 3.4. The Service does not anticipate the frequency of consultations to increase following critical habitat designation for the plover.⁵⁶

Direct Impacts

55. The direct, incremental impacts of critical habitat designation stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The two categories of direct, incremental impacts of critical habitat designation are: 1) the administrative costs of conducting section 7 consultation; and 2) implementation of any conservation efforts required by the Service through section 7 consultation to avoid potential destruction or adverse modification of critical habitat.
56. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service whenever activities that they undertake, authorize, permit, or fund may affect a listed species or designated critical habitat. In some cases, consultations will involve the Service and another Federal agency only, such as the Corps. Often, they will also include a third party involved in projects that involve a permitted entity, such as the recipient of a Clean Water Act section 404 permit.
57. During a consultation, the Service, the Action agency, and the entity applying for Federal funding or permitting (if applicable) communicate in an effort to minimize potential adverse effects to the species and/or to the proposed critical habitat. Communication between these parties may occur via written letters, phone calls, in-person meetings, or any combination of these. The duration and complexity of these interactions depends on a number of variables, including the type of consultation, the species, the activity of concern, and the potential effects to the species and designated critical habitat associated

⁵⁵ U.S. Fish and Wildlife Service to Industrial Economics, Inc. "Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Pacific Coast Population of the Western Snowy Plover Proposed Revised Critical Habitat Designation," April 11, 2011.

⁵⁶ *Ibid.*

with the proposed activity, the Federal agency, and whether there is a private applicant involved.

58. Section 7 consultations with the Service may be either informal or formal. *Informal consultations* consist of discussions between the Service, the Action agency, and the applicant concerning an action that may affect a listed species or its designated critical habitat, and are designed to identify and resolve potential concerns at an early stage in the planning process. By contrast, a *formal consultation* is required if the Action agency or the Service determines that its proposed action may or will adversely affect the listed species or designated critical habitat in ways that cannot be resolved through informal consultation. The formal consultation process results in the Service's determination in its Biological Opinion of whether the action is likely to jeopardize a species or adversely modify critical habitat, and if so, reasonable and prudent alternatives to avoid jeopardy or adverse modification. If the action is not likely to result in jeopardy or adverse modification of critical habitat, the Service specifies the amount or extent of incidental take of the species, the reasonable and prudent measures necessary or appropriate to minimize such impact and the terms and conditions necessary to implement the reasonable and prudent measures. Regardless of the type of consultation or proposed project, section 7 consultations can require substantial administrative effort on the part of all participants.

Administrative Section 7 Consultation Costs

59. Parties involved in section 7 consultations include the Service, a Federal "action agency," and in some cases, a private entity involved in the project or land use activity. The action agency (i.e., the Federal nexus necessitating the consultation) serves as the liaison with the Service. While consultations are required for activities that involve a Federal nexus and may affect a species regardless of whether critical habitat is designated, the designation may increase the effort for consultations in the case that the project or activity in question may adversely modify critical habitat. Administrative efforts for consultation may therefore result in both baseline and incremental impacts.
60. In general, three different scenarios associated with the designation of critical habitat may trigger incremental administrative consultation costs:
1. **Additional effort to address adverse modification in a new consultation -** New consultations taking place after critical habitat designation may require additional effort to address critical habitat issues above and beyond the listing issues. In this case, the additional administrative effort required to consider critical habitat is considered an incremental impact of the designation. (Incremental impacts related to incremental conservation efforts are discussed later in this section.)
 2. **Re-initiation of consultation to address adverse modification -** Consultations that have already been completed on a project or activity may require re-initiation to address critical habitat. In this case, the costs of re-initiating the consultation, including all associated administrative costs and costs associated with measures

to address impacts to critical habitat are considered incremental impacts of the designation.

3. **Incremental consultation resulting entirely from critical habitat designation**

- Critical habitat designation may trigger additional consultations that may not occur absent the designation. These incremental consultations may address adverse modification alone (e.g., consultations triggered in critical habitat areas that are not occupied by the species) or may address adverse modification and jeopardy (e.g., consultations resulting from the new information about the potential presence of the species provided by the designation). All administrative costs and costs of conservation efforts associated with incremental consultations are considered incremental impacts of the designation.

61. The administrative costs of these consultations vary depending on the specifics of the project. One way to address this variability is to show a range of possible costs of consultation, as it may not be possible to predict the precise outcome of each future consultation in terms of level of effort. Review of consultation records and discussions with Service field offices resulted in a range of estimated administrative costs of consultation. For simplicity, the average of the range of costs in each category is applied in this analysis.
62. Exhibit 2-2 provides the incremental administrative consultation costs applied in this analysis. To estimate the fractions of the total administrative consultation costs that are baseline and incremental, the following assumptions are applied.
- The greatest effort will be associated with consultations that consider both jeopardy and adverse modification. To the extent that the consultation is precipitated by the listing, costs will be attributed to the listing rule, and to the extent that costs are precipitated by designation of critical habitat, costs will be attributed to the proposed rule designating critical habitat.
 - Efficiencies exist when considering both jeopardy and adverse modification at the same time (e.g., in staff time saved for project review and report writing), and therefore incremental administrative costs of considering adverse modification in consultations precipitated by the listing result in the least incremental effort, roughly 10 percent of the cost of the entire consultation.⁵⁷ The remaining 90 percent of the costs are attributed to consideration of the jeopardy standard in the baseline scenario. This latter amount also represents the cost of a consultation that only considers adverse modification (e.g., an incremental consultation for activities in unoccupied critical habitat) and is attributed wholly to critical habitat.
 - Incremental costs of the re-initiation of a previously completed consultation because of the critical habitat designation are assumed to be approximately half the cost of a consultation considering both jeopardy and adverse modification.

⁵⁷ *Ibid.*

This assumes that re-initiations are less time-consuming as the groundwork for the project has already been considered in terms of its effect on the species. However, because the previously completed effort must be re-opened, they are more costly than simply adding consideration of critical habitat to a consultation already underway.

EXHIBIT 2-2. RANGE OF INCREMENTAL ADMINISTRATIVE CONSULTATION COSTS (2011 DOLLARS)

CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION - SPECIES PRESENT (CONSULTATION CONSIDERS BOTH JEOPARDY AND ADVERSE MODIFICATION)					
Technical Assistance	\$570	n/a	\$1,050	n/a	\$1,620
Informal	\$2,450	\$3,100	\$2,050	\$2,000	\$9,500
Formal	\$5,500	\$6,200	\$3,500	\$4,800	\$20,000
Programmatic	\$16,700	\$13,900	n/a	\$5,600	\$36,100
NEW CONSULTATION RESULTING ENTIRELY FROM CRITICAL HABITAT DESIGNATION - SPECIES NOT PRESENT (CONSULTATION ONLY CONSIDERS ADVERSE MODIFICATION)					
Technical Assistance	\$428	n/a	\$788	n/a	\$1,220
Informal	\$1,840	\$2,330	\$1,540	\$1,500	\$7,130
Formal	\$4,130	\$4,650	\$2,630	\$3,600	\$15,000
Programmatic	\$12,500	\$10,400	n/a	\$4,200	\$27,100
RE-INITIATION OF CONSULTATION TO ADDRESS ADVERSE MODIFICATION					
Technical Assistance	\$285	n/a	\$525	n/a	\$810
Informal	\$1,230	\$1,550	\$1,030	\$1,000	\$4,750
Formal	\$2,750	\$3,100	\$1,750	\$2,400	\$10,000
Programmatic	\$8,330	\$6,930	n/a	\$2,800	\$18,100
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A CONSULTATION THAT WOULD OCCUR EVEN WITHOUT CRITICAL HABITAT (MAJORITY OF THE CONSULTATION COST IS ASSIGNED TO THE BASELINE; ONLY THE EFFORT NECESSARY TO ADDRESS ADVERSE MODIFICATION IS INCLUDED BELOW)					
Technical Assistance	\$143	n/a	\$263	n/a	\$405
Informal	\$613	\$775	\$513	\$500	\$2,380
Formal	\$1,380	\$1,550	\$875	\$1,200	\$5,000
Programmatic	\$4,160	\$3,460	n/a	\$1,400	\$9,030
Source: IEC analysis of full administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2011, and a review of consultation records from several Service field offices across the country conducted in 2002.					
Notes:					
1. Estimates are rounded to three significant digits and may not sum due to rounding.					
2. Estimates reflect average hourly time required by staff.					

Section 7 Conservation Effort Impacts

63. Section 7 consultation considering critical habitat may also result in additional conservation effort recommendations specifically addressing potential destruction or adverse modification of critical habitat. For forecast consultations considering jeopardy and adverse modification, and for re-initiations of past consultations to consider critical habitat, the economic impacts of conservation efforts undertaken to avoid adverse modification are considered incremental impacts of critical habitat designation. For consultations that are forecast to occur specifically because of the designation (incremental consultations), impacts of all associated conservation efforts are assumed to be incremental impacts of the designation. This is summarized below.
1. **Additional effort to address adverse modification in a new consultation -** Only project modifications above and beyond what would be requested to avoid or minimize jeopardy are considered incremental.
 2. **Re-initiation of consultation to address adverse modification -** Only project modifications above and beyond what was requested to avoid or minimize jeopardy are considered incremental.
 3. **Incremental consultation resulting entirely from critical habitat designation** Impacts of all project modifications are considered incremental.

Indirect Impacts

64. The designation of critical habitat may, under certain circumstances, affect actions that do not have a Federal nexus and thus are not subject to the provisions of section 7 under the Act. Indirect impacts are those unintended changes in economic behavior that may occur outside of the Act, through other Federal, State, or local actions, and that are caused by the designation of critical habitat. This section identifies common types of indirect impacts that may be associated with the designation of critical habitat. Importantly, these types of impacts are not always considered incremental. In the case that these types of conservation efforts and economic effects are expected to occur regardless of critical habitat designation, they are appropriately considered baseline impacts in this analysis.

Habitat Conservation Plans

65. Under section 10 of the Act, landowners seeking an incidental take permit must develop an HCP to counterbalance the potential harmful effects that an otherwise lawful activity may have on a species. As such, the purpose of the habitat conservation planning process is to ensure that the effects of incidental take are adequately avoided or minimized. Thus, HCPs are developed to meet the requirements of section 10 of the Act and avoid unauthorized take of listed species. Six existing HCPs include the plover as a covered species. In addition, three HCPs are under development that will include the plover as a

covered species: one for Fort Ord Dunes (Unit CA 22); one for Oceano Dunes SVRA (Unit CA 31); and one for Rancho Guadalupe Dunes County Park (Unit CA31).^{58,59,60}

66. Application for an incidental take permit and completion of an HCP are not required or necessarily recommended by a critical habitat designation. However, in certain situations the new information provided by the proposed critical habitat rule may prompt a landowner to apply for an incidental take permit. For example, a landowner may have been previously unaware of the potential presence of the species on his or her property, and expeditious completion of an HCP may offer the landowner regulatory relief in the form of exclusion from the final critical habitat designation. In this case, the effort involved in creating the HCP and undertaking associated conservation efforts are considered an incremental effect of designation. No specific plans to prepare new HCPs in response to this proposed designation were identified for the plover.

Other State and Local Laws

67. Under certain circumstances, critical habitat designation may provide new information to a community about the sensitive ecological nature of a geographic region, potentially triggering additional economic impacts under other State or local laws. In cases where these impacts would not have been triggered absent critical habitat designation, they are considered indirect, incremental impacts of the designation.
68. The California Environmental Quality Act (CEQA), for example, requires that lead agencies, public agencies responsible for project approval, consider the environmental effects of proposed projects that are considered discretionary in nature and not categorically or statutorily exempt. In some instances, critical habitat designation may trigger CEQA-related requirements. This is most likely to occur in areas where the critical habitat designation provides clearer information on the importance of particular areas as habitat for a listed species. In addition, applicants who were “categorically exempt” from preparing an EIR under CEQA may no longer be exempt once critical habitat is designated. In cases where the designation triggers the CEQA significance test or results in a reduction of categorically exempt activities, associated impacts are considered to be an indirect, incremental effect of the designation.

Additional Indirect Impacts

69. In addition to the indirect effects of compliance with other laws or triggered by the designation, project proponents, land managers and landowners may face additional indirect impacts, including the following:

⁵⁸ Personal Communication with California Department of Parks and Recreation, Fort Ord Dunes State Park, A. Palkovic, July 13, 2011.

⁵⁹ Personal Communication with R. Glick and A. Zilke, Oceano Dunes SVRA, May 10, 2011.

⁶⁰ Personal Communication with C. Garciacelay, Santa Barbara County Parks Department, September 2, 2011.

- **Time Delays** - Both public and private entities may experience incremental time delays for projects and other activities due to requirements associated with the need to reinitiate the section 7 consultation process and/or compliance with other laws triggered by the designation. To the extent that delays result from the designation, they are considered indirect, incremental impacts of the designation.
- **Regulatory Uncertainty** - The Service conducts each section 7 consultation on a case-by-case basis and issues a biological opinion on formal consultations based on species-specific and site-specific information. As a result, government agencies and affiliated private parties who consult with the Service under section 7 may face uncertainty concerning whether project modifications will be recommended by the Service and what the nature of these modifications will be. This uncertainty may diminish as consultations are completed and additional information becomes available on the effects of critical habitat on specific activities. Where information suggests that this type of regulatory uncertainty stemming from the designation may affect a project or economic behavior, associated impacts are considered indirect, incremental impacts of the designation.
- **Stigma** - In some cases, the public may perceive that critical habitat designation may result in limitations on private property uses above and beyond those associated with anticipated project modifications and regulatory uncertainty described above. Public attitudes about the limits or restrictions that critical habitat may impose can cause real economic effects to property owners, regardless of whether such limits are actually imposed. All else equal, a property that is designated as critical habitat may have a lower market value than an identical property that is not within the boundaries of critical habitat due to perceived limitations or restrictions. As the public becomes aware of the true regulatory burden imposed by critical habitat, the impact of the designation on property markets may decrease. To the extent that potential stigma effects on markets are probable and identifiable, these impacts are considered indirect, incremental impacts of the designation.

Indirect impacts may also result from critical habitat providing new information regarding where project proponents should consult regarding potential impacts on the species or habitat. As described in Section 3.4, critical habitat designation for the plover is not likely to provide new information about the presence of the species as all areas proposed for designation are considered occupied by the species.

2.4.3 BENEFITS

70. Under Executive Order 12866, OMB directs Federal agencies to provide an assessment of both the social costs and benefits of proposed regulatory actions.⁶¹ OMB's Circular A-4 distinguishes two types of economic benefits: *direct benefits and ancillary benefits*.

⁶¹ Executive Order 12866, Regulatory Planning and Review, September 30, 1993.

Ancillary benefits are defined as favorable impacts of a rulemaking that are typically unrelated, or secondary, to the statutory purpose of the rulemaking.⁶²

71. In the context of critical habitat, the primary purpose of the rulemaking (i.e., the direct benefit) is the potential to enhance conservation of the species. The published economics literature has documented that social welfare benefits can result from the conservation and recovery of endangered and threatened species. In its guidance for implementing Executive Order 12866, OMB acknowledges that it may not be feasible to monetize, or even quantify, the benefits of environmental regulations due to either an absence of defensible, relevant studies or a lack of resources on the implementing agency's part to conduct new research.⁶³ *Rather than rely on economic measures, the Service believes that the direct benefits of the proposed rule are best expressed in biological terms that can be weighed against the expected cost impacts of the rulemaking.*
72. Critical habitat designation may also generate ancillary benefits. Critical habitat aids in the conservation of species specifically by protecting the primary constituent elements on which the species depends. To this end, critical habitat designation can result in maintenance of particular environmental conditions that may generate other social benefits aside from the preservation of the species. That is, management actions undertaken to conserve a species or habitat may have coincident, positive social welfare implications, such as increased recreational opportunities in a region. While they are not the primary purpose of critical habitat, these ancillary benefits may result in gains in employment, output, or income that may offset the direct, negative impacts to a region's economy resulting from actions to conserve a species or its habitat. The potential ancillary benefits of critical habitat designation are described qualitatively in a separate chapter at the end of this report.

2.4.4 GEOGRAPHIC SCOPE OF THE ANALYSIS

73. Economic impacts of plover conservation are considered across the entire area proposed for revised critical habitat designation, as defined in Chapter 1. Results are presented by proposed critical habitat unit or, when delineated, by subunit.

2.4.5 ANALYTIC TIME FRAME

74. Ideally, the time frame of this analysis would be based on the expected time period over which the critical habitat regulation is expected to be in place. Specifically, the analysis would forecast impacts of implementing this rule through species recovery (i.e., when the rule is no longer required). Recent guidance from OMB indicates that "if a regulation has no predetermined sunset provision, the agency will need to choose the endpoint of its analysis on the basis of a judgment about the foreseeable future."⁶⁴ The "foreseeable

⁶² U.S. Office of Management and Budget, "Circular A-4," September 17, 2003, available at <http://www.whitehouse.gov/sites/default/files/omb/assets/omb/circulars/a004/a-4.pdf>

⁶³ *Ibid.*

⁶⁴ The U.S. Office of Management and Budget, February 7, 2011. "Regulatory Impact Analysis: Frequently Asked Questions (FAQs)." Accessed on May 3, 2011 by http://www.whitehouse.gov/sites/default/files/omb/circulars/a004/a-4_FAQ.pdf.

future” for this analysis includes, but it not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Forecasted impacts will be based on the planning periods for potentially affected projects and will look out over a 20-year time horizon. OMB supports this time frame stating that “for most agencies, a standard time period of analysis is ten to 20 years, and rarely exceeds 50 years.”⁶⁵ Therefore, this analysis considers economic impacts to activities over a 20-year period from 2012 (expected year of final critical habitat designation) though 2031.

2.5 INFORMATION SOURCES

75. The primary sources of information for this report are communications with, and data provided by, personnel from the Service, local governments and other stakeholders. In particular, the Incremental Effects Memorandum provided by the Service (see Appendix D). In addition, this analysis relies upon the Service’s section 7 consultation record and existing habitat management and conservation plans that consider the plover. Data on baseline land use were obtained from regional planning authorities. Finally, this analysis relies on still pertinent information and data from the economic analysis prepared in support of the 2004 proposed critical habitat rule.⁶⁶ A complete list of references is provided at the end of this document.

2.6 PRESENTATION OF RESULTS

76. Impacts are described in present value and annualized terms applying discount rates of seven percent throughout the body of the report. Additionally, Appendix B provides the present and annualized value of impacts in each unit applying a three percent discount rate for comparison with values calculated at seven percent.⁶⁷ Appendix C presents undiscounted annual impact values by activity and subunit. Present value and annualized impacts are calculated according to the methods described in Exhibit 2-3.

⁶⁵ *Ibid.*

⁶⁶ Industrial Economics, Incorporated, “Economic Analysis of Critical Habitat Designation for the Western Snowy Plover,” prepared for the U.S. Fish and Wildlife Service, July 20, 2005.

⁶⁷ The U.S. Office of Management and Budget (OMB) requires Federal agencies to report results using discount rates of three and seven percent (see OMB, Circular A-4, 2003).

EXHIBIT 2-3. CALCULATING PRESENT VALUE AND ANNUALIZED IMPACTS

This analysis compares economic impacts incurred in different time periods in present value terms. The present value represents the value of a payment or stream of payments in common dollar terms. That is, it is the sum of a series of past or future cash flows expressed in today's dollars. Translation of economic impacts of past or future costs to present value terms requires the following: a) past or projected future costs of critical habitat designation; and b) the specific years in which these impacts have been or are expected to be incurred. With these data, the present value of the past or future stream of impacts (PV_c) from year t to T is measured in 2011 dollars according to the following standard formula:^a

$$PV_c = \sum_t^T \frac{C_t}{(1+r)^{t-2011}}$$

C_t = cost of plover critical habitat conservation efforts in year t

r = discount rate^b

Impacts for each activity in each unit are also expressed as annualized values. Annualized values are calculated to provide comparison of impacts across activities with varying forecast periods (T). For this analysis, activities employ a forecast period of 20 years, 2012 through 2031. Annualized future impacts (APV_c) are calculated by the following standard formula:

$$APV_c = PV_c \left[\frac{r}{1 - (1+r)^{-N}} \right]$$

N = number of years in the forecast period (in this analysis, 29 years)

^a To derive the present value of future impacts, t is 2012 and T is 2031.

^b To discount and annualize costs, guidance provided by the OMB specifies the use of a real rate of seven percent. In addition, OMB recommends sensitivity analysis using other discount rates such as three percent, which some economists believe better reflects the social rate of time preference. (U.S. Office of Management and Budget, Circular A-4, September 17, 2003 and U.S. Office of Management and Budget, "Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations; Notice," 68 *Federal Register* 5492, February 3, 2003.)

CHAPTER 3 | BASELINE CONSERVATION FOR THE PLOVER WITHIN PROPOSED CRITICAL HABITAT

77. This chapter discusses the baseline state of plover conservation absent designated critical habitat. The species and habitat protections described in this chapter result from implementation of the Act, as well as other Federal, State and local regulations and conservation plans. These protections are not generated or affected by critical habitat designation for the plover, and thus we do not quantify the associated impacts in this chapter. The qualitative discussion of baseline protections provides context for the incremental analysis in Chapter 4. The text box below summarizes the key issues and conclusions of the baseline analysis.

KEY ISSUES AND CONCLUSIONS OF THE BASELINE ANALYSIS

- Baseline protection for the plover addresses a broad range of habitat threats. A total of 21 HCPs and management plans, as well as various Federal and State regulations, currently provide protection for the plover within the proposed critical habitat area. Currently, 50 of the 102 proposed subunits are at least partially managed for plover conservation due to the presence of the bird.
- For projects with a Federal nexus, the Service asserts that their consideration of the potential for destruction or adverse modification during section 7 consultation will differ depending on project duration (short-term versus long-term) and whether project impacts are temporary or permanent.
 - For short-term activities that can be scheduled for periods when plovers do not use the project site, the Service may analyze effects to critical habitat without analyzing effects to members of the species and thus all costs associated with consultation are considered incremental impact of the designation.
 - For activities having temporary impacts, measures to address impacts to members of the species and critical habitat will likely be the same and thus incremental impacts are likely to be limited to the administrative cost of considering the adverse modification standard during consultation.
 - For long-term activities having permanent impacts, the Service may request additional project modifications to specifically address adverse modification of critical habitat or other measures as part of the consultation process. Costs associated with these measures as well as the administrative costs of addressing the adverse modification standard are considered incremental impacts.
- This analysis identifies 16 projects with a Federal nexus that will require consultation with the Service - nine of these are short-term and temporary, three are long-term and/or permanent, and four represent the development of management plans for the plover.

78. Exhibit 3-1 frames the discussion of baseline protections by summarizing the various plans and regulations that currently provide protection for the plover. Some of these plans and regulations provide direct protection to the plover and its habitat; others may not fully protect the species, but provide some conservation benefit. These protections are not generated by or affected by critical habitat designation for the plover and thus the analysis does not quantify the associated impacts. Sections 3.1 through 3.3 of this chapter provide a detailed discussion of the place-specific, State, and Federal protections described in Exhibit 3-1, specifying the plover conservation efforts associated with each. Section 3.4 describes the specific approach used in this analysis to separate the baseline and incremental impacts under the Act.

EXHIBIT 3-1. PLOVER CONSERVATION PROVIDED BY EXISTING PLANS AND REGULATIONS

BASELINE PROTECTION	TYPE	COVERAGE
PLACE-SPECIFIC PROTECTION		
Willapa National Wildlife Refuge Final Comprehensive Conservation Plan and Environmental Impact Statement; 2011	Management Plan	<ul style="list-style-type: none"> • All activities in Willapa National Wildlife Refuge • Units WA 3B, WA 4A, and WA 4B
Oregon Parks and Recreation Department Habitat Conservation Plan for the Western Snowy Plover; 2010	HCP	<ul style="list-style-type: none"> • All activities in action area, consisting of 230 miles of sandy beach (64 percent of Oregon's coastline) • Partially overlaps all proposed units in Oregon
Oregon Parks and Recreation Department Ocean Shore Management Plan; 2005	Management Plan	<ul style="list-style-type: none"> • All OPRD-related coastal activities • Overlaps all proposed units in Oregon
North Spit Plan; 2006	Management Plan	<ul style="list-style-type: none"> • Unit OR 10
New River Area of Critical Environmental Concern Management Plan; 2004	Management Plan	<ul style="list-style-type: none"> • All recreation activity within the New River Area of Critical Environmental Concern • Portions of Unit OR 11
Predator Damage Management (PDM) Plan to Protect the Pacific Coast Population of the Western Snowy Plover; 2002	Management Plan	<ul style="list-style-type: none"> • Habitat areas covered by the PDM Plan include Sutton/Baker Beaches, Siltcoos, Overlook, Tahkenitch, Tenmile Creek Spit, Coos Bay North Spit, Bandon, and New River • All OR Units
Oregon Dunes National Recreation Area Management Plan; 1994	Management Plan	<ul style="list-style-type: none"> • Recreational activities within the Oregon Dunes National Recreation Area • Units OR 8A, OR 8B, OR 8C, OR 8D, and OR 9
Vandenburg INRMP	INRMP	<ul style="list-style-type: none"> • All activities at Vandenberg Air Force Base • Units CA 32 and CA 33
2010 Nesting Season Management Plan To Avoid Take Of The California Least Tern And Western Snowy Plover At Oceano Dunes State Vehicular Recreation Area; 2010	Management Plan	<ul style="list-style-type: none"> • All activities within Oceano Dunes State Vehicular Recreation Area • Unit CA 31
Final Los Peñasquitos Watershed Management Plan; 2005	Management Plan	<ul style="list-style-type: none"> • Water-use activities within the Los Peñasquitos Watershed • Unit CA 53
Fort Ord Dunes State Park Preliminary General Plan and Environmental Impact Report; 2004	Management Plan	<ul style="list-style-type: none"> • All activities within Fort Ord Dunes State Park • A portion of Unit CA 22

BASELINE PROTECTION	TYPE	COVERAGE
Clam and Moonstone Beach County Parks Recreational Facilities and Resource Management Master Plan; 2004	Management Plan	<ul style="list-style-type: none"> All activities within county-owned lands of Clam and Moonstone Beach Units CA 4A and CA 4B
Humboldt Bay South Spit Interim Management Plan; 2002	Management Plan	<ul style="list-style-type: none"> Recreation activities managed by BLM within Humboldt Bay South Spit Unit CA 5A
Salinas River National Wildlife Refuge Comprehensive Conservation Plan; 2002	Management Plan	<ul style="list-style-type: none"> All activities within the Salinas River National Wildlife Refuge Unit CA 22
Coal Oil Point Reserve Snowy Plover Management Plan; 2001	Management Plan	<ul style="list-style-type: none"> All activities within the boundaries of the Coal Oil Point Reserve Unit CA 34
INRMP for the Naval Postgraduate School; 2001	INRMP	<ul style="list-style-type: none"> All military activities within Naval Support Activity Monterey Unit CA 22
San Diego Bay INRMP; 2000	INRMP	<ul style="list-style-type: none"> All activities carried out by the Navy and Port of San Diego within the San Diego Bay Units CA 55E and CA 55G
The Habitat Management Plan for Natural Communities in the City of Carlsbad; 1999	HCP	<ul style="list-style-type: none"> Development activities within the boundaries of the City of Carlsbad Units CA 50A, CA 50B, and CA 50C
Torrey Pines State Reserve Wildlife Management Plan; 1998	Management Plan	<ul style="list-style-type: none"> All activities within Torrey Pines State Reserve Unit CA 53
Multiple Species Conservation Program, City of San Diego, Subarea Plan; 1997	HCP	<ul style="list-style-type: none"> Development activities within the boundaries of the City of San Diego Units CA 52A-C, CA 53, CA 54A-D, CA 55B, CA 55E, CA 55F, CA 55G, CA 55I, and CA 55J
Mission Bay Park Natural Resource Management; 1990	HCP	<ul style="list-style-type: none"> All activities within Mission Bay Park Units CA 54A, CA 54B, and CA 54C
STATEWIDE PROTECTION		
California Coastal Act	State Law	<ul style="list-style-type: none"> Establishes the California Coast Commission which oversees development in the coastal zone All proposed units in California
California Environmental Quality Act	State Law	<ul style="list-style-type: none"> All activities within the State of California that have the potential to harm sensitive species or habitat (state- or federally-listed) All proposed units in California
FEDERAL PROTECTION		
Clean Water Act	Federal Law	<ul style="list-style-type: none"> Activities affecting waters of the United States All proposed units
Section 10 of the Rivers and Harbors Act	Federal Law	<ul style="list-style-type: none"> All development activity within or affecting U.S. rivers, harbors and other waterways All proposed units
Endangered Species Act (listing provisions)	Federal Law	<ul style="list-style-type: none"> Endangered Species Act listing provisions cover a broad range of land use activities that may result in take of the species or jeopardize their continued existence All proposed units

3.1 PLACE-SPECIFIC BASELINE PROTECTIONS

79. Multiple existing conservation plans provide protection to the plover and/or its habitat at the local level. A total of 21 HCPs and management plans address plovers in Washington, Oregon, and California.

3.1.1 WASHINGTON

Willapa National Wildlife Refuge Draft Comprehensive Conservation Plan and Environmental Impact Statement (Willapa NWR FCCP); 2011.⁶⁸

80. The Willapa NWR FCCP requires monitoring of breeding plover adults and fledging success rates to assess progress toward recovery goals. Monitoring is also necessary to evaluate the effectiveness of habitat restoration efforts and the impact of conservation actions, such as the use of wire nest enclosures to exclude potential predators, on plover populations. This plan was finalized on August 12, 2011. Willapa NWR does not expect to modify the FCCP or alter the management practices outlined within the plan in response to the designation of critical habitat for the plover.⁶⁹
81. Willapa NWR and Washington State Parks have restricted beach access at Leadbetter Point through the use of 1) complete motorized vehicle driving closures, except during razor clam seasons; 2) signs that are seasonally placed along the upper portion of the beach demarcating nesting areas closed to public entry; 3) symbolic fencing placed seasonally along beach access trails on refuge lands to direct people toward the wet sand and away from plover nesting habitat; and 4) restrictions prohibiting dogs on refuge lands. Prohibitions also include restricting removal of native plants, driftwood, and alteration of other habitat features; fireworks; and certain recreational activities such as kite flying. These prohibitions also aid the NWR in minimizing disturbance to plover habitat. Willapa National Wildlife Refuge lands covered in the FCCP overlap proposed Units WA 3B, WA 4A, and WA 4B.

3.1.2 OREGON

Oregon Parks and Recreation Department Habitat Conservation Plan for the Western Snowy Plover (OPRD HCP); 2010.⁷⁰

82. The OPRD HCP covers sandy portions of the Oregon coast extending from the mouth of the Columbia River South jetty to the California/Oregon border. This area encompasses approximately 230 miles of sandy beach (approximately 64 percent of the Oregon coast). The OPRD HCP management areas overlap all 13 Oregon critical habitat units. However, most of the proposed critical habitat units extend eastward beyond the

⁶⁸ "Willapa National Wildlife Refuge: Final Comprehensive Conservation Plan and Environmental Impact Statement," U.S. Fish and Wildlife Service, August, 2011.

⁶⁹ Personal Communication with C. Stenvall, Willapa National Wildlife Refuge, August 25, 2011.

⁷⁰ "Habitat Conservation Plan for the Western Snowy Plover," ICF International, prepared for Oregon Parks and Recreation Department.

boundaries of the HCP management area boundaries. It is important to note that the land covered by the HCP does not include Federal lands. Any actions that occur on Federal lands, regardless of who conducts the activity, would be the responsibility of the Federal landowner and would require separate consultation with the Service.

83. The OPRD HCP covers all actions carried out by OPRD within the plan area, including public use/recreation management, natural resources management, and beach management. OPRD, in collaboration with the Service and the Oregon Department of Fish and Wildlife (ODFW), prepared this HCP with a proposed 25-year term. The HCP addresses potential effects on the plover resulting from OPRD management activities in the covered area, works toward the conservation and recovery of the coastal population of the species, and ensures that OPRD actions do not result in take of the species. Conservation measures include restricting vehicular access, installing symbolic fencing and signage, enforcing dog leash requirements in areas where the plover are not known and full prohibition of dogs in areas where the plover are present, kite-flying prohibitions, installing fences around areas previously used by plovers for nesting, and continuing to provide three full-time beach rangers and additional support, as needed, to facilitate enforcement. If a plover should nest outside a fenced “targeted” nesting area on the covered lands, OPRD will install fencing around the individual nest and will consider installing a nest enclosure after consultation with the Service.

Oregon Parks and Recreation Department Ocean Shore Management Plan (OSMP); 2005.⁷¹

84. The OSMP guides OPRD-related activity, with the purpose of balancing plover management goals with recreation, development, and natural resource management. The purpose of the plan is to guide future OPRD decision-making. The OSMP was written as a companion plan to the OPRD HCP (discussed above), meant to give broad instruction to be carried out under the OPRD HCP. Similar to the OPRD HCP, we assume that the OSMP covers all 13 proposed critical habitat units in Oregon.

North Spit Plan (NSP); 2006.⁷²

85. The NSP protects habitat and conserves biodiversity for the purposes of present and future passive recreation. In 1995, the U.S. Bureau of Land Management (BLM), the lead agency on the NSP, completed the Coos Bay Shorelands Final Management Plan to guide the use of BLM lands on the North Spit of Coos Bay. The NSP replaces this 1995 plan and provides guidelines for management through 2016. In 2008, the Service consulted on habitat restoration and recreation management under the NSP.
86. The NSP calls for habitat management and improvement, land use management, monitoring of plover populations, dog-leashing requirements, restricted vehicle access,

⁷¹ “Ocean Shore Management Plan,” Oregon Parks and Recreation Department, January 2005.

⁷² “Final North Spit Plan: An update to the Coos Bay Shorelands Plan of 1995,” U.S. Bureau of Land Management, December 2005.

and limitation of on-foot access to dry sand areas during the plover breeding season. The action area of the NSP overlaps proposed critical habitat Unit OR 10.

[New River Area of Critical Environmental Concern Management Plan \(New River ACEC Plan\); 2004.](#)⁷³

87. The New River ACEC Plan protects habitat and conserves biodiversity for the purposes of present and future passive recreation. The original 1995 New River ACEC Plan was consulted on in 1995 and 1999. The plan was amended in 2004 and additional modifications were consulted on in 2005 and 2008. In 2011, the BLM reinitiated consultation with the Service to continue to implement recreation management and modified habitat restoration and management for the plover and its designated critical habitat on land administered by the BLM at New River.
88. The New River ACEC Plan calls for habitat management and improvement, monitoring, dog-leashing requirements, restriction of vehicle access, and limitation of on-foot access to dry sand areas during plover breeding season. Under the New River ACEC Plan, BLM restored 2.75 miles (approximately 160 acres) of coastal dune habitat, overlapping critical habitat Unit OR 11, for nesting plovers by removing European beachgrass. However, subsequent lapses in management have allowed European beachgrass to spread through this restored area. While there are plans to restore a total of 100 acres by 2013, during the 2010 nesting season, only 50 acres of suitable habitat remained.

[Predator Damage Management Plan to Protect the Pacific Coast Population of the Western Snowy Plover \(PDM Plan\); 2002.](#)⁷⁴

89. The PDM Plan is carried out by BLM, the U.S. Forest Service (USFS), the Service, OPRD, and ODFW in conjunction with other management plans for the plover in Oregon. This plan supports other plover management plans by managing plover predators. The PDM Plan addresses non-lethal and lethal management of known and suspected plover predators, including the American crow, common raven, and red fox. Predator management activities are reviewed annually and incorporated into the Final Action Plan. Habitat areas covered by the PDM Plan include all proposed Units on the Oregon coast.

[Oregon Dunes National Recreation Area \(ODNRA\) Management Plan; 1994.](#)⁷⁵

90. The Oregon Dunes National Recreation Area Management Plan (ODNRA Plan) completely overlaps critical habitat units OR 8A, OR 8B, OR 8C, OR 8D, and OR 9. The ODNRA Plan was created under the USFS and Siuslaw National Forest to balance changing trends in recreation with the protection of natural resources.

⁷³ "New River Area of Critical Environmental Concern Management Plan," BLM, Updated May 2004.

⁷⁴ "Environmental Assessment, Predator Damage Management To Protect the Federally Threatened Pacific Coast Population of the Western Snowy Plover," U.S. Department of Agriculture, January 2002.

⁷⁵ "Oregon Dunes National Recreational Area Management Plan," U.S. Forest Service, Siuslaw National Forest, 1994.

91. ODNRA Plan designates approximately 7,000 acres of ONDRA lands to be managed for habitat for the plover, among other species.⁷⁶ ODNRA Plan conservation measures include habitat restoration, non-native vegetation (European beachgrass) removal, educating the public about management practices, nest exclosures, and signage.⁷⁷ Camping and OHV use are not permitted within covered lands. OHVs are managed separately in other management areas. Within plover management areas, OHVs are prohibited year-round and dispersed camping is prohibited during the breeding season.⁷⁸

3.1.3 CALIFORNIA

Integrated Natural Resources Management Plan for Vandenberg Air Force Base (VAFB); 2011.⁷⁹

92. VAFB recently completed an INRMP to cover the management of natural resources on the base. The INRMP received concurrence from the Service on April 14, 2011, was signed by VAFB Wing Commander, and is currently in effect.⁸⁰ It is important to note that the INRMP is a guidance document; programs and actions described within may require section 7 consultation with the Service. The INRMP does not substitute for section 7 consultation.
93. The purpose of the INRMP is to provide integrated, comprehensive, ecosystem-based resource management strategies and to recommend goals for VAFB's natural resources for five years (2011 – 2015). In particular, the INRMP contains a Threatened and Endangered Species Management Plan, which addresses all special-status plant and wildlife species that are known or have potential to occur at VAFB, including the plover. This plan outlines management measures for the plover including:
- Restrictions on recreational beach access during the nesting season;
 - Prohibition of recreational off-road vehicle activity on plover beaches;
 - Enforcement of leash laws year-round and complete prohibition of pets during the nesting season;
 - Actions to reduce the predator attraction to plover beaches during nesting season; and

⁷⁶ "Oregon Dunes National Recreational Area Management Plan," U.S. Forest Service, Siuslaw National Forest, 1994, Chapter II, page 4.

⁷⁷ "Oregon Dunes National Recreational Area Management Plan," U.S. Forest Service, Siuslaw National Forest, 1994, Chapter III, page 12.

⁷⁸ Written Communication with U.S. Fish and Wildlife Service, Newport Field Office, August 15, 2011.

⁷⁹ Integrated Natural Resources Management Plan for Vandenberg Air Force Base, California, Prepared for 30th Space Wing, Asset Management Flight Vandenberg Air Force Base, California, May 2011.

⁸⁰ Written Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 27, 2011.

- Habitat restoration, including eradication of nonnative beachgrass and enhancement of native vegetation.

These management measures are carried out through various plans which have been reviewed by the Service including the beach management plan, predator management plan, and habitat restoration plan. In addition, program-specific monitoring of plovers is conducted as required by Service Biological Opinions and flight restrictions over plover nesting beaches are in place.

2010 Nesting Season Management Plan To Avoid Take Of The California Least Tern And Western Snowy Plover At Oceano Dunes State Vehicular Recreation Area (Oceano Dunes SVRA Plan); 2010.⁸¹

94. In 2001, the Corps determined that activities at Oceano Dunes SVRA were no longer under its jurisdiction and the SVRA lost the Federal nexus needed to renew their section 7 biological opinion. Since this time, Oceano Dunes SVRA has worked with the Service to develop an annual plan to provide protection to the plover and the California least tern. The park currently has three exclosures at previous plover nesting sites within its jurisdiction: Arroyo Grande Creek, the “Southern Exclosure”, and Oso Flaco Natural Area, totaling approximately 300 acres. Exclosure signage and fencing provides protection from predators and recreators. In addition, the Oceano Dunes SVRA Plan calls for surveying and monitoring of the species within the park and fencing around nests outside of the three designated nesting areas. The Oceano Dunes SVRA Plan also contains protective measures for the threatened least tern, such as signage, educational efforts, fencing, and limiting beach access, which may also indirectly benefit the plover. Plover conservation measures to be implemented during the non-nesting season (October 1 through February 28) will consist of weekly monitoring for location of plovers within the park, continued enforcement of dog leash laws, restricted horseback access, and continued enforcement of the posted 15 mile per hour vehicle speed limits on the beach. For areas of Oceano Dunes SVRA that do not support OHV use, the plan calls for symbolic fencing, signage, and monitoring. Enforcement of these conservation measure and restrictions on recreation will be carried out by State Park Rangers. This plan overlaps proposed critical habitat Unit CA 31.

Final Los Peñasquitos Watershed Management Plan; 2005.⁸²

95. The Los Peñasquitos Watershed Management Plan provides ancillary benefits to the plover, such as improved water quality and vegetation that may serve as habitat and improve habitat connectivity. The plover is one of 86 sensitive animal species occurring within the Los Peñasquitos Watershed. The Plan covers lands that overlap critical habitat Unit CA 53.

⁸¹ “Nesting Season Management Plan To Avoid Take Of The California Least Tern And Western Snowy Plover At Oceano Dunes State Vehicular Recreation Area,” Oceano Dunes State Vehicular Recreation Area, February 2010.

⁸² “Final Los Peñasquitos Watershed Management Plan,” AMEC Earth & Environmental, Inc., prepared for City of San Diego, March 2005.

96. When released, the Final Los Peñasquitos Watershed Management Plan was only in the early planning stages and did not have any ongoing conservation measures. The Final Los Peñasquitos Watershed Management Plan outlined measures to be completed within five years, which included water quality monitoring, educational programs, and restoration of wetland, riparian habitat which plover is known to occupy in inland proposed critical habitat. Information on the current level of conservation is not readily available.

Fort Ord Dunes State Park Preliminary General Plan and Environmental Impact Report; 2004.⁸³

97. The Fort Ord Dunes State Park Preliminary General Plan and Environmental Impact Report (Fort Ord Plan) is a management plan governing approximately 785 acres of coastline located between Sand City and Marina State Beach in Monterey County, California. Fort Ord Dunes State Park occupies land where Fort Ord, a decommissioned army installation, previously operated. The Fort Ord Plan addresses recreation within Park boundaries and aims to protect as many known special-status species existing within the Park as possible by locating recreation activity “outside boundaries of direct and indirect effects for known existing special-status species...to the extent possible.”⁸⁴ The Fort Ord Plan calls for the establishment of a Western Snowy Plover Management Program.

[The] Western Snowy Plover Management Program [aims] to monitor and protect nesting areas and activities, and to establish appropriate levels of public access to these areas. When determined necessary, implement appropriate supplemental measures, such as erection of exclosures, and predator control, in accordance with the Department’s “Western Snowy Plover Systemwide Management Guidelines,” and as necessary through consultation with regulatory agencies and local experts.⁸⁵

Additionally, the Fort Ord Plan calls for establishing a non-native vegetation control program, with a goal of maintaining a minimum of 700 restored acres. Within the Park’s Natural Resource Management Zone, vehicular traffic is restricted and pedestrian traffic is restricted to low-impact walking trails.

98. The Fort Ord Plan compliments the Fort Ord Basewide Management Plan, as well as a multi-party HCP being developed by multiple parties, including Fort Ord Dunes State Park. The Service has not consulted on the HCP in development, and the Service expects

⁸³ Fort Ord Dunes State Park Preliminary General Plan and Environmental Impact Report. 2004. Prepared for California Department of Parks and Recreation by Environmental Science Associates. Accessed at http://www.parks.ca.gov/?page_id=22727 on July 8, 2011.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

that it will not be finalized before 2014.⁸⁶ The Fort Ord Plan covered area overlaps a portion of Unit CA 22.

Clam and Moonstone Beach County Parks Recreational Facilities and Resource Management Master Plan (Clam and Moonstone Beach Management Plan); 2004.⁸⁷

99. The Clam and Moonstone Beach Management Plan is a 10- year management plan for recreational facilities and public access in a location and manner that will reduce impacts to natural and cultural resources, and focuses on accommodating public access to the beaches to the extent that access and activities do not adversely impact the area's natural resources.
100. The Clam and Moonstone Beach Management Plan gives recommendations that prohibit vehicular access to the covered area except for permitted vehicles, prohibit camping and campfires, and require dogs to be leashed at all times. However, the Plan has not been fully implemented and vehicle access is permitted on Clam Beach.⁸⁸ The recommendations also call for habitat restoration, symbolic fencing, and monitoring of plovers. The Clam and Moonstone Beach Management Plan covers county-owned lands on approximately 6.5 miles of coastline between Trinidad and Arcata in Humboldt County, California. This area encompasses proposed critical habitat Units CA 4A and CA 4B.

Humboldt Bay South Spit Interim Management Plan (Interim Management Plan); 2002.⁸⁹

101. The Interim Management Plan covers recreation activities managed by BLM within Humboldt Bay South Spit. The Interim Management Plan stems from the Humboldt Beach and Dunes Management Plan (1995) and the South Spit Management Plan (1997), which call for an interim plan to be enacted to protect sensitive species and improve the quality of natural resources of the South Spit until long-term planning is in place. BLM consulted with the Service on this plan in 2002 and reinitiated consultation in 2005 to address adverse modification of critical habitat. Plover management actions outlined in the plan include habitat restoration; physical removal of invasive species; public education, signage and enforcement; creation of nesting, brooding, and wintering protection areas; and surveying and monitoring for birds. The Interim Management Plan covers lands overlapping critical habitat unit CA 5A.

⁸⁶ Personal Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 8, 2011.

⁸⁷ "Clam & Moonstone Beach County Parks Management Master Plan," The Plan West Partners Team, prepared for Humboldt County Department of Public Works, March 2004.

⁸⁸ Personal Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 17, 2011.

⁸⁹ "South Spit Interim Management Plan." Prepared by the Bureau of Land Management, Arcata Field Office, July 2002.

Salinas River National Wildlife Refuge Comprehensive Conservation Plan (Salinas River NWR CCP); 2002.⁹⁰

102. The Salinas River NWR CCP is designed to guide management of the plover along with 55 other species at the Salinas River NWR through 2017. The Salinas River NWR CCP coordinates with several Federal, State, and local organizations to enhance plover management using warning signage, predator removal, nest enclosures, and habitat management. Additionally, the natural processes of dune formation will be restored under the Salinas River NWR CCP, and native vegetation in the dune complex of the NWR will be protected and enhanced. Dune management will result in ancillary benefits for the plover, providing improved foraging and nesting habitat. This management plan overlaps the proposed revised critical habitat at Unit CA 22.

Coal Oil Point Reserve Snowy Plover Management Plan (Coal Oil Point Reserve SPMP); 2001.⁹¹

103. The goals of the Coal Oil Point Reserve SPMP are to maintain a wintering population of plover undisturbed by human recreation and unleashed dogs in perpetuity and provide protected habitat for four breeding adults in the summer while continuing to allow compatible public access on Sand's Beach (which lies within Unit CA 34). The Coal Oil Point SPMP protects plovers by minimizing impacts from human activity, domestic animals, researchers, and students using the Reserve in field study; providing education to the public; restoring habitat; and controlling predators.

Integrated Natural Resources Management Plan for the Naval Postgraduate School; 2001.⁹²

104. Unit CA 22 includes approximately 7.8 acres of Naval Support Activity (NSA) Monterey. NSA Monterey provides primary support to the Naval Postgraduate School, Fleet Numerical Meteorology and Oceanography Center, Navy Research Lab and more than 15 additional tenant commands.⁹³ NSA Monterey is covered by the INRMP for the Naval Postgraduate School. This INRMP includes management activities to be implemented to provide for the ecological needs of the plover. Management activities include: eliminating incompatible military operations on the beach during nesting season; fencing and signage to discourage human foot traffic; predator management; dog leashing requirement; plover monitoring; and habitat enhancement.

⁹⁰ "Salinas River National Wildlife Refuge: Comprehensive Conservation Plan," U.S. Fish and Wildlife Service, December 2002.

⁹¹ "Coal Oil Point Reserve Snowy Plover Management Plan," Coal Oil Point Reserve, October 2001.

⁹² Final Integrated Natural Resources Management Plan for the Naval Postgraduate School, June 2001.

⁹³ Public Comment on the Proposed Rule submitted by the Department of the Navy, May 19, 2011.

[San Diego Bay Integrated Natural Resources Management Plan; 2000.](#)⁹⁴

105. In 2000, the Unified Port of San Diego and the U.S. Navy Southwest Division partnered to prepare a joint INRMP for San Diego Bay. The Proposed Rule exempts multiple sites managed under the San Diego Bay INRMP, but proposes for designation Units CA 55E and CA 55G, which are also managed under the same INRMP.⁹⁵ The most recent draft of the INRMP includes the following management activities to protect the plover: predator management at nest sites; restrictions on human use of beaches during nesting season; prohibition of beach raking; plover monitoring; and habitat enhancement.⁹⁶

[The Habitat Management Plan for Natural Communities in the City of Carlsbad \(Carlsbad HMP\); 1999.](#)⁹⁷

106. The Carlsbad HMP addresses citywide conservation of endangered species in relation to commercial and residential growth of the City of Carlsbad. The plover is one of 47 species covered by the Carlsbad HMP. The Plan Area overlaps the proposed revised critical habitat Units CA 50A, CA 50B, and CA 50C. These units contain tidally influenced estuarine habitat, in which the plover is known to nest and forage. The HMP aims to preserve 100 percent of this estuarine habitat. Management measures focus on restricting activities within the preserve that degrade plover foraging and nesting habitats by controlling nonnative plants, maintaining the hydrology and water quality of salt marsh and estuarine habitats, and protecting these habitats from physical disturbances. Human activity will be restricted near nesting habitat during the breeding season. Management measures may also include a predator control program and the restoration and enhancement of breeding areas.

[Torrey Pines State Reserve Wildlife Management Plan \(Torrey Pines Plan\); 1998.](#)⁹⁸

107. The Torrey Pines Plan calls for limiting pedestrian and vehicular beach access to wet sand, controlling predators, removing European beachgrass, and investigating the effects of dune restoration on plovers. Conservation measures also include possible habitat enclosure. The 1,256 acres covered by the Torrey Pines Plan overlaps a portion of critical habitat Unit CA 53.

⁹⁴ San Diego Bay Integrated Natural Resources Management Plan Preliminary Draft, June 2007, accessed at <http://sdbayinrmp.org/2lib.draft.htm> on July 14, 2011.

⁹⁵ Public Comment submitted by the San Diego Unified Port District, Western Snowy Plover Proposed Critical Habitat Designations for Unit Numbers CA 55E and CA 55G, May 23, 2011.

⁹⁶ San Diego Bay Integrated Natural Resources Management Plan Preliminary Draft, June 2007, accessed at <http://sdbayinrmp.org/2lib.draft.htm> on July 14, 2011.

⁹⁷ "Habitat Management Plan for Natural Communities in the City of Carlsbad," City of Carlsbad, December 1999.

⁹⁸ "Wildlife Management Plan For Torrey Pines State Reserve: Terrestrial Vertebrates," California Department of Parks and Recreation, revised December 1998.

Multiple Species Conservation Program, City of San Diego, Subarea Plan (City of San Diego Subarea Plan); 1997.⁹⁹

108. The plover is one of 85 species covered by the City of San Diego Subarea Plan, addressing conservation of endangered species in relation to the commercial and residential growth of the City of San Diego. The Subarea Plan covers 56,831 acres of San Diego municipal lands and surrounding unincorporated land, preserving the majority (roughly 94 percent) of San Diego public lands. Development impacts on private lands within the remainder of the Multiple Habitat Planning Area (MHPA) are restricted to no more than 25 percent of the parcel (75 percent preservation). Development within the MHPA is directed to areas of lower quality habitat and/or areas considered less important to the long-term viability of the MHPA. Documented populations of covered species within the City's portion of the MHPA are protected to the extent feasible. The City of San Diego Subarea Plan covers several miles of coastline in southern California, which overlaps several units in the proposed revised critical habitat, including, Units CA 52A-C, CA 53, CA 54A-D, and CA 55B, CA 55E, CA 55F, CA 55G, CA 55I, and CA 55J.

Mission Bay Park Natural Resource Management Plan (Mission Bay Park Plan); 1990.¹⁰⁰

109. Although the plover had not yet been listed at the time that this plan was prepared, the Mission Bay Park Plan mentions the plover and includes it in general conservation goals. The Mission Bay Park Plan aims for no net loss of habitat for the plover, among other species. It does not include conservation measures specifically related to the plover; however, some indirect measures taken for other species may benefit the plover include fencing, signage, and educational programs. This plan overlaps critical habitat Units CA 54A, CA 54B, and CA 54C.

3.2 STATEWIDE BASELINE PROTECTIONS

3.2.1 CALIFORNIA COASTAL ACT (THE COASTAL ACT)

110. Enacted in 1976, the Coastal Act protects, conserves, restores, and enhances environmental and human-based resources of the California coast and ocean. The Coastal Act established the California Coastal Commission (CCC), which oversees development in the coastal zone.¹⁰¹ In addition, the Coastal Act requires that each of the 15 counties and 59 cities in the coastal zone develop a Local Coastal Program (LCP), which, once approved by the CCC, regulates all development in the coastal regions of the State. A county or city with an LCP is responsible for reviewing most development

⁹⁹ "Multiple Species Conservation Program: City of San Diego MSCP Subarea Plan," City of San Diego, March 1997.

¹⁰⁰ "Final Mission Bay Park Natural Resources Management Plan," Department of Development and Environmental Planning, City of San Diego. Prepared for the Department of Parks and Recreation, May 1990.

¹⁰¹ According to the CCC, the coastal zone varies from several hundred feet inland in urban areas up to five miles inland in rural areas. See <http://www.coastal.ca.gov/whoware.html> for further information.

permits for proposed coastal projects; counties or cities without LCPs defer applications directly to the CCC. Projects that require Federal permitting (e.g., a section 404 permit under the Clean Water Act) are permitted directly through the CCC, as opposed to a local government. These types of projects, however, occur relatively infrequently. A developer may also appeal a project not approved by a local government to the CCC. Finally, the CCC has primary authority over any development on tidelands, submerged lands, or public trust lands.¹⁰²

111. According to the Coastal Act, any development that involves the placement of any solid material or structure, a change in land use density or intensity (including subdivision), a change in the intensity of water use or access to water, or the removal of major vegetation requires a coastal permit from either the county or city government with an approved LCP, or from the CCC. Development projects exempt from permit review include repairs and improvements to single-family homes, replacement of structures destroyed by natural disasters, and certain temporary events in the coastal zone.¹⁰³
112. The CCC may place “conditions on concurrence” for approval of a project. That is, it may agree that a project may proceed with certain stipulations, for example implementation of plover conservation efforts. As of 2005, the CCC had not placed “conditions on concurrence” on any proposed development projects in the past due to the presence of plover or habitat.¹⁰⁴ However, other restrictions intended to preserve and enhance environmental resources may also benefit the plover.

3.2.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

113. CEQA requires the identification of the environmental effects of proposed projects that have the potential to harm sensitive species or habitat (state- or federally-listed). CEQA requires State and local agencies (“the lead agency”) to determine whether a proposed project would have a “significant” impact on the environment and, for any such impacts identified, determine whether feasible mitigation measures or feasible alternatives will reduce the impact to a less-than-significant level. Under CEQA, the lead agency typically requires projects that may impact sensitive species or habitat to undertake a biological assessment by a qualified biologist to determine the potential for impacts to all rare, threatened and endangered species. Section 15065 of Article 5 of the CEQA regulations states that a finding of significance is mandatory if the project will:

“substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate

¹⁰² Personal Communication with Larry Simone, California Coastal Commission, March 7, 2005.

¹⁰³ California Coastal Commission, “California Coastal Commission: Why it Exists and What it Does,” accessed at http://www.coastal.ca.gov/publiced/Comm_Brochure.pdf on April 4, 2005.

¹⁰⁴ Personal Communication with Larry Simone, California Coastal Commission, March 7, 2005.

important examples of the major periods of California history or prehistory.”

If the lead agency finds that a project causes significant impacts, the project proponent must prepare an Environmental Impact Report (EIR).

114. CEQA requirements play a role in requiring environmental review for projects that may affect the plover. The review process may result in baseline conservation of the plover. In addition, there may be situations in which CEQA review would be initiated only due to the presence of critical habitat. In such cases, indirect, incremental impacts associated with CEQA review are possible. Such incremental impacts are discussed in Chapter 4 of this report.

3.3 FEDERAL BASELINE PROTECTIONS

3.3.1 CLEAN WATER ACT

115. Section 404 of the Clean Water Act requires parties to obtain a permit from the Corps prior to discharging dredge or fill material into “water of the United States.”¹⁰⁵ Due to coastal and estuarine nature of plover habitat, the Corps issues section 404 permits within the areas proposed for critical habitat designation. Corps review of projects for the issuance of section 404 permits requires section 7 consultation with the Service to the extent that the project may affect listed species or critical habitat. As part of the section 404 permit process, the Corps reviews the potential effects of the proposed action on plant and animal populations and recommends efforts to avoid adverse effects to these populations in addition to the wetlands themselves. In general, conservation efforts for plants and animals include:

- Select sites or manage discharges to ensure that habitat remains suitable for indigenous species.
- Avoid sites having unique habitat or other value, including habitat of threatened or endangered species.
- Utilize habitat development and restoration techniques to minimize adverse impacts and compensate for destroyed habitat.
- Time discharge to avoid biologically critical time periods.
- Avoid the destruction of remnant natural sites within areas already affected by development.¹⁰⁶

116. Any costs related to conservation efforts required by the Corps to avoid impacts to the plover as part of the section 404 permit process are considered baseline impacts and thus are not quantified in the economic analysis. Chapter 4 discusses the potential for

¹⁰⁵ U.S. Code, Title 33, 1344.

¹⁰⁶ 40 CFR Part 230.75.

additional project modifications, above section 404 protections, that may result from the designation.

3.3.2 RIVERS AND HARBORS ACT (33 USC §§ 401 ET SEQ. 1938)

117. The Rivers and Harbors Act (RHA) places Federal investigations and improvements of rivers, harbors and other waterways under the jurisdiction of the Corps and requires that all investigations and improvements include due regard for wildlife conservation. This Act may provide protection to the plover from construction and waterway maintenance activities. Under sections 9 and 10 of the RHA, the Corps is authorized to regulate the construction of any structure or work within navigable water. This includes, for example, bridges and docks. In addition, under Section 10 of the RHA, as well as Section 404 of the Clean Water Act, the Corps has issued certain nationwide and regional general permits, which contain provisions to protect special-status species, governing construction, dredging, and fill activities. RHA protections that would be required in the absence of critical habitat are considered baseline protections in this analysis.

3.3.3 ENDANGERED SPECIES ACT

118. As described in Section 2.4, baseline protections afforded the plover under the Act include sections 7, 9, and 10 to the extent that they are expected to occur absent the designation of critical habitat for the species.
- Section 7 of Act, absent critical habitat designation, requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. Consultations considering the potential for a project of plan to jeopardize the species result in administrative costs, as well as impacts of conservation efforts resulting from consideration of this standard.
 - Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the "take" of endangered wildlife, where "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."¹⁰⁷ The economic impacts associated with this section manifest themselves in sections 7 and 10.
 - Under section 10(a)(1)(B) of the Act, an entity (e.g., a landowner or local government) may develop a HCP for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with a land or water use activity or project.¹⁰⁸ The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately avoided or minimized. The development and implementation of HCPs is considered a baseline protection for the species and habitat unless the

¹⁰⁷ 16 U.S.C. 1532.

¹⁰⁸ U.S. Fish and Wildlife Service, "Endangered Species and Habitat Conservation Planning," August 6, 2002, accessed at <http://endangered.fws.gov/hcp/>.

HCP is determined to be precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.

In summary, the preceding sections describe the extensive baseline protection afforded the plover in the absence of critical habitat. The following section describes the specific approach used to separate the baseline and incremental impacts for the plover.

3.4 SEPARATING BASELINE AND INCREMENTAL IMPACTS

119. When critical habitat is designated, section 7 requires Federal agencies to ensure that their actions will not result in the destruction or adverse modification of critical habitat (in addition to considering whether the actions are likely to jeopardize the continued existence of the species). The added administrative costs of including consideration of critical habitat in section 7 consultations, and the additional impacts of implementing conservation efforts resulting from the protection of critical habitat are the direct compliance costs of designating critical habitat. These costs are not in the baseline and are considered incremental impacts of the rulemaking.
120. To inform the economic analysis, the Service provided a memorandum describing its expected approach to conservation for the plover following critical habitat designation. Specifically, the Service's memorandum provides information on how the Service intends to address projects that might lead to adverse modification of critical habitat as distinct from projects that may jeopardize the species. The Service's memorandum is provided in Appendix D. Based on the information provided in the memorandum, the designation of critical habitat may result in additional plover conservation efforts in some cases, especially in the event of short-term projects carried out when plovers are absent or when the effects of a project are permanent.

3.4.1 DIRECT INCREMENTAL IMPACTS

121. The direct, incremental impacts of critical habitat designation stem from the consideration of the potential for destruction or adverse modification of critical habitat during section 7 consultations. The definition of a direct impact is discussed in more detail in Section 2.4.2. In the case of the plover, for projects covered by a conservation plan, we assume that direct incremental impacts are limited to additional administrative costs associated with new or reinitiated section 7 consultations. Past consultations on existing or draft HCPs may, for example, be reinitiated following critical habitat designation, resulting in administrative effort. For projects with a Federal nexus (e.g., section 404 permits under the Clean Water Act), the Service asserts that their consideration of the potential for destruction or adverse modification during section 7 consultation will differ depending on project duration (short-term versus long-term) and whether project impacts are temporary or permanent. Thus, the direct incremental impacts of section 7 consultation will vary depending upon a project's nature.
- **Short-term activities.** For short-term activities that allow an action to take place while plovers are absent, such as removal or control of European beachgrass

during wintering periods, the Service may analyze effects to critical habitat without analyzing effects to members of the species.¹⁰⁹ Therefore, in this analysis, conservation efforts requested during consultation for short-term activities and all administrative costs of consultation are considered incremental impacts of the designation.

- **Activities having temporary impacts.** The Service believes that consultations for activities having temporary impacts on habitat “may result in minimal incremental [economic] impacts because the measures to address impacts to individuals and to features of critical habitat would most likely be the same.”¹¹⁰ Although plovers may not be present or detected every year at a given location, the Service will assume occupancy based on the species’ history at that area and will analyze effects to both members of the species and elements of physical or biological features within designated critical habitat. As such, the incremental impact of consultations for temporary activities will likely be limited to the administrative cost of considering the adverse modification standard.
- **Long-term activities or activities having permanent impacts.** The Service believes that actions that result in permanent loss of habitat, such as construction of a parking area within habitat, or those that result in long-term habitat degradation, such as beach raking, may result in adverse modification of habitat.¹¹¹ Conservation efforts that may be requested to avoid adverse modification include: (1) a lower level of land use (i.e., minimize project disturbance footprint; and (2) implement Best Management Practices to protect critical habitat features. The Service notes that similar project modification may be requested to avoid jeopardy.¹¹² Therefore, for long-term activities or activities with permanent impacts on habitat, the economic analysis will quantify only additional conservation efforts requested solely to avoid adverse modification of critical habitat as well as the administrative cost of addressing the adverse modification standard in consultation.

122. We understand from our discussions with the Service and our review of the proposed rule that most subunits are either currently occupied or have been used historically by plovers. Therefore, the decision process described in the bullets above applies to a majority of the acres considered in this analysis. However, the proposed rule also identifies several subunits that are currently unoccupied and were included to allow for population expansion. In addition, eastward sections of certain proposed subunits may not currently

¹⁰⁹ U.S. Fish and Wildlife Service to Industrial Economics, Inc. “Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Pacific Coast Population of the Western Snowy Plover Proposed Revised Critical Habitat Designation,” April 11, 2011.

¹¹⁰ *Ibid.*

¹¹¹ *Ibid.*

¹¹² *Ibid.*

contain suitable habitat; rather these acres are proposed in anticipation of sea-level rise and the need to protect potential habitat at higher elevations.

123. The Service's incremental effects memorandum states,

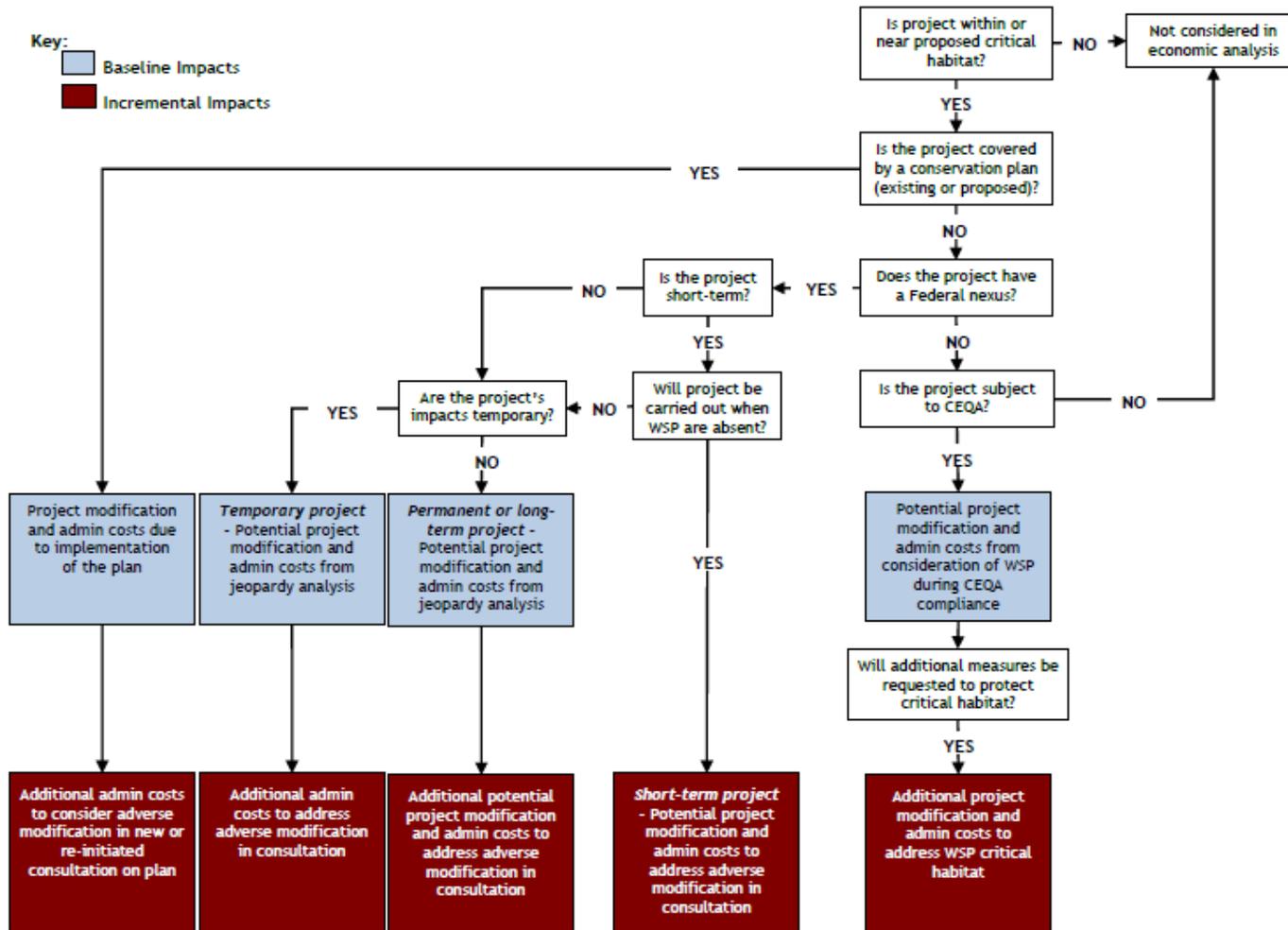
The proposed revised critical habitat designation contains units that are currently occupied and unoccupied. However, even though Pacific Coast WSPs may not be present or detected every year at a given location within the critical habitat area, the Pacific Coast WSP may use these unoccupied areas on an intermittent basis for dispersal or foraging. Thus, even if the Pacific Coast WSP is not present within a project footprint at the time that surveys occur, the Service may still assume presence based on the species' history in that area, and analyze any effects both to members of the species and to elements of physical or biological features within designated critical habitat.

In the historically unoccupied areas, the species' history would not alert the Service or project proponents to its potential future presence. Therefore, in these areas, project modifications requested during consultation and all administrative costs of consultation would be considered incremental impacts of the designation, regardless of activity duration or the permanency of habitat impacts. Exhibit 3-2 summarizes the decision framework described in this section. We use this framework to identify the incremental impacts of the designation.

3.4.2 INDIRECT INCREMENTAL IMPACTS

124. In addition to the direct incremental impacts of critical habitat designation, potential exists for indirect impacts: that is, impacts of the designation that may occur outside of the section 7 consultation process. State or local officials may require conservation of plover habitat through CEQA, or existing or proposed HCPs may be revised to consider plover critical habitat. Where data are available, such indirect impacts are also quantified.

EXHIBIT 3-2. FRAMEWORK FOR DETERMINING BASELINE AND INCREMENTAL IMPACTS¹¹³



¹¹³ This framework applies to the majority of subunits that are either currently occupied or have been used historically by plovers and will thus be considered occupied. Fish and Wildlife Service biologists in the Newport Field Office state that Units OR 1, OR 2, OR 3, OR 4, OR 5, OR 6, OR 12, and OR 13 are considered unoccupied and consultations are not occurring absent critical habitat designation (Personal Communication with U.S. Fish and Wildlife Service, Newport Field Office biologist, May 31, 2011). In these units, project modifications requested during consultation and all administrative costs of consultation are considered incremental impacts of the designation, regardless of activity duration or the permanency of habitat impacts.

3.5 TYPICAL BASELINE CONSERVATION EFFORTS

125. This section discusses baseline protection afforded the plover under the Act. Baseline protections include sections 7, 9, and 10 of the Act, and economic impacts resulting from these protections to the extent that they are expected to occur absent the designation of critical habitat for the species. As is described in Section 3.4, absent critical habitat designation, Federal agencies are required to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. Since the species was listed in 1993, the Service has conducted five formal consultations, 120 informal consultations, and 31 technical assistance efforts for the species.¹¹⁴ These consultations consider a range of economic activities, including development, recreation, species and habitat management, military, transportation, and utility projects.¹¹⁵
126. During consultation on projects within plover habitat, the Service generally encourages avoidance of impacts, rather than some form of compensation. If avoidance of incidental take is not possible, the Service looks to minimize habitat impacts.¹¹⁶ Exhibit 3-3 details baseline conservation efforts typically requested by the Service during consultation to avoid jeopardy.

¹¹⁴ We note that since 1999, varying amounts of critical habitat have also been designated for the species. While some of these consultations may have been prompted by the designation, the majority consider the potential for projects to jeopardize the species.

¹¹⁵ Consultation record provided by the Service for this analysis and for 2005 Economic Analysis.

¹¹⁶ U.S. Fish and Wildlife Service to Industrial Economics, Inc. "Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Pacific Coast Population of the Western Snowy Plover Proposed Revised Critical Habitat Designation," April 11, 2011.

EXHIBIT 3-3. SUMMARY OF BASELINE PLOVER CONSERVATION EFFORTS BY ACTIVITY

EXTENT OF THREAT	EXAMPLE CONSERVATION EFFORTS ⁽¹⁾
RECREATION	
<p>Potential Affected Activities⁽²⁾:</p> <ul style="list-style-type: none"> • Beach-going • Horseback riding • Dog-walking • OHV use • Fishing 	<ul style="list-style-type: none"> • Restrict certain beach uses, including: <ul style="list-style-type: none"> • OHV and other vehicle use • Firework use • Kite flying • Horseback riding • Pet walking (or enforce leashing rules) • Prohibit or alter timing of mechanized beach cleaning and nourishment • Construct exclusion fencing around nest sites and/or symbolic fencing • Place signage indicating sensitive areas • Non-lethal and lethal predator management • Educate public about management efforts • Restore native habitat and/or remove European beachgrass • Survey, monitor, and report species
DEVELOPMENT	
<p>Potential Affected Activities⁽²⁾:</p> <ul style="list-style-type: none"> • Residential and commercial development • Jetty repair and rehabilitation⁽⁴⁾ • Road and bridge construction and maintenance • Public utility construction and maintenance 	<ul style="list-style-type: none"> • Avoid development within critical habitat • Restrict construction activities during breeding season • Conduct pre-construction plover surveys • If nests are detected, construct exclusion fencing • Avoid using construction vehicles on beach
MINING	
<p>Potential Affected Activities⁽²⁾:</p> <ul style="list-style-type: none"> • Gravel mining 	<ul style="list-style-type: none"> • To the maximum extent practicable, initiate all extraction related activities outside of breeding season • Conduct pre-extraction plover surveys • If a nest is located within 1,000 feet of planned extraction site, extraction activities will not commence until nest has hatched or been abandoned • Restrict night driving for extraction-related activities within suitable plover habitat

EXTENT OF THREAT	EXAMPLE CONSERVATION EFFORTS ⁽¹⁾
MILITARY ACTIVITIES	
<p>Potential Affected Activities⁽³⁾:</p> <ul style="list-style-type: none"> • Space and missile launches • Security and antiterrorism operations • Explosive ordnance management • Invasive species removal 	<ul style="list-style-type: none"> • Seasonally buffer nesting areas from flying missions • Seasonally restrict certain training exercises • Construct exclusion fencing around nest sites and/or symbolic fencing • Remove predators • Survey, monitor, and report species
<p>Notes and Sources:</p> <p>(1) We derive the list of example baseline conservation efforts from review of the consultation history and existing conservation plans covering the plover.</p> <p>(2) Proposed Critical Habitat Rule, 76 FR 16046.</p> <p>(3) Vandenberg Air Force Base, 2008. Draft Programmatic Biological Assessment: Effects of Activities Conducted at Vandenberg Air Force Base, California, on 14 Federally Threatened and Endangered Species. Submitted to U.S. FWS November 18, 2008.</p> <p>(4) Personal Communication with U.S. Fish and Wildlife Service, Newport Field Office biologist, May 12, 2011.</p>	

127. Exhibit 3-4 lists known projects with a Federal nexus that will likely incur baseline project modification and/or administrative impacts. These projects were identified based on public comments submitted by and personal communication with stakeholders in the region. During consultation, the Service will consider potential for jeopardy and adverse modification depending on the nature of the project as described above and in Exhibit 3-2. To avoid a jeopardy finding, the Service may request project modifications similar to those listed in Exhibit 3-3. These projects and the associated incremental impacts caused by the designation of critical habitat for the plover are discussed in Chapter 4.

**EXHIBIT 3-4. SUMMARY OF KNOWN FUTURE ACTIVITIES WITH A FEDERAL NEXUS SUBJECT TO
BASELINE IMPACTS UNDER THE ACT**

SUBUNIT	PROJECT DESCRIPTION	PROJECT NATURE
DEVELOPMENT		
OR 1	Corps jetty rehabilitation project at Columbia River Mouth under evaluation, no construction currently planned, but the Corps has consulted with the Service on this project. ⁽²⁾	Long-term, permanent
OR 10	Corps jetty rehabilitation project at north jetty of Coos Bay North Spit under evaluation. Planning is in the early stages. OPRD and BLM manage this area for the plover under the OPRD HCP and the NSP, respectively. ⁽²⁾	Long-term, permanent
CA 20	Manual breaching of the Pajaro River. Army Corps permit needs to be re-issued every 10 years and consultation with the Service will happen at that time. Last consultation took place in 1999. ⁽³⁾	Short-term, temporary
CA 22	Manual breaching of the Salinas River Lagoon. The Corps has previously consulted with the Service on this activity, but consultation did not consider impacts to critical habitat. This consultation will need to be reinitiated to address adverse modification of critical habitat. ⁽³⁾	Short-term, temporary
CA 29	This unit is nourished by the Corps every seven to ten years and was last nourished in 2009. ⁽⁵⁾	Short-term, temporary
CA 35	Several Corps-permitted sediment management activities are carried out within this unit, including the semi-annual discharge of dredged materials by the Corps. ⁽⁵⁾	Short-term, temporary
CA 39	Ormond Beach nourished biannually by the Corps with the material dredged from the Federal navigation channel into Channel Islands Harbor (Unit CA 38). ⁽⁵⁾	Short-term, temporary
CA 55B	Potential construction of Class 1 bike trail and pedestrian walking path in 'Central Beach' area of Coronado Beach, Unit CA 55B. ⁽¹²⁾	Short-term, permanent
MINING		
CA 6	Six gravel extractors operate in the unit under a county-wide permit issued by the Corps. The Corps has previously consulted with the Service on impacts to the plover and its habitat. ⁽⁶⁾	Long-term, temporary
MILITARY		
OR 4	Biannual military training operations occur within unit. Operations are permitted by the Corps and OPRD. ⁽⁷⁾	Short-term, temporary
CA 32; CA 33	VAFB consultation with the Service on activities conducted under their Installation Restoration Program. ⁽⁸⁾	Short-term, temporary
CA 32; CA 33	VAFB consultation with the Service on activities conducted under their Military Munitions Response Program. ⁽⁸⁾	Short-term, temporary
CA 32; CA 33	VAFB consultation with the Service on activities conducted under beach management plan for the plover. ⁽⁸⁾	N/A
HABITAT/SPECIES MANAGEMENT		
WA 3B	Dune restoration project undertaken by the Corps on tribal lands. ⁽⁹⁾	Short-term, permanent

SUBUNIT	PROJECT DESCRIPTION	PROJECT NATURE
CA 22	California Department of Parks and Recreation is in the process of preparing an HCP that will include management for the plover within Fort Ord Dunes State Park. The Fort Ord Dunes HCP is being developed in conjunction with other stakeholders and is currently expected to be completed in 2013. ⁽¹⁰⁾	N/A
CA 31	Oceano Dunes SVRA is in the process of developing an HCP to cover their management of the plover. ⁽¹⁾	N/A
CA 31	Rancho Guadalupe Dunes County Park is in the process of developing an HCP to cover their management of the plover, among other species. ⁽¹¹⁾	N/A
<p>Source:</p> <p>(1) Personal Communication with R. Glick and A. Zilke, Oceano Dunes SVRA, May 10, 2011.</p> <p>(2) Personal Communication with G. Smith, U.S. Army Corps of Engineers, Portland District, Environmental Branch, June 9, 2011.</p> <p>(3) Personal Communication with U.S. Fish and Wildlife Service, Ventura Field Office, July 8, 2011.</p> <p>(4) Public Comment on Proposed Rule submitted by the Department of the Army, Los Angeles District Corps of Engineers, May 20, 2011.</p> <p>(5) Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.</p> <p>(6) Personal Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 31, 2011.</p> <p>(7) U.S. Fish and Wildlife Service, Biological Opinion for Beach Management for the Western Snowy Plover on Vandenberg Air Force Base for the 2005-2009 Breeding Seasons (1-8-05-F-5R), March 1, 2005.</p> <p>(8) Personal Communication with T. Devenoge and D. York, Vandenberg Air Force Base, June 3, 2011.</p> <p>(9) Personal Communication with S. Spencer, Shoalwater Bay Tribe, June 27, 2011.</p> <p>(10) Personal Communication with A. Palkovic, Fort Ord Dunes State Park, July 13, 2011.</p> <p>(11) Personal Communication with C. Garciacelay, Santa Barbara County Parks Department, September 2, 2011.</p> <p>(12) Public Comment on the Draft Economic Analysis submitted by the City of Coronado, February 13, 2012.</p>		

CHAPTER 4 | INCREMENTAL IMPACTS OF CRITICAL HABITAT DESIGNATION FOR THE PLOVER

128. This chapter evaluates the potential for critical habitat designation to result in additional (“incremental”) conservation for the plover. Section 4.1 summarizes the results of the incremental analysis. Section 4.2 discusses, by activity, forecast consultations and projects subject to Service review with respect to plover conservation. Section 4.3 concludes with a description of key assumptions that may generate uncertainty regarding the estimated incremental impacts.

4.1 SUMMARY OF RESULTS

129. As described in Section 1.2 of this analysis, we assessed the potential for critical habitat designation for the plover to affect recreation, development, mining, military activities, and habitat and species management. These are the key activities occurring within the critical habitat area for which section 7 consultation regarding critical habitat may generate incremental economic impacts.

130. As described in Section 3.4, the Service believes that designation will result in additional plover conservation efforts for short-term projects and permanent or long-term projects that have the potential to adversely modify critical habitat.

- **Short-term activities**, such as gravel mining or beach nourishment, are generally scheduled for periods when plovers are absent. In these cases, the Service may analyze effects to critical habitat without analyzing effects to members of the species. Therefore, all conservation efforts requested during consultation and all administrative costs of consultation would be considered incremental impacts of the designation.
- For **long-term activities or activities having permanent impacts**, such as the construction of parking lots or seawalls, the Service may request many similar project modifications to avoid both adverse modification and jeopardy. Therefore, only additional conservation efforts requested solely to avoid adverse modification of critical habitat, as well as the administrative cost of addressing the adverse modification standard in consultation are considered incremental impacts of the designation.

KEY ISSUES AND CONCLUSIONS OF THE INCREMENTAL ANALYSIS

Incremental Impacts of Critical Habitat Designation

- Quantified present value impacts of critical habitat designation in areas proposed for designation over the 20-year time frame of this analysis (2012 through 2031) are \$266,000 (\$25,100 on an annualized basis), assuming a seven percent discount rate. In addition, potential for significant unquantified indirect incremental impacts exists in Units CA 31 and CA 22.
- The incremental impacts quantified in this analysis are limited to the administrative cost of considering adverse modification during section 7 consultation with the Service as well as the additional effort necessary to include analysis of critical habitat in three future HCPs and one future INRMP. In general, projects with permanent or long-term impacts may require additional project modifications to address adverse modification. However, for the specific projects identified in this analysis, it appears that all proposed modifications would also be requested to reduce impacts to plover during the jeopardy analysis. Thus, no incremental project modification costs are anticipated.
- The analysis identifies three activities that may incur indirect incremental impacts: recreation at Oceano Dunes SVRA (Unit CA 31); development of the Sterling/McDonald site (Unit CA 22); and development of the SNG site (Unit CA 22). Incremental indirect impacts resulting from future litigation or increased scrutiny from State agencies may include prohibiting OHV use at Oceano Dunes SVRA and denial of development permits for the Sterling/McDonald and SNG sites. Due to uncertainty surrounding the likelihood and extent of such indirect impacts, the data necessary to quantify these impacts are unavailable.

Incremental Impacts by Activity

- Impacts to military activities represent the greatest percent of the overall costs in areas proposed for designation - approximately 71 percent. Impacts to development activities represent approximately 19 percent, habitat and species management six percent, and mining four percent of the overall impacts.

Incremental Impacts by Unit

- During the time frame of this analysis, we anticipate Units CA 32 and CA 33 will experience the greatest incremental impacts (35 percent each). These two units are located on VAFB, which is expected to engage in a number of consultations with the Service over the next 20 years.
- Nearly 86 percent of the proposed subunits are not expected to experience incremental impacts. In some of these units, the proposed critical habitat area is subject to existing HCPs or land management plans that incorporate plover conservation, as described in Chapter 3. For other units, no future land use threats (e.g., development or transportation projects) are forecast to occur.

Key Uncertainties

- The economic costs presented in this analysis are based on a number of assumptions that may affect the impact estimates. In particular, the likelihood and extent of indirect impacts in Units CA 22 and CA 31 are uncertain and therefore are not quantified in this analysis, but have the potential to be significant (Exhibit 4-4 provides a complete list of key sources of uncertainty).

131. Exhibit 4-1 provides the total estimated incremental impacts by subunit. The present value of total incremental cost of critical habitat designation is \$266,000 assuming a seven percent discount rate, or \$25,100 on an annualized basis. These costs represent additional administrative effort as part of future section 7 consultations. We do not expect that the designation will result in additional conservation efforts for the plover due to the nature of the known projects. Exhibit 4-2 provides the estimated incremental impacts by activity. Military activities have the highest incremental impact at \$189,000, followed by development activities at \$50,000, habitat and species management at \$16,700, and mining at \$10,500 (assuming a seven percent discount rate).

EXHIBIT 4-1. TOTAL ESTIMATED INCREMENTAL IMPACTS BY SUBUNIT (2012-2031, \$2011, SEVEN PERCENT DISCOUNT RATE)

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
WA 1	Copalis Spit	\$0	\$0
WA 2	Damon Point	\$0	\$0
WA 3A	Midway Beach	\$0	\$0
WA 3B	Shoalwater/Graveyard	\$1,760	\$167
WA 4A	Leadbetter Spit	\$0	\$0
WA 4B	Gunpowder Sands Island	\$0	\$0
Washington Subtotal		\$1,760	\$167
OR 1	Columbia River Spit	\$3,530	\$333
OR 2	Necanicum River Spit	\$0	\$0
OR 3	Nehalem River Spit	\$0	\$0
OR 4	Bayocean Spit	\$2,080	\$197
OR 5	Netarts Spit	\$0	\$0
OR 6	Sand Lake South	\$0	\$0
OR 7	Sutton/Baker Beaches	\$0	\$0
OR 8A	Siltcoos Breach	\$0	\$0
OR 8B	Siltcoos River Spit	\$0	\$0
OR 8C	Dunes Overlook/Tahkenitch Creek Spit	\$0	\$0
OR 8D	North Umpqua River Spit	\$0	\$0
OR 9	Tenmile Creek Spit	\$0	\$0
OR 10	Coos Bay North Spit	\$1,760	\$167
OR 11	Bandon to New River	\$0	\$0
OR 12	Elk River Spit	\$0	\$0
OR 13	Euchre Creek	\$0	\$0
Oregon Subtotal		\$7,380	\$696
CA 1	Lake Earl	\$0	\$0
CA 2	Gold Bluffs Beach	\$0	\$0
CA 3A	Humboldt Lagoons - Stone Lagoon	\$0	\$0
CA 3B	Humboldt Lagoons - Big Lagoon	\$0	\$0
CA 4A	Clam Beach/Little River	\$0	\$0
CA 4B	Mad River	\$0	\$0
CA 5A	Humboldt Bay South Spit	\$0	\$0
CA 5B	Eel River North Spit/Beach	\$0	\$0
CA 5C	Eel River South Spit/Beach	\$0	\$0
CA 6	Eel River Gravel Bars	\$10,500	\$995
CA 7	MacKerricher Beach	\$0	\$0
CA 8	Manchester Beach	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
CA 9	Dillon Beach	\$0	\$0
CA 10A	Pt Reyes	\$0	\$0
CA 10B	Limantour	\$0	\$0
CA 11	Napa	\$0	\$0
CA 12	Hayward	\$0	\$0
CA 13A	Eden Landing	\$0	\$0
CA 13B	Eden Landing	\$0	\$0
CA 13C	Eden Landing	\$0	\$0
CA 14	Ravenswood	\$0	\$0
CA 15	Warm Springs	\$0	\$0
CA 16	Half Moon Bay	\$0	\$0
CA 17	Waddell Creek Beach	\$0	\$0
CA 18	Scott Creek Beach	\$0	\$0
CA 19	Wilder Creek Beach	\$0	\$0
CA 20	Jetty Road to Aptos	\$3,210	\$303
CA 21	Elkhorn Slough Mudflats	\$0	\$0
CA 22	Monterey to Moss Landing	\$17,100	\$1,610
		<i>Potentially significant unquantified indirect costs</i>	
CA 23	Point Sur Beach	\$0	\$0
CA 24	San Carpoforo Creek	\$0	\$0
CA 25	Arroyo Laguna Creek	\$0	\$0
CA 26	San Simeon State Beach	\$0	\$0
CA 27	Villa Creek Beach	\$0	\$0
CA 28	Toro Creek	\$0	\$0
CA 29	Atascadero Beach/Morro Strand SB	\$4,350	\$410
CA 30	Morro Bay Beach	\$0	\$0
CA 31	Pismo Beach/Nipomo Dunes	\$9,580	\$904
		<i>Potentially significant unquantified indirect costs</i>	
CA 32	Vandenberg North	\$93,400	\$8,820
CA 33	Vandenberg South	\$93,400	\$8,820
CA 34	Devereaux Beach	\$0	\$0
CA 35	Santa Barbara Beaches	\$13,600	\$1,280
CA 36	Santa Rosa Island Beaches	\$0	\$0
CA 37	San Buenaventura Beach	\$0	\$0
CA 38	Mandalay to Santa Clara River	\$0	\$0
CA 39	Ormond Beach	\$7,230	\$683
CA 43	Zuma Beach	\$0	\$0
CA 44	Malibu Beach	\$0	\$0
CA 45A	Santa Monica Beach	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
CA 45B	Dockweiler North	\$0	\$0
CA 45C	Dockweiler South	\$0	\$0
CA 45D	Hermosa State Beach	\$0	\$0
CA 46A	Bolsa Chica State Beach	\$0	\$0
CA 46B	Bolsa Chica Reserve	\$0	\$0
CA 46C	Bolsa Chica Reserve	\$0	\$0
CA 46D	Bolsa Chica Reserve	\$0	\$0
CA 46E	Bolsa Chica Reserve	\$0	\$0
CA 46F	Bolsa Chica Reserve	\$0	\$0
CA 47	Santa Ana River Mouth	\$0	\$0
CA 48	Balboa Beach	\$0	\$0
CA 50A	Batiquitos Lagoon	\$0	\$0
CA 50B	Batiquitos Lagoon	\$0	\$0
CA 50C	Batiquitos Lagoon	\$0	\$0
CA 51A	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 51B	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 51C	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 52A	San Dieguito Lagoon	\$0	\$0
CA 52B	San Dieguito Lagoon	\$0	\$0
CA 52C	San Dieguito Lagoon	\$0	\$0
CA 53	Los Penasquitos Lagoon	\$0	\$0
CA 54A	Fiesta Island	\$0	\$0
CA 54B	Mariner's Point	\$0	\$0
CA 54C	South Mission Beach	\$0	\$0
CA 54D	San Diego River Channel	\$0	\$0
CA 55B	Coronado Beach	\$4,670	\$441
CA 55E	Sweetwater Marsh National Wildlife Refuge and D Street Fill	\$0	\$0
CA 55F	Silver Strand State Beach	\$0	\$0
CA 55G	Chula Vista Wildlife Reserve	\$0	\$0
CA 55I	San Diego National Wildlife Refuge, South Bay Unit	\$0	\$0
CA 55J	Tijuana Estuary and Beach	\$0	\$0
California Subtotal		\$257,000	\$24,300
GRAND TOTAL		\$266,000	\$25,100
Note: Estimates are rounded to three significant digits and may not sum due to rounding.			

EXHIBIT 4-2. ESTIMATED INCREMENTAL IMPACTS BY ECONOMIC ACTIVITY (2012-2031, \$2011, SEVEN PERCENT DISCOUNT RATE)

ACTIVITY	PRESENT VALUE	ANNUALIZED
Development	\$50,000	\$4,720
Mining	\$10,500	\$995
Military	\$189,000	\$17,800
Habitat and Species Management	\$16,700	\$1,580

4.2 FORECAST CONSULTATIONS AND PROJECTS SUBJECT TO PLOVER CONSERVATION

132. To estimate the incremental impacts of critical habitat designation, we first identify projects or other activities that may affect each subunit. To collect this information, we reviewed the 2005 analysis, reviewed public comments submitted in response to the 2005 designation as well as the 2011 proposed rule that is the subject of this analysis, contacted the relevant local offices of likely Federal action agencies such as the Corps, spoke with State and local government officials, consulted the Shoalwater Bay Tribe in Washington, and interviewed Service field office staff. A detailed description of this effort, as well as our findings for each subunit, is provided in Appendix E.
133. This section discusses each of the forecast projects expected to experience incremental costs of plover conservation due to the designation of critical habitat. It includes future consultations with the Service, as well as expected review of management plans or projects that require administrative effort outside of section 7. Exhibit 4-3 summarizes the projects that may be affected.
134. For each project, the exhibit provides the location and a brief description, identifies whether the project's effects would be considered short-term or long-term, and temporary or permanent in the context of a section 7 consultation, describes the type of consultation and incremental costs likely to be incurred, and provides the year(s) consultation will occur. These data are then combined with the per consultation costs presented in Chapter 2 (Exhibit 2-2) to estimate the total present value of future impacts summarized in Exhibit 4-1. Incremental project modifications are not anticipated given the specific nature of the identified projects.

EXHIBIT 4-3. SUMMARY OF KNOWN FUTURE ACTIVITIES SUBJECT TO INCREMENTAL IMPACTS

SUBUNIT	PROJECT DESCRIPTION	PROJECT NATURE	CONSULTATION TYPE	CONSULTATION YEAR
RECREATION				
CA 31	Oceano Dunes SVRA encompasses roughly 3,590 acres; approximately 1,500 acres are used for camping and OHV recreation. ⁽¹⁾	N/A	<i>Possible indirect impacts.</i>	
DEVELOPMENT				
OR 1	The Corps jetty rehabilitation project at Columbia River Mouth is under evaluation. No construction is currently planned, but the Corps has consulted with the Service on this project. ⁽²⁾	Long-term, permanent	Informal, Reinitiation	2012
OR 10	The Corps jetty rehabilitation project at north jetty of Coos Bay North Spit is under evaluation. Planning is in the early stages. OPRD and BLM manage this area for the Plover under the OPRD HCP and the NSP, respectively. ⁽²⁾	Long-term, permanent	Informal, Additional Administrative Effort	2012
CA 20	Manual breaching of the Pajaro River occurs as needed. A Corps permit must be re-issued every 10 years in consultation with the Service. The most recent consultation took place in 1999. ⁽³⁾	Short-term, temporary	Informal, Additional Administrative Effort	2012, 2024
CA 22	Manual breaching of the Salinas River Lagoon occurs as needed. The Corps has previously consulted with the Service on this activity, but consultation did not consider impacts to critical habitat. This consultation must be reinitiated to address adverse modification of critical habitat. ⁽³⁾	Short-term, temporary	Formal, Reinitiation	2012
	Security National Guaranty (SNG) development site located at the southerly end of the unit in Sand City - currently in the permitting phase. ⁽⁴⁾	Long-term, permanent	<i>Possible indirect impacts.</i>	
	Sterling/McDonald development site located at the southerly-end of the unit in Sand City - currently in the permitting phase. ⁽⁴⁾	Long-term, permanent	<i>Possible indirect impacts.</i>	
CA 29	This unit is nourished by the Corps every seven to ten years and was last nourished in 2009. ⁽⁵⁾	Short-term, temporary	Informal, Only Considers Adverse Mod	2016
			TA, Only Considers Adverse Mod	2023, 2030
CA 35	Semi-annual discharge of dredged materials by the Corps. ⁽⁶⁾	Short-term, temporary	Informal, Only Considers Adverse Mod	2012
			TA, Only Considers Adverse Mod	Twice per year
CA 39	Ormond Beach is nourished biannually by the Corps with the material dredged from the Federal navigation channel into Channel Islands Harbor (Unit CA 38). ⁽⁶⁾	Short-term, temporary	Informal, Considers Only Adverse Mod	2012
			TA, Only Considers Adverse Mod	Biannually starting in 2014

SUBUNIT	PROJECT DESCRIPTION	PROJECT NATURE	CONSULTATION TYPE	CONSULTATION YEAR
CA 55B	Construction of a Class 1 bike trail and pedestrian walking path in the Central Beach area of Coronado Beach. ⁽¹³⁾	Long-term, permanent	Formal, Additional Administrative Effort	2012
MINING				
CA 6	Six gravel extractors operate in the unit under a county-wide permit issued by the Corps. The Corps has previously consulted with the Service on impacts to the plover and its habitat. ⁽⁷⁾	Long-term, temporary	Formal, Additional Administrative Effort	2014, 2019, 2024, 2029
MILITARY				
OR 4	Biannual military training operations occur within unit. Operations are permitted by the Corps and OPRD. ⁽⁸⁾	Short-term, temporary	Informal, Additional Administrative Effort	2019, 2029
CA 32; CA 33	Since publication of the Proposed Rule, VAFB has completed an INRMP to cover the management of natural resources on the base. The INRMP will need to be updated to include discussion of the proposed critical habitat. ⁽⁹⁾	N/A	N/A	2012
CA 32; CA 33	VAFB has already concluded a consultation with the Service on activities conducted under their Installation Restoration Program. ⁽⁹⁾	Short-term, temporary	Formal, Reinitiation	2012
CA 32; CA 33	VAFB has already concluded a consultation with the Service on activities conducted under their Military Munitions Response Program. ⁽⁹⁾	Short-term, temporary	Formal, Reinitiation	2012
CA 32; CA 33	VAFB will consult with the Service on activities conducted under a beach management plan for the plover. ⁽⁹⁾	N/A	Informal, Additional Administrative Effort	2014, 2019, 2024, 2029
HABITAT/SPECIES MANAGEMENT				
WA 3B	The Corps will undertake a dune restoration project on Tribal lands. ⁽¹⁰⁾	Short-term, permanent	Informal, Additional Administrative Effort	2012
CA 22	California Department of Parks and Recreation is in the process of preparing an HCP that will include management for the plover within Fort Ord Dunes State Park. The Fort Ord Dunes HCP is being developed in conjunction with other stakeholders and is currently expected to be completed in 2013. ⁽¹¹⁾	N/A	Intra-Service, Formal, Additional Administrative Effort	2013
CA 31	Oceano Dunes SVRA is in the process of developing an HCP to cover their management of the plover. ⁽¹⁾	N/A	Intra-Service, Formal, Additional Administrative Effort	2012
CA 31	Rancho Guadalupe Dunes County Park is in the process of developing an HCP to cover their management of the plover, among other species. ⁽¹²⁾	N/A	Intra-Service, Formal, Additional Administrative Effort	2012

SUBUNIT	PROJECT DESCRIPTION	PROJECT NATURE	CONSULTATION TYPE	CONSULTATION YEAR
<p>Source:</p> <p>(1) Personal Communication with R. Glick and A. Zilke, Oceano Dunes SVRA, May 10, 2011.</p> <p>(2) Personal Communication with G. Smith, U.S. Army Corps of Engineers, Portland District, Environmental Branch, June 9, 2011.</p> <p>(3) Personal Communication with U.S. Fish and Wildlife Service, Ventura Field Office, July 8, 2011.</p> <p>(4) Public Comment submitted by City of Sand City and the Sand City Redevelopment Agency, Section 4(b)(2) Petition of the City of Sand City, California and the Sand City Redevelopment Agency to Exclude Certain Lands from Proposed Critical Habitat for the Western Snowy Plover.</p> <p>(5) Public Comment on Proposed Rule submitted by the Department of the Army, Los Angeles District Corps of Engineers, May 20, 2011.</p> <p>(6) Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.</p> <p>(7) Personal Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 31, 2011.</p> <p>(8) U.S. Fish and Wildlife Service, Biological Opinion for Beach Management for the Western Snowy Plover on Vandenberg Air Force Base for the 2005-2009 Breeding Seasons (1-8-05-F-5R), March 1, 2005.</p> <p>(9) Personal Communication with T. Devenoge and D. York, Vandenberg Air Force Base, June 3, 2011.</p> <p>(10) Personal Communication with S. Spencer, Shoalwater Bay Tribe, June 27, 2011.</p> <p>(11) Personal Communication with A. Palkovic, Fort Ord Dunes State Park, July 13, 2011.</p> <p>(12) Personal Communication with C. Garciacelay, Santa Barbara County Parks Department, September 2, 2011.</p> <p>(13) Public Comment on the Draft Economic Analysis submitted by the City of Coronado, February 13, 2012.</p>				

4.2.1 RECREATION

- 135. Human recreational activities and beach maintenance activities designed to enhance recreational quality may disturb the plover. Many of the beaches identified as potential critical habitat for the plover allow public access for recreation. Most access is provided by Federal, State, and local municipal owners and managers; however, some private owners also provide public access.
- 136. Various recreation activities are allowed on public beaches, such as walking, jogging, hiking, biking, walking with dogs, sunbathing, picnicking, sandcastle building, birding, photography, sand sailing, surfing, kayaking, windsurfing, jet skiing, boating, hang gliding, beach cleaning (i.e., mechanical beach raking), fireworks displays, kite flying, and model airplane flying.¹¹⁷ In general, beach managers attempt to provide a variety of recreational experiences at beaches. Different types of human recreation disturb the plover to various degrees as described in the Recovery Plan.
- 137. Measures to protect the plover were first implemented in 1990 when nest enclosures were erected in Monterey Bay.¹¹⁸ Since then other plover conservation efforts have been implemented throughout California, Oregon, and Washington. Major plover conservation efforts that may impact recreation include symbolic fencing, nest enclosures, signage, driving restrictions, and mechanized beach cleaning restrictions. These conservations

¹¹⁷ U.S. Fish and Wildlife Service, Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (*Charadrius alexandrinus mivosus*), August 13, 2007.

¹¹⁸ Symbolic fencing consists of one or two strands of light-weight string or cable tied between posts to delineate areas where pedestrians should not enter, typically extending to the high tide line. Nest enclosures are small metal fences that are designed to keep predators out of nests. Signs inform the public of closed areas, nesting and wintering sites, etc.

efforts are undertaken absent critical habitat to protect the plover and thus are considered baseline impacts.¹¹⁹ In general, recreation activities do not have a Federal nexus and therefore consultation with the Service under section 7 of the Act is not required. For recreation activities, lack of a Federal nexus combined with strong baseline conservation efforts leads to a small likelihood of incremental impacts due to the designation of critical habitat. Intra-Service consultation will be required on the HCP being developed by Oceano Dunes SVRA.

Oceano Dunes SVRA

138. Oceano Dunes SVRA is one of several OHV areas administered by the C DPR. The park has been classified as an SVRA since July 12, 1974 (at which point it was known as Pismo Dunes). In addition to OHV use, Oceano Dunes SVRA offers activities such as swimming, surfing, surf fishing, camping, and hiking.¹²⁰ Oceano Dunes SVRA encompasses roughly 3,590 acres in San Luis Obispo County; approximately 1,500 acres are designated for camping and OHV use. This riding area equates to a five-mile stretch of beach. During plover nesting season (March 1st through September 30th), an additional one and a half miles of beach is closed to riding.¹²¹ Proposed critical habitat Unit CA 31 includes approximately 786 acres within Oceano Dunes SVRA; of these 346 acres are open to camping and riding throughout the year and 217 acres are open to camping and riding only from October 1st through February 28th.¹²²
139. Oceano Dunes SVRA is unique because it is one of the few places in California where the public is allowed to legally drive and camp on a sandy beach. It supports a clear and specific legislative mandate for the State to provide opportunities for OHV recreation.¹²³ In 2010, more than 1.5 million people visited Oceano Dunes SVRA.¹²⁴
140. Currently, there is no Federal nexus for activities at the park. Since 2001, Oceano Dunes SVRA has developed an annual Nesting Season Management Plan to provide protection to the plover (see Section 3.1.3 for more details). In addition, C DPR is working with the Service to develop an HCP for Oceano Dunes SVRA. The HCP will contain management measures similar to those outlined in the Nesting Season Management Plan. If critical habitat is designated, C DPR would be required to add an analysis of impacts to

¹¹⁹ For a detailed discussion and analysis of baseline impacts to recreation please refer to the 2005 Economic Analysis (Industrial Economics, Inc., "Economic Analysis of Critical Habitat Designation for the Western Snowy Plover," prepared for the U.S. Fish and Wildlife Service, July 20, 2005).

¹²⁰ C DPR Off-Highway Motor Vehicle Recreation Division, 2008. Oceano Dunes State Vehicular Recreation Area. Accessed at http://ohv.parks.ca.gov/?page_id=1207 on July 2011.

¹²¹ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Friends of Oceano Dunes, ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

¹²² Email Communication with R. Glick, California Department of Parks and Recreation, Oceano Dunes District, May 10, 2011.

¹²³ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Friends of Oceano Dunes, ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

¹²⁴ Email Communication with A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 11, 2011.

critical habitat to their HCP. CDPR estimates that the level of effort necessary to complete this analysis would be approximately \$2,000.¹²⁵ CDPR does not expect that this analysis will result in changes to the management measures contained within the HCP because the current program has been so successful.¹²⁶ In addition, an intra-Service consultation would be required on the HCP. The portion of the administrative consultation costs required to address adverse modification of critical habitat is considered an incremental impact. CDPR staff has indicated that an internal draft of the HCP is almost complete, but the document will need to be approved by the Service, the California Department of Fish and Game (CDFG), and the California Coastal Commission before it is finalized.¹²⁷ Because the HCP finalization date is uncertain, this analysis conservatively assumes that the HCP is completed in the first year of the analysis, 2012 (thus, present value administrative costs are more likely to be overstated than understated).

141. In addition to the direct impacts of the critical habitat designation described above, critical habitat could have an indirect impact on the operation of Oceano Dunes SVRA. Activities at Oceano Dunes SVRA require a coastal development permit from the CCC. This permit is reviewed annually by CCC.¹²⁸ Friends of Oceano Dunes, a group that supports vehicular recreation at Oceano Dunes SVRA, has expressed concern that CCC may recommend limiting driving to 3.5 miles of beach year-round based on the designation of critical habitat for the plover.¹²⁹ In addition, over the last decade, Oceano Dunes SVRA has faced multiple legal actions brought by environmental groups such as the Sierra Club and the Center for Biological Diversity to limit riding on the beach.¹³⁰ These environmental groups may try to use the designation of critical habitat as a legal lever to stop vehicular recreation at the park.¹³¹
142. Reducing or eliminating the area available for riding will result in welfare losses and regional economic impacts. Beach users will incur social welfare losses due to forgone

¹²⁵ Email Communication with A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, July 19, 2011.

¹²⁶ Personal Communication with R. Glick and A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 10, 2011.

¹²⁷ *Ibid.*

¹²⁸ Personal Communication with T. Roth, Law Offices of Thomas D. Roth, July 19, 2011.

¹²⁹ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Friends of Oceano Dunes, ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

¹³⁰ *Sierra Club v. CDPR, 2001/2002*, suit alleging violations of ESA; *Center for Biological Diversity v. CDPR, 2007/2008*, suit alleging violations of ESA arising out of special event activity at the park; *Friends of Oceano Dunes v. County of San Luis Obispo, 2007*, land use planning suit alleging county unlawfully determined that sale of 580 acres of county-owned land for motorized recreation is inconsistent with county's General Plan; *Sierra Club v. CDPR, 2008*, suit alleging that use of 580 acres of county-owned land for vehicular recreation violates the California Coastal Act because the county's Local Coastal Plan sets the land aside for a natural resource buffer (Email Communication with A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 16, 2011).

¹³¹ Personal Communication with R. Glick and A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 10, 2011.

trips or a diminished beach experience (for example, due to crowding). Regional economic impacts arise due to reductions in beach recreation-related expenditures caused by fewer recreation-related trips. These reduced expenditures are likely to affect income and employment in various recreation-related industries. Impacts to these industries will, in turn, result in indirect effects on the broader economy. Quantification of such indirect impacts requires information regarding the probability of future lawsuits to limit recreation, the probability that these suits would be successful, and the geographic and temporal extent of beach closures or other access limitations. None of this information is readily available. Due to uncertainty surrounding the likelihood and extent of such indirect impacts, this analysis does not attempt to quantify them.¹³²

4.2.2 DEVELOPMENT

143. This section evaluates how critical habitat designation may affect development activities. Specifically, it focuses on the direct and indirect economic effects of critical habitat designation on a range of development activities, including: residential and commercial development; dredging and beach nourishment; jetty construction; and mechanical river breaching.¹³³

Residential and Commercial Development

144. This analysis has identified two major commercial developments that may be affected by the designation of critical habitat for the plover. Both development sites are located at the southerly end of Unit CA 22 in Sand City, California. The first development site, commonly known as the “Sterling/McDonald” site, is jointly owned by a private developer and the Sand City Redevelopment Agency. Current plans for the site call for a 342 unit mixed-use visitor-serving coastal resort. The project is presently in the process of developing an EIR under CEQA. Project proponents expect the EIR to be completed in six months.¹³⁴
145. The second site on the Sand City coastline is the Security National Guaranty (SNG) development site (formerly known as the Lonestar site). Similar to the Sterling/McDonald site, the SNG site is planned for a mixed-use visitor-serving resort. The hotel/condo resort will include up to 341 units. Pursuant to CEQA, the resort has undergone a full EIR along with an addendum update and peer review. As part of the

¹³² We note that the Economic Analysis supporting the 2005 critical habitat designation provides detailed quantitative information regarding the value individuals hold for OHV recreational opportunities at the Oceano Dunes SVRA and the associated impact of trip expenditures in the local community. That analysis quantified the economic impact of existing OHV-use restrictions resulting from then current fencing efforts to protect nesting habitat. (Industrial Economics, Inc., “Economic Analysis of Critical Habitat Designation for the Western Snowy Plover,” prepared for the U.S. Fish and Wildlife Service, July 20, 2005.)

¹³³ This analysis identified several current and future California Department of Transportation (CALTRANS) projects located adjacent to the proposed critical habitat units. In general, CALTRANS projects received Federal funding and therefore would require consultation with the Service. Personal Communication with CALTRANS indicated that CALTRANS generally avoids working on beaches and therefore avoids impacts to the plover and its habitat (Personal Communication with CALTRANS, District 7, P. Caron, July 7, 2011). Therefore, this analysis will not consider impacts to transportation projects.

¹³⁴ Personal Communication with J. Heisinger, City Attorney for Sand City and S. Matarrazo, Director of Community Planning and Development for Sand City, July 18, 2011.

local and State permitting process, SNG has prepared a detailed habitat protection plan (HPP) for the site. The HPP evaluates and mitigates potential impacts to any presence of sensitive biological resources, including the plover. Mitigation measures contained within the HPP related to the plover include: fencing and signage around construction; plover surveys prior to, during, and after construction; erection of exclosures and signage if any nesting plovers are discovered; predator management; permanent conservation easement for plover habitat on the property; and quarterly and annual reporting to the Service. The HPP has been reviewed by the local jurisdiction, Sand City, and has been subject to public review as part of the CCC hearing process in December 2009. Project proponents anticipate that the CCC will condition approval of the final resort design on adoption and implementation of the HPP. Final approval of the HPP by CCC is anticipated prior to the issuance of the Final Rule of critical habitat designation for the plover.¹³⁵

146. These development projects do not have a Federal nexus and thus consultation with the Service under section 7 of the Act is not required. Due to the lack of a Federal nexus no direct impacts of critical habitat designation are expected; however, indirect impacts are possible. Both sites require a coastal development permit from the CCC. Public comments submitted on behalf of SNG and Sand City express concern that the designation of critical habitat may be used to support the argument that the sites are environmentally sensitive habitat areas under the California Coastal Act. Environmentally sensitive habitat areas are subject to additional development restrictions and a designation as such could be used as a reason to deny the development permits.^{136,137}
147. Additionally, SNG states that the designation of critical habitat could be used as a basis for new lawsuits aimed at stopping the projects. SNG cites four lawsuits the Sierra Club has brought or intervened in, challenging aspects of the SNG development. SNG claims that “a typical lawsuit costs \$250,000 to defend and threatens to delay approval [of development permits.]”¹³⁸ Time delay associated with lawsuits that may be related to critical habitat designation represents an additional indirect incremental impact of critical habitat designation.
148. If these projects are ultimately prohibited due to permit denial or a lawsuit stemming from the designation of critical habitat, the indirect economic impacts will be equal to the loss in the land’s option value for development plus any resources that have already been

¹³⁵ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Security National Guaranty, Inc., ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

¹³⁶ *Ibid.*

¹³⁷ Public Comment submitted by City of Sand City and the Sand City Redevelopment Agency, Section 4(b)(2) Petition of the City of Sand City, California and the Sand City Redevelopment Agency to Exclude Certain Lands from Proposed Critical Habitat for the Western Snowy Plover.

¹³⁸ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Security National Guaranty, Inc., ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

sunk into the permitting process.¹³⁹ When construction is complete, the Sterling/McDonald project is anticipated to be valued at \$106 million and the SNG project is anticipated to be valued at \$350 to 430 million.^{140,141} The lost option value of development is roughly equal to the current market value of the undeveloped parcels, assuming the sites have no other potential uses. The value of the undeveloped parcels is less than values provided above for the fully built-out projects.¹⁴² However, additional information on current land values is not readily available.

149. In addition, if these developments are prohibited regional economic impacts could arise due to future reductions in tourism- and construction-related expenditures. These lost future expenditures are likely to affect future income and employment in various tourism- and construction-related industries. Project proponents estimate that denial of permits for these two projects would result in a future loss of approximately \$30 million in annual revenue to the local economy as well as 500 permanent jobs and 600 construction jobs.¹⁴³ Due to uncertainty surrounding the likelihood of such indirect impacts, this analysis does not attempt to quantify these impacts or independently verify project proponents' estimates, but does note that such impacts are possible and would be the incremental result of critical habitat designation.
150. One additional development project was identified in a public comment submitted by the City of Coronado on February 13, 2012. The City has developed a conceptual plan for a Class 1 bike path and pedestrian trail for the Central Beach area in Unit CA 55B.¹⁴⁴ If this plan moves forward, consultation with the Service may be required through a nexus with the Corps. We conservatively assume that consultation will be necessary, but if a Corps permit is not required and consultation with the Service does not occur then costs will be overstated. The timing of this project is currently unknown; therefore, this analysis makes the conservative assumption that the project will result in one formal section 7 consultation in 2012. Because this project is long-term and permanent, incremental impacts include the administrative cost of addressing adverse modification during

¹³⁹ Option value refers to the fact that land values incorporate an expectation of residential or commercial development, in terms of likelihood and timing, and the associated returns to the landowner.

¹⁴⁰ Public Comment submitted by City of Sand City and the Sand City Redevelopment Agency, Section 4(b)(2) Petition of the City of Sand City, California and the Sand City Redevelopment Agency to Exclude Certain Lands from Proposed Critical Habitat for the Western Snowy Plover.

¹⁴¹ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Security National Guaranty, Inc., ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.

¹⁴² The fully-developed value of these parcels includes the additional resources to be expended to complete the permitting process and construct the facilities proposed for these sites. These resources could be put to other uses if the parcels remain undeveloped. Thus, their value should be subtracted from the fully developed value of the projects to estimate the impacts of critical habitat-related restrictions.

¹⁴³ Public Comment submitted by City of Sand City and the Sand City Redevelopment Agency, Section 4(b)(2) Petition of the City of Sand City, California and the Sand City Redevelopment Agency to Exclude Certain Lands from Proposed Critical Habitat for the Western Snowy Plover.

¹⁴⁴ Public Comment submitted by the City of Coronado on the Proposed Critical Habitat for the Western Snowy Plover and the associated Draft Economic Analysis, February 13, 2012.

consultation as well as any additional conservation efforts requested to avoid adverse modification. This analysis assumes that no conservation efforts will be requested in addition to those being requested to avoid jeopardizing the plover. Therefore, the incremental impacts associated with this project are limited to the administrative cost of addressing the adverse modification standard during section 7 consultation.

Dredging and Beach Nourishment

151. This analysis has identified multiple dredging and beach nourishment projects occurring along the coast of California. In many instances dredged material from one location is used to nourish the beach in another location. In particular, projects were identified in Units CA 29, CA 35, and CA 39. A portion Unit CA 29 is occasionally nourished (once every 7 to 10 years) by the Corps using sand dredged from the Federal navigational channel at Morro Bay (channel does not fall within the proposed critical habitat).¹⁴⁵ Dredging/nourishment last occurred in 2009 and took place when the plovers were not present.¹⁴⁶ Corps-permitted dredging and beach nourishment also occurs within Unit CA 35. These sediment management activities are carried out twice per year within this unit.¹⁴⁷ Finally, beach nourishment is carried out by the Corps in Unit CA 39. Material dredged on a biannual basis from a sand trap located adjacent to the southern end of Unit CA 38 is used to nourish the beach at the northern end of Unit CA 39.¹⁴⁸
152. In general, the Corps has not consulted with the Service on these dredging and beach nourishment projects because they are able to carry out the projects when the plovers are not present.¹⁴⁹ If critical habitat is designated, the Corps will need to consult with the Service to determine if adverse modification of critical habitat would occur. Because the projects are short-term and can be carried out when plovers are not present, during consultation the Service may analyze for effects to critical habitat without analyzing effects to members of the species.¹⁵⁰ Therefore, all conservation efforts and administrative costs associated with consultation are considered incremental impacts of the critical habitat designation. The Service believes that because these projects are temporary in nature (i.e., habitat is restored prior to next breeding season), they “may not significantly reduce the habitat’s ability to support essential behaviors. As such, the loss of a small or de minimus portion of the critical habitat unit may not result in a

¹⁴⁵ Public Comment on Proposed Rule submitted by the Department of the Army, Los Angeles District Corps of Engineers, May 20, 2011.

¹⁴⁶ Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.

¹⁴⁷ *Ibid.*

¹⁴⁸ *Ibid.*

¹⁴⁹ Personal Communication with L. Smith and T. Bradford, U.S. Army Corps of Engineers, Los Angeles District, July 6, 2011.

¹⁵⁰ U.S. Fish and Wildlife Service to Industrial Economics, Inc. “Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Pacific Coast Population of the Western Snowy Plover Proposed Revised Critical Habitat Designation,” April 11, 2011.

determination of adverse modification.”¹⁵¹ In addition, the Service notes that beach nourishment is actually considered to be a benefit to critical habitat.¹⁵² Because the Service believes that these projects are not likely to cause adverse modification of critical habitat, no conservation efforts are expected to be requested during consultation.

153. This analysis includes the administrative cost of a consultation that considers only adverse modification for each project. The first time the project occurs, the Service will conduct an informal consultation; each consultation thereafter will only require a technical assistance effort. The Corps has noted that if consultation with the Service delays the start of a project, indirect impacts could occur.¹⁵³ Many of the Corps dredging projects are necessary to maintain navigable channels. Beach nourishment projects maintain beaches that are enjoyed by recreators and attract tourists. If beach nourishment projects are delayed long enough, the Corps may opt to dispose of dredged materials inland instead of on the beach.¹⁵⁴ It is uncertain whether such delays will occur, but due to the fact that the Service expects to address these projects through informal consultation and technical assistance calls, long delays do not seem likely.

Jetty Construction

154. This analysis has identified two jetty rehabilitation projects located along the Oregon coast that may be affected by critical habitat. Corps jetty rehabilitation projects are under evaluation at the Columbia River Mouth in Unit OR 1 and the north jetty of Coos Bay North Spit in Unit OR 10.¹⁵⁵ In the future, jetty repair and rehabilitation may also require consultation within Unit OR 3 (Nehalem River Spit) and Unit OR 4 (Bayocean Spit), but no projects are currently planned.¹⁵⁶
155. The Corps recently consulted with the Service on the Columbia River Mouth project.¹⁵⁷ The project as planned is intentionally outside of the proposed critical habitat area. The project proposes to modify and repair jetties at the mouth of the Columbia River and to strengthen jetty structures, extend their functional life, and maintain deep-draft navigation. Repairs will occur in the marine environment and on land. Proposed activities are the construction of haul roads and access ramps, placement of mooring dolphins for barges delivering stone to jetties, and construction of equipment and rock storage areas. The duration of the construction schedule is 20 years. The Service

¹⁵¹ U.S. Fish and Wildlife Service to Industrial Economics, Inc. “Comments on how the Draft Economic Analysis Should Estimate Incremental Costs for the Pacific Coast Population of the Western Snowy Plover Proposed Revised Critical Habitat Designation,” April 11, 2011.

¹⁵² Email Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 25, 2011.

¹⁵³ Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.

¹⁵⁴ *Ibid.*

¹⁵⁵ Personal Communication with G. Smith, U.S. Army Corps of Engineers, Portland District, Environmental Branch, June 9, 2011.

¹⁵⁶ Email Communication with U.S. Fish and Wildlife Service, Newport Field Office biologist, May 12, 2011.

¹⁵⁷ U.S. Fish and Wildlife Service, Major Rehabilitation of the Mouth of the Columbia River Navigation Channel, Clatsop County Oregon and Pacific County, Washington (USFWS Number: 13420-2001-I-0082), February 23, 2011.

believes that this project may affect, but is not likely to adversely affect the plover because the birds are unlikely to occur within the action area. The Service recommends that the Corps conduct surveys for nesting plover every two weeks during the nesting season and work with OPRD to restore and enhance nesting habitat for the birds. This analysis assumes that because the project is located directly adjacent to the proposed critical habitat, the informal consultation will need to be reinitiated due to the designation of critical habitat. The reinitiation will consider whether the project will adversely modify critical habitat. Because this project is not located within critical habitat it is unlikely that the Service will recommend additional conservation efforts to avoid adverse modification of critical habitat.

156. Planning for the Coos Bay North spit jetty rehabilitation project is in the early stages. The project will be located in proposed Unit OR 10, which is considered occupied by the plover and is managed for the plover under the ORPD HCP. This analysis conservatively assumes that an informal consultation on the project will occur in 2012. The project is long-term and permanent, therefore incremental impacts include the administrative cost of addressing adverse modification during consultation as well as any additional conservation efforts requested to avoid adverse modification. The Service has indicated that additional conservation efforts requested due to critical habitat designation will be minor and inexpensive, such as using oyster hash instead of gravel to build the jetties.¹⁵⁸

Mechanical River Breaching

157. Two Corps-permitted manual river breaching projects have been identified that may affect the proposed critical habitat. The first is the manual breaching of the Pajaro River in proposed Unit CA 20. A sandbar typically forms at the mouth of the Pajaro River during the late summer or fall and prevents the river from flowing to the ocean. The sandbar is normally breached naturally by winter flood flows and high-energy waves associated with winter storms, but in some years breaching does not occur naturally. In such cases impoundment of the river flow behind the sandbar causes water to rise in the Pajaro River lagoon and its associated sloughs and marshes. High water levels cause flooding of agricultural and residential lands and roads and intermingling of lagoon waters with raw sewage. To minimize these problems, the County proposed to breach the sandbar as needed. Manual breaching is most likely to occur outside of the plover nesting season and project activities would occur over a one-day period typically no more than three times per year.
158. The Corps permit for manual Pajaro River breaching needs to be reissued every ten years and at that time the Corps must consult with the Service. The Corps last consulted with the Service on this project in 1999.¹⁵⁹ The 1999 consultation considered the project's effects on plover and its critical habitat. In the 1999 consultation, the Service finds that the manual breaching activities are "temporary and limited in scope and, therefore, would

¹⁵⁸ Personal Communication with U.S. Fish and Wildlife Service, Newport Field Office biologist, May 31, 2011.

¹⁵⁹ U.S. Fish and Wildlife Service, Biological and Conference Opinion for Sandbar Breaching at the mouth of the Pajaro River (1-8-98-F/C-32), Santa Cruz County, California, September 15, 1999.

not result in permanent loss or extensive degradation of critical habitat.”¹⁶⁰ The consultation concludes that the proposed action is not likely to result in adverse modification of plover critical habitat. This analysis assumes that the Corps will reissue its permit in 2012 and again in 2024. At this time informal consultation with the Service will occur.¹⁶¹ Because the project is short-term and temporary, incremental impacts are limited to the administrative costs of addressing adverse modification during consultation.

159. The second manual river breaching project is being conducted at the Salinas River Lagoon in proposed Unit CA 22. This project includes modification of the spillway at Nacimiento Reservoir, alteration of the pattern of water releases from Nacimiento and San Antonio Reservoirs, construction of an inflatable dam and surface water diversion structure in the lower Salinas River (approximately 4.8 miles upstream from the Salinas River Lagoon – not within the proposed critical habitat), and breaching of the Salinas River Lagoon to prevent flooding.
160. Similar to the Corps permit for manual breaching of the Pajaro River, this permit must be reissued every ten years and was last issued in 2007. At that time, the Corps consulted with the Service on the effect of the project on the plover.¹⁶² The effect on plover critical habitat was not considered in this consultation because none was designated in this area at the time.¹⁶³ Because the project may affect proposed critical habitat, this formal consultation will need to be reinitiated to consider the effect on the plover critical habitat. The analysis assumes that the formal consultation will be reinitiated in 2012. Because the project is short-term and temporary, incremental impacts are limited to the administrative costs of addressing adverse modification during consultation. Consultation on this project will be conducted again in 2017 and 2027 when the permit is reissued. The Service believes that a lower level of effort will be required for consultations on the reissued permit.¹⁶⁴ Therefore, the analysis assumes that the consultations in 2017 and 2027 are informal.

4.2.3 MINING

161. Gravel extraction has occurred within the Eel River basin for decades and has been regulated under a variety of programs, including under Section 404 of the Clean Water Act and the Rivers and Harbors Act, both administered by the Corps. Currently, six gravel extractors operate in Unit CA 6 under a county-wide permit issued by the Corps.

¹⁶⁰ *Ibid.*

¹⁶¹ The 1999 consultation required a formal effort, but the Service believes that future consultations will require less effort because the effects to plover and its habitat have previously been analyzed (Personal Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 8, 2011).

¹⁶² U.S. Fish and Wildlife Service, Biological Opinion on Issuance of Department of the Army Permits to the Monterey County Water Resources Agency for Construction of a Surface Water Diversion Structure in the Salinas River, Near the City of Salinas (Corps File Number 24976S) and for Breaching of the Salinas River Lagoon (Corps File Number 16798S) in Monterey County, California (1-8-06-F-54), July 24, 2007.

¹⁶³ 2005 Final Critical Habitat Rule, 69 FR 56969- 57018.

¹⁶⁴ Personal Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 8, 2011.

In order to minimize potential impacts to the plover, gravel extractors attempt to initiate all extraction activities outside of the nesting season. If extraction occurs within the nesting season, extractors are required to survey for the birds, night driving is prohibited, and daytime driving must be minimized.¹⁶⁵

162. The San Francisco District of the Corps consulted with the Service on the impacts of these mining activities on breeding and wintering plover and its habitat in 2009.¹⁶⁶ This consultation concluded that critical habitat would not be adversely modified for the following reasons: 1) studies indicate that plovers along the Eel River gravel bars do not show a nest site preference based on cobble size; during all but a low water year, it is expected that high water levels during the winter will redeposit gravel throughout the action area; and 3) river scouring during the winter storms and flooding provide the dynamic process needed to maintain PCEs. This consultation covers extraction activities during the life of the 2009 Letter of Permission (LOP). A new LOP is issued every five years. Therefore, the Corps must consult with the Service again in 2014, 2019, 2024, and 2029. This analysis assumes that future consultations will require a formal level of effort. Because activities are generally carried out during the non-nesting season and have a temporary impact on plover habitat, incremental impacts are limited to the administrative costs of addressing adverse modification during consultation. Although mining activities are generally carried out when plovers are not present, this analysis does not assume that the consultation is initiated solely due to the designation of critical habitat due to the presence of wintering plovers as well as per-extraction activities that take place during the nesting season.

4.2.4 MILITARY

163. Military activities take place within the proposed critical habitat at VAFB (Units CA 32 and CA 33) and Unit OR 4. Since publication of the Proposed Rule, VAFB has completed an INRMP to cover the management of natural resources on the base (see Section 3.1.3). If VAFB is not excluded from the critical habitat designation, the INRMP will need to be updated to reference the designation. The additional effort to update the INRMP would include a partial rewrite of the Endangered Species Tab and the inclusion of additional maps. The cost for this update would be approximately \$2,500.¹⁶⁷
164. The INRMP does not substitute for section 7 consultation. VAFB consults with the Service on their Installation Restoration Program (IRP) and their Military Munitions Response Program (MMRP). The IRP identifies and cleans contamination resulting from activities on military bases prior to 1984. In the past, IRP activities within plover habitat were scheduled for implementation during the non-nesting season and resulted in “no effect” to the plover.¹⁶⁸ The MMRP conducts unexploded ordnance clean-up operations

¹⁶⁵ U.S. Fish and Wildlife Service, Formal Consultation on the Proposed Gravel Operations in Humboldt County, California: Letter of Permission, Procedure 2009 (Corps File: 2007-00857N), November 4, 2009.

¹⁶⁶ *Ibid.*

¹⁶⁷ Email Communication with D. York, Vandenberg AFB, June 15, 2011.

¹⁶⁸ *Ibid.*

on VAFB. In the past, unexploded ordnance surveys of plover habitat were scheduled during to non-breeding season to avoid impacts to the plover.¹⁶⁹ Critical habitat designation would require that both of these consultations are reinitiated to analyze the potential for adverse modification of critical habitat. During reinitiation, VAFB will have to prepare a biological assessment and under Air Force regulations an environmental assessment. VAFB estimates that the biological assessment will cost \$30,000 and the environmental assessment will cost \$35,000 to \$65,000.¹⁷⁰ Because activities are carried out during the non-nesting season and have a temporary impact on plover habitat, incremental impacts are limited to the administrative costs of addressing adverse modification during consultation. Although military activities are generally carried out when plovers are not present, this analysis does not assume that the consultation is initiated solely due to the designation of critical habitat due to the presence of wintering plovers.

165. In addition, VAFB consults with the Service on its Beach Management Plan for the plover. This plan outlines restrictions on beach access during plover nesting-season. In particular, only three small areas of beach (1.25 miles total) remain open during the nesting-season and additional beach rules (e.g., kite flying is prohibited, pets are prohibited) are in place during this time. Additionally, the plan outlines beach rules that must be followed at all time, such as prohibition of fireworks and leashing of pets.¹⁷¹ The Beach Management Plan must be renewed every five years per the terms of the BO. Most recently the plan was renewed in 2009 to cover the 2010 – 2014 nesting seasons. If critical habitat is designated, additional effort will be necessary during consultation to address the adverse modification standard. Because this plan has already been developed and approved by the Service and is meant to benefit the plover and its habitat, we assume that an informal level of effort will be necessary.
166. Biannual Air Force survival training occurs within Unit OR 4. The training activities occur from mid-April to mid-September and are six days in length. Up to 97 students, instructors, and medics may be participating in training activities each session. Parachute jumps will take place from a helicopter flying at altitudes of 2,000 to 10,000 feet, with students landing in the Pacific Ocean or on the beach of Bayocean Spit. These operations are permitted by the Corps and OPRD. In 2009, the Corps consulted with the Service on the effect of these training activities on the plover and its habitat. During consultation, the Service recommended the following measures to minimize potential for adverse effects upon plover and its habitat:
- Limit beach activities to particular areas, which are marked with a flag;
 - If nesting plovers are found, a buffer area excluding training activities will be established;

¹⁶⁹ *Ibid.*

¹⁷⁰ *Ibid.*

¹⁷¹ U.S. Fish and Wildlife Service, Biological Opinion for Beach Management for the Western Snowy Plover on Vandenberg Air Force Base for the 2005-2009 Breeding Seasons (1-8-05-F-5R), March 1, 2005.

- Training participants will access South Jetty by routes inland of the foredune;
- Helicopter operations will occur at or above the 2,000-foot elevation;
- Corps will conduct four nesting plover surveys prior to training sessions; and
- Training instructors will be briefed by the Corps on plover identification, habitat requirements and use, and nesting behavior.¹⁷²

167. The Service concludes that the training activities may affect, but are not likely to adversely affect the plover or adversely modify plover critical habitat. The 2009 consultation covers biannual training from 2010 through 2019. This analysis assumes that the Corps will consult with the Service in 2019 and 2029 to cover training from 2020 through 2029 and 2030 through 2039, respectively. Because the training activities have a temporary impact on plover habitat, incremental impacts are limited to the administrative costs of addressing adverse modification during consultation.

4.2.5 HABITAT AND SPECIES MANAGEMENT

168. In the past, the Service has consulted on many habitat and species management projects. This analysis has identified four habitat and species management activities that would require consultation under section 7 of the Act. The first is a dune restoration project being undertaken by the Corps on land owned by the Shoalwater Bay Tribe in Unit WA 3B.¹⁷³ This project proposes to restore a deteriorated barrier dune system and extend an existing shoreline flood berm to protect the Shoalwater Bay Indian Reservation in Pacific County, Washington. In 2007, the Corps consulted with the Service on the effect of the project on the plover. During consultation, the Service recommended that the Corps: 1) conduct nesting surveys for the plover at the project site prior to construction; 2) adjust construction timing and implementation to avoid impacts to the nesting plovers based on the surveys; and 3) create and enhance suitable nesting habitat for the plovers on the waterward side of the dune system.¹⁷⁴ The Service concluded that the project may affect, but is not likely to adversely affect the plover. Due to the designation of critical habitat, this informal consultation will need to be reinitiated in 2012 to consider the adverse modification standard. This project is short-term, but could have permanent impacts on the proposed critical habitat. This analysis assumes that the Service would not request any project modifications to avoid adverse modification of critical habitat in addition to what has already been requested to reduce impacts to the plover.
169. CDPR is in the process of preparing an HCP that will include management of the plover within Fort Ord Dunes State Park (Unit CA 22). The Fort Ord Dunes HCP is being developed in conjunction with other stakeholders who manage land within the Fort Ord

¹⁷² U.S. Fish and Wildlife Service, Informal Consultation on Air Force Survival Training at Bayocean Spit, Oregon (13420-2010-0023), December 17, 2009.

¹⁷³ Personal Communication with S. Spencer, Shoalwater Bay Tribe, June 27, 2001.

¹⁷⁴ U.S. Fish and Wildlife Service, COE # Shoalwater Bay Shoreline Erosion Project (13410-2007-0420), August, 30, 2007.

Dunes area and is expected to be completed in 2013.¹⁷⁵ Management measures for the plover contained within the current draft HCP include:

- Plover monitoring;
- Symbolic fencing to close off nesting area at the start of the nesting season;
- Restrictions on the number of access points to the beach; and
- Temporary closure of an access point if a nest is found.¹⁷⁶

170. If critical habitat is designated, CDPR would be required to add analysis of the impacts to critical habitat to its HCP. CDPR estimates that the level of effort necessary to complete this analysis would be approximately \$2,000.¹⁷⁷ This analysis assumes that the designation of critical habitat will not result in changes to the management measures contained within the HCP.¹⁷⁸ In addition, an intra-Service consultation would be required on the HCP. The portion of the administrative consultation costs required to address adverse modification of critical habitat is considered an incremental impact.

171. The Santa Barbara County Parks Department is also in the process of preparing an HCP that will include management of the plover within Rancho Guadalupe Dunes County Park (Unit CA 31). The multi-species HCP is currently in draft form and has been under development for over five years. The draft includes the following management practices for the plover:

- Plover monitoring;
- Coastal habitat restoration;
- Non-lethal predator control, including nest exclosers and minimizing trash, which attracts predators;
- Public education, including interpretive signage and symbolic fencing
- Public access and dog-walking restrictions in certain areas during nesting season; and
- Year-round ORV prohibition.¹⁷⁹

172. The Parks Department hopes to finalize the HCP by the end of 2011 and does not expect the HCP to change in any way due to the designation of critical habitat for the plover.¹⁸⁰

¹⁷⁵ Personal Communication with A. Palkovic, Fort Ord Dunes State Park, July 13, 2011.

¹⁷⁶ *Ibid.*

¹⁷⁷ Email Communication with A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, July 19, 2011.

¹⁷⁸ We use the value given for the Oceano Dunes SVRA HCP (Personal Communication with R. Glick and A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 10, 2011). Since both HCP's are being developed by CDPR, we assume that the cost will be similar.

¹⁷⁹ [Draft] Habitat Conservation Plan for Rancho Guadalupe Dunes County Park Santa Barbara County, California. September 2008. Prepared by LFR, Inc. Prepared for Santa Barbara County Parks Department. Adapted by Santa Barbara County Parks Department, April 2011.

¹⁸⁰ Personal Communication with C. Garciacelay, Santa Barbara County Parks Department, September 2, 2011.

An intra-Service consultation would be required on the HCP. The portion of the administrative consultation costs required to address adverse modification of critical habitat is considered an incremental impact.

4.3 KEY ASSUMPTIONS

173. The economic costs presented in this chapter are based on a number of assumptions that may affect the impact estimates. This section presents the key assumptions and the extent to which they may lead to under- or over-estimates of the potential incremental impacts of the proposed critical habitat designation. Exhibit 4-4 presents they key assumptions made and the potential bias they introduce in the analysis.

EXHIBIT 4-4. KEY ASSUMPTIONS ASSOCIATED WITH THE ESTIMATED INCREMENTAL IMPACTS OF CRITICAL HABITAT DESIGNATION FOR THE PLOVER

ASSUMPTION/SOURCE OF UNCERTAINTY	DIRECTION OF POTENTIAL BIAS	LIKELY SIGNIFICANCE WITH RESPECT TO ESTIMATED IMPACTS
We note that indirect impacts to Oceano Dunes SVRA are possible, but do not quantify the impacts due to considerable uncertainty surrounding the probability that CCC will alter their current permit or Oceano Dunes will face legal action due to the designation of critical habitat.	May lead to an underestimate of incremental impacts	Potentially major. Reducing or eliminating the area available for riding will result in welfare losses and regional economic impacts. Beach users will incur social welfare losses due to forgone trips or a diminished beach experience (for example, due to crowding). Regional economic impacts arise due to reductions in beach recreation-related expenditures caused by fewer recreation-related trips.
We note that indirect impacts to the Sterling/McDonald and SNG development projects are possible, but do not quantify the impacts due to considerable uncertainty surrounding the probability that the development permits will be denied or the developments will face legal action due to the designation of critical habitat.	May lead to an underestimate of incremental impacts	Potentially major. If these projects are ultimately prohibited due to permit denial or a lawsuit stemming from the designation of critical habitat, the indirect economic impacts will be equal to the loss in the land's option value for development plus any resources that have already been sunk into the permitting process. When construction is complete, the Sterling/McDonald project is anticipated to be valued at \$106 million and the SNG project is anticipated to be valued at \$350 to 430 million. The lost option value of development is roughly equal to the current market value of the undeveloped parcels, assuming the sites have no other potential uses. The value of the undeveloped parcels is less than values provided above for the fully built-out projects. In addition, if these developments are prohibited regional economic impacts could arise due to reductions in tourism- and construction-related expenditures.
We note that indirect impacts may result if Corps dredging and beach nourishment projects are severely delayed due to consultation. These impacts are not quantified because it seems unlikely that major delays will occur.	May lead to an underestimate of incremental impacts	Probably minor. Many of the Corps dredging projects are necessary to maintain navigable channels. Beach nourishment projects maintain beaches that are enjoyed by recreators and attract tourists. If beach nourishment projects are delayed long enough, the Corps may opt to dispose of dredged materials inland instead of on the beach.
We do not identify any project modifications that will be requested by the Service to avoid adverse modification that would not be requested due to jeopardy.	May lead to an underestimate of incremental impacts	Probably minor. In general, projects with permanent or long-term impacts may require additional project modifications to address adverse modification. However, for the specific projects identified in this analysis, it appears that all proposed modifications would also be requested to reduce impacts to plover during the jeopardy analysis. To the extent that this is not true, some additional incremental impacts may occur.

CHAPTER 5 | ECONOMIC BENEFITS OF CRITICAL HABITAT DESIGNATION FOR THE PLOVER

174. The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the plover. Thus, attempts to develop monetary estimates of the benefits of this proposed critical habitat designation would focus on the public's willingness to pay to achieve the conservation benefits to plover resulting from this designation.
175. Quantification and monetization of species conservation benefits requires information on the incremental change in the probability of plover conservation that is expected to result from the designation. As described in Chapters 3 and 4, modifications to future projects are unlikely beyond the baseline given the extensive baseline protections already provided to the species and the characteristics of the specific projects projected to occur over the 20-year timeframe of the analysis.
176. Other benefits may also be achieved through designation of critical habitat. For example, the public may hold a value for habitat conservation, beyond its willingness to pay for conservation of a specific species. Studies have been done that estimate the public's willingness to pay to preserve wilderness areas, for wildlife management and preservation programs, and for wildlife protection in general. These studies address categories of benefits (e.g., ecosystem integrity) that may be similar to the types of benefits provided by critical habitat, but do not provide values that can be used to establish the incremental values associated with this proposed critical habitat designation (i.e., the ecosystem and species protection measures considered in these studies are too dissimilar from the habitat protection benefits that may be afforded by this designation). Again, because the designation of critical habitat for the plover is unlikely to preserve new areas or protect wildlife above existing baseline protections, such benefits are unlikely.
177. Similarly, economists have conducted research on the economic value of ancillary benefits, such as the preservation of open space, which may positively affect the value of neighboring parcels, or maintenance of natural hydrologic functions of an ecosystem, which result in improved downstream water quality. Ancillary benefits are unlikely given that no changes in behavior to protect such resources are anticipated to result from the designation.

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APPENDIX A | SMALL BUSINESS ANALYSIS AND ENERGY IMPACTS ANALYSIS

178. This appendix considers the extent to which incremental impacts from critical habitat designation may be borne by small entities and the energy industry. The analysis presented in Section A.1 is conducted pursuant to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996. The energy analysis in Section A.2 is conducted pursuant to Executive Order No. 13211.
179. The analyses of impacts to small entities and the energy industry rely on the estimated incremental impacts resulting from the proposed critical habitat designation. The incremental impacts of the rulemaking are most relevant for the small business and energy impacts analyses because they reflect costs that may be avoided or reduced based on decisions regarding the composition of the final rule. Any baseline impacts associated with the listing of the plover and other Federal, State, and local regulations and policies are expected to occur regardless of the outcome of this rulemaking.

A.1 SBREFA ANALYSIS

180. When a Federal agency proposes regulations, the RFA requires the agency to prepare and make available for public comment an analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions as defined by the RFA).¹⁸¹ No initial regulatory flexibility analysis is required if the head of an agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the RFA to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have significant economic impact on a substantial number of small entities. To assist in this process, this appendix provides a screening level analysis of the potential for plover critical habitat to affect small entities.
181. To ensure broad consideration of impacts on small entities, the Service has prepared this small business analysis without first making the threshold determination in the proposed rule regarding whether the proposed critical habitat designation could be certified as not having a significant economic impact on a substantial number of small entities. This small business analysis will therefore inform the Service's threshold determination.

¹⁸¹ 5 U.S.C. § 601 et seq.

A.1.1 IMPACTS THAT ARE THE FOCUS OF THIS SCREENING ANALYSIS

182. This analysis is intended to improve the Service's understanding of the potential effects of the proposed rule on small entities and to identify opportunities to minimize these impacts in the final rulemaking. The Act requires the Service to designate critical habitat for threatened and endangered species to the maximum extent prudent and determinable. Section 4(b)(2) of the Act requires that the Service designate critical habitat "on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impacts, of specifying any particular area as critical habitat." This section grants the Secretary [of the Interior] discretion to exclude any area from critical habitat if (s)he determines "the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat". However, the Secretary may not exclude an area if it "will result in the extinction of the species."
183. Three types of small entities are defined in the RFA:
- **Small Business** - Section 601(3) of the RFA defines a small business as having the same meaning as small business concern under section 3 of the Small Business Act. This includes any firm that is independently owned and operated and is not dominant in its field of operation. The SBA has developed size standards to carry out the purposes of the Small Business Act, and those size standards can be found in 13 CFR 121.201. The size standards are matched to North American Industry Classification System (NAICS) industries. The SBA definition of a small business applies to a firm's parent company and all affiliates as a single entity.
 - **Small Governmental Jurisdiction** - Section 601(5) defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with a population of less than 50,000. Special districts may include those servicing irrigation, ports, parks and recreation, sanitation, drainage, soil and water conservation, road assessment, etc. When counties have populations greater than 50,000, those municipalities of fewer than 50,000 can be identified using population reports. Other types of small government entities are not as easily identified under this standard, as they are not typically classified by population.
 - **Small Organization** - Section 601(4) defines a small organization as any not-for-profit enterprise that is independently owned and operated and not dominant in its field. Small organizations may include private hospitals, educational institutions, irrigation districts, public utilities, agricultural co-ops, etc.
184. The courts have held that the RFA/SBREFEA requires Federal agencies to perform a regulatory flexibility analysis of forecast impacts to small entities that are directly regulated. In the case of *Mid-Tex Electric Cooperative, Inc., v. Federal Energy Regulatory Commission (FERC)*, FERC proposed regulations affecting the manner in which generating utilities incorporated construction work in progress in their rates. The generating utilities that expected to be regulated were large businesses; however, their

customers -- transmitting utilities such as electric cooperatives -- included numerous small entities. In this case, the court agreed that FERC simply authorized large electric generators to pass these costs through to their transmitting and retail utility customers, and FERC could therefore certify that small entities were not directly impacted within the definition of the RFA.¹⁸²

185. Similarly, *American Trucking Associations, Inc. v. Environmental Protection Agency* (EPA) addressed a rulemaking in which EPA established a primary national ambient air quality standard for ozone and particulate matter.¹⁸³ The basis of EPA's RFA/SBREFEA certification was that this standard did not directly regulate small entities; instead, small entities were indirectly regulated through the implementation of state plans that incorporated the standards. The court found that, while EPA imposed regulation on states, it did not have authority under this rule to impose regulations directly on small entities and therefore small entities were not directly impacted within the definition of the RFA.
186. The SBA, in its guidance on how to comply with the RFA, recognizes that consideration of indirectly affected small entities is not required by the RFA, but encourages agencies to perform a regulatory flexibility analysis even when the impacts of its regulation are indirect.¹⁸⁴ "If an agency can accomplish its statutory mission in a more cost-effective manner, the Office of Advocacy [of the SBA] believes that it is good public policy to do so. The only way an agency can determine this is if it does not certify regulations that it knows will have a significant impact on small entities even if the small entities are regulated by a delegation of authority from the Federal agency to some other governing body."¹⁸⁵
187. The regulatory mechanism through which critical habitat protections are enforced is section 7 of the Act, which directly regulates only those activities carried out, funded, or permitted by a Federal agency. By definition, Federal agencies are not considered small entities, although the activities they may fund or permit may be proposed or carried out by small entities. Given the SBA guidance described above, this analysis considers the extent to which this designation could potentially affect small entities, regardless of whether these entities would be directly regulated by the Service through the proposed rule or by a delegation of impact from the directly regulated entity.
188. This screening analysis focuses on small entities that may bear the incremental impacts of this rulemaking quantified in Chapter 4 of this economic analysis. Small entities also may participate in section 7 consultation as a third party (the primary consulting parties being the Service and the Federal action agency). It is therefore possible that the small entities may spend additional time considering critical habitat during section 7

¹⁸² 773 F. 2d 327 (D.C. Cir. 1985).

¹⁸³ 175 F. 3d 1027, 1044 (D.C. Cir. 1999).

¹⁸⁴ Small Business Administration, Office of Advocacy. May 2003. A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act, pg. 20.

¹⁸⁵ *Ibid.*, pg. 21.

consultation for the plover. These incremental administrative impacts to third parties are discussed in Chapter 4 of this analysis. Additional incremental costs of consultation that would be borne by the Federal action agency and the Service are not relevant to this screening analysis as these entities (Federal agencies) are not small.

A.1.2 RESULTS OF THE SCREENING ANALYSIS

189. Chapter 4 provides a detailed analysis of the likely incremental impact of the proposed designation. In total, we estimate that the designation will result in total present value costs of \$266,000 assuming a seven percent discount rate. We assume the majority of these costs, approximately \$230,000, will be incurred immediately following the designation in 2012.
190. These costs are entirely administrative in nature; no incremental project modifications are anticipated to result from section 7 consultations. Furthermore, the majority of consultation costs are incurred by the Service and the Federal action agency, either the Corps or DOD. Of the approximately 76 anticipated consultations over the 20-year period of analysis, only nine will involve third parties.
191. Exhibit A-1 describes the non-Federal entities that may be affected by critical habitat designation and assesses whether they are considered small entities under the RFA. The State of California (CDPR), Santa Barbara County, Monterey County, Santa Cruz County, and City of Coronado will participate in the nine aforementioned future consultations. Of these entities, only the City of Coronado meets the RFA's definition of a small governmental jurisdiction. Third-party administrative costs for the City of Coronado are expected to be \$818 in 2012, assuming a seven percent discount rate. This impact represents less than 0.01 percent of the City's annual revenues of \$40.3 million.¹⁸⁶
192. In addition, this analysis discusses the potential for critical habitat to influence future litigation or State review of environmental permits. At Oceano Dunes SVRA (Unit CA 31), critical habitat may serve as a lever for future litigation aimed at reducing or eliminating OHV-recreation on the beach. Such action would indirectly affect recreators and businesses in the local community. In addition, the critical habitat designation could influence the CCC's review of permits for two development projects in Sand City (Unit CA 22) or serve as a lever for litigation to prevent the projects from moving forward. The project proponents are known, or assumed, to be small entities. Additional indirect effects on local businesses providing services to these projects may also occur if the projects are not approved. The potential impacts associated with the SVRA and Sand City development are highly uncertain, and the data required to quantify such impacts are not readily available (see discussion in Chapter 4). Furthermore, these impacts are unlikely to be considered direct effects of the critical habitat rule under the RFA based on recent case law.

¹⁸⁶ City of Coronado Adopted Financial Plan, Fiscal Year 2011-12 accessed by http://www.coronado.ca.us/egov/docs/1313079465_256286.pdf on March 20, 2012.

EXHIBIT A-1. SUMMARY OF ENTITIES AND GOVERNMENTAL JURISDICTIONS POTENTIALLY AFFECTED

PROEJCT SITE/LOCATION	GOVERNMENTAL JURISDICTION / BUSINESS	SMALL ENTITY SIZE STANDARD	RELEVANT CRITERIA	SMALL ENTITY UNDER THE RFA	ANNUALIZED INCREMENTAL ECONOMIC IMPACTS TO SMALL BUSINESSES (7%)	IMPACTS AS % OF ANNUAL REVENUES
Fort Ord Dunes HCP (Unit CA22) and Oceano Dunes SVRA HCP (Unit CA 31)	CDPR	Serving <50,000 people ⁽¹⁾	37 million people ⁽²⁾	No	n/a	n/a
Rancho Guadalupe Dunes County Park (Unit CA 31)	Santa Barbara County	Serving <50,000 people ⁽¹⁾	423,895 ⁽²⁾	No	n/a	n/a
Sterling/McDonald development site in Sand City, CA (Unit CA 22)	Sand City Redevelopment Agency	Serving <50,000 people ⁽¹⁾	329 ⁽³⁾	Yes	Indirect impacts could result in significant, unquantified impacts	
	Private developer	<\$7 million in average annual revenues ⁽⁴⁾	Unknown	Unknown		
SNG development site in Sand City, CA (Unit CA 22)	SNG	<\$7 million in average annual revenues ⁽⁴⁾	Unknown	Likely Yes ⁽⁵⁾		
Pajaro River manual breaching project (Unit CA 20)	Santa Cruz County	Serving <50,000 people ⁽¹⁾	262,382 ⁽²⁾	No	n/a	n/a
Salinas River Lagoon manual breaching project (Unit CA 22)	Monterey County Water Resources Agency	Serving <50,000 people ⁽¹⁾	415,057 ⁽²⁾	No	n/a	n/a
Construction of bike trail and walking path (Unit CA 55B)	City of Coronado	Serving <50,000 people ⁽¹⁾	18,912 ⁽²⁾	Yes	\$818	<0.01% ⁽⁶⁾

Sources:

- (1) The RFA defines “small governmental jurisdiction” as the government of a city, county, town, school district or special district with a population of less than 50,000 (5 U.S.C. 601 *et seq.*).
- (2) U.S. Census Bureau, *State & County QuickFacts*, as viewed at <http://quickfacts.census.gov/qfd/states/> on July 22, 2011.
- (3) Local Agency Formation Commission of Monterey County, *City of Sand City 2011 Municipal Service and Sphere of Influence Review*, Adopted on January 24, 2011, as viewed at <http://www.co.monterey.ca.us/lafco/2011/WEB%20POSTS/OLD/2011%20MSR/Sand%20City%20MSR%20-%20Sphere%20Review%20Adopted%20012411a.pdf>.
- (4) Based on North American Industry Classification System (NAICS) code 237210 “Land Subdivision,” SBA’s *Table of Small Business Size Standards Matched to North American Industry Classification System Codes*, as viewed at <http://www.sba.gov/content/table-small-business-size-standards> on June 23, 2011.
- (5) Data available online suggests that the company’s annual revenue is less than \$500,000; however the reliability of these data are unknown (as viewed at <http://www.manta.com/c/mmph3gy/security-national-guarantee> on July 22, 2011).
- (6) Revenue information obtained from City of Coronado Adopted Financial Plan, Fiscal Year 2011-12 accessed by http://www.coronado.ca.us/egov/docs/1313079465_256286.pdf on March 20, 2012.

A.2 POTENTIAL IMPACTS TO THE ENERGY INDUSTRY

193. Pursuant to Executive Order No. 13211, “Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use,” issued May 18, 2001, Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The purpose of this requirement is to ensure that all Federal agencies “appropriately weigh and consider the effects of the Federal Government’s regulations on the supply, distribution, and use of energy.”¹⁸⁷
194. The Office of Management and Budget provides guidance for implementing this Executive Order, outlining nine outcomes that may constitute “a significant adverse effect” when compared with the regulatory action under consideration:
- Reductions in crude oil supply in excess of 10,000 barrels per day (bbls);
 - Reductions in fuel production in excess of 4,000 barrels per day;
 - Reductions in coal production in excess of 5 million tons per year;
 - Reductions in natural gas production in excess of 25 million Mcf per year;
 - Reductions in electricity production in excess of 1 billion kilowatts-hours per year or in excess of 500 megawatts of installed capacity;
 - Increases in energy use required by the regulatory action that exceed the thresholds above;
 - Increases in the cost of energy production in excess of one percent;
 - Increases in the cost of energy distribution in excess of one percent; or
 - Other similarly adverse outcomes.¹⁸⁸
195. No changes in energy use, production, or distribution are anticipated. As described in Chapter 4, direct incremental costs of the designation are limited to the administrative costs of conducting section 7 consultations. No energy entities are involved in forecast consultations.

¹⁸⁷ Memorandum For Heads of Executive Department Agencies, and Independent Regulatory Agencies, Guidance For Implementing E.O. 13211, M-01-27, Office of Management and Budget, July 13, 2001, <http://www.whitehouse.gov/omb/memoranda/m01-27.html>.

¹⁸⁸ *Ibid.*

APPENDIX B | SENSITIVITY OF RESULTS TO DISCOUNT RATE

196. This appendix summarizes the costs of plover conservation quantified in Chapter 4 of this report. It presents impacts assuming an alternative real discount rate of three percent (the main text of the report assumes a real discount rate of seven percent).

EXHIBIT B-1. TOTAL ESTIMATED INCREMENTAL IMPACTS BY SUBUNIT (2012-2031, \$2011, DISCOUNTED AT THREE PERCENT)

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
WA 1	Copalis Spit	\$0	\$0
WA 2	Damon Point	\$0	\$0
WA 3A	Midway Beach	\$0	\$0
WA 3B	Shoalwater/Graveyard	\$1,830	\$123
WA 4A	Leadbetter Spit	\$0	\$0
WA 4B	Gunpowder Sands Island	\$0	\$0
Washington Subtotal		\$1,830	\$123
OR 1	Columbia River Spit	\$3,670	\$246
OR 2	Necanicum River Spit	\$0	\$0
OR 3	Nehalem River Spit	\$0	\$0
OR 4	Bayocean Spit	\$3,270	\$220
OR 5	Netarts Spit	\$0	\$0
OR 6	Sand Lake South	\$0	\$0
OR 7	Sutton/Baker Beaches	\$0	\$0
OR 8A	Siltcoos Breach	\$0	\$0
OR 8B	Siltcoos River Spit	\$0	\$0
OR 8C	Dunes Overlook/Tahkenitch Creek Spit	\$0	\$0
OR 8D	North Umpqua River Spit	\$0	\$0
OR 9	Tenmile Creek Spit	\$0	\$0
OR 10	Coos Bay North Spit	\$1,830	\$123
OR 11	Bandon to New River	\$0	\$0
OR 12	Elk River Spit	\$0	\$0
OR 13	Euchre Creek	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
Oregon Subtotal		\$8,770	\$589
CA 1	Lake Earl	\$0	\$0
CA 2	Gold Bluffs Beach	\$0	\$0
CA 3A	Humboldt Lagoons - Stone Lagoon	\$0	\$0
CA 3B	Humboldt Lagoons - Big Lagoon	\$0	\$0
CA 4A	Clam Beach/Little River	\$0	\$0
CA 4B	Mad River	\$0	\$0
CA 5A	Humboldt Bay South Spit	\$0	\$0
CA 5B	Eel River North Spit/Beach	\$0	\$0
CA 5C	Eel River South Spit/Beach	\$0	\$0
CA 6	Eel River Gravel Bars	\$14,900	\$999
CA 7	MacKerricher Beach	\$0	\$0
CA 8	Manchester Beach	\$0	\$0
CA 9	Dillon Beach	\$0	\$0
CA 10A	Pt Reyes	\$0	\$0
CA 10B	Limantour	\$0	\$0
CA 11	Napa	\$0	\$0
CA 12	Hayward	\$0	\$0
CA 13A	Eden Landing	\$0	\$0
CA 13B	Eden Landing	\$0	\$0
CA 13C	Eden Landing	\$0	\$0
CA 14	Ravenswood	\$0	\$0
CA 15	Warm Springs	\$0	\$0
CA 16	Half Moon Bay	\$0	\$0
CA 17	Waddell Creek Beach	\$0	\$0
CA 18	Scott Creek Beach	\$0	\$0
CA 19	Wilder Creek Beach	\$0	\$0
CA 20	Jetty Road to Aptos	\$3,920	\$264
CA 21	Elkhorn Slough Mudflats	\$0	\$0
CA 22	Monterey to Moss Landing	\$19,000	\$1,270
CA 23	Point Sur Beach	\$0	\$0
CA 24	San Carpoforo Creek	\$0	\$0
CA 25	Arroyo Laguna Creek	\$0	\$0
CA 26	San Simeon State Beach	\$0	\$0
CA 27	Villa Creek Beach	\$0	\$0
CA 28	Toro Creek	\$0	\$0
CA 29	Atascadero Beach/Morro Strand SB	\$5,430	\$365

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
CA 30	Morro Bay Beach	\$0	\$0
CA 31	Pismo Beach/Nipomo Dunes	\$9,950	\$669
CA 32	Vandenberg North	\$97,000	\$6,520
CA 33	Vandenberg South	\$97,000	\$6,520
CA 34	Devereaux Beach	\$0	\$0
CA 35	Santa Barbara Beaches	\$17,400	\$1,170
CA 36	Santa Rosa Island Beaches	\$0	\$0
CA 37	San Buenaventura Beach	\$0	\$0
CA 38	Mandalay to Santa Clara River	\$0	\$0
CA 39	Ormond Beach	\$8,310	\$559
CA 43	Zuma Beach	\$0	\$0
CA 44	Malibu Beach	\$0	\$0
CA 45A	Santa Monica Beach	\$0	\$0
CA 45B	Dockweiler North	\$0	\$0
CA 45C	Dockweiler South	\$0	\$0
CA 45D	Hermosa State Beach	\$0	\$0
CA 46A	Bolsa Chica State Beach	\$0	\$0
CA 46B	Bolsa Chica Reserve	\$0	\$0
CA 46C	Bolsa Chica Reserve	\$0	\$0
CA 46D	Bolsa Chica Reserve	\$0	\$0
CA 46E	Bolsa Chica Reserve	\$0	\$0
CA 46F	Bolsa Chica Reserve	\$0	\$0
CA 47	Santa Ana River Mouth	\$0	\$0
CA 48	Balboa Beach	\$0	\$0
CA 50A	Batiquitos Lagoon	\$0	\$0
CA 50B	Batiquitos Lagoon	\$0	\$0
CA 50C	Batiquitos Lagoon	\$0	\$0
CA 51A	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 51B	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 51C	San Elijo Lagoon Ecological Reserve	\$0	\$0
CA 52A	San Dieguito Lagoon	\$0	\$0
CA 52B	San Dieguito Lagoon	\$0	\$0
CA 52C	San Dieguito Lagoon	\$0	\$0
CA 53	Los Penasquitos Lagoon	\$0	\$0
CA 54A	Fiesta Island	\$0	\$0
CA 54B	Mariner's Point	\$0	\$0
CA 54C	South Mission Beach	\$0	\$0

SUBUNIT NUMBER	UNIT NAME	PRESENT VALUE	ANNUALIZED
CA 54D	San Diego River Channel	\$0	\$0
CA 55B	Coronado Beach	\$4,850	\$326
CA 55E	Sweetwater Marsh National Wildlife Refuge and D Street Fill	\$0	\$0
CA 55F	Silver Strand State Beach	\$0	\$0
CA 55G	Chula Vista Wildlife Reserve	\$0	\$0
CA 55I	San Diego National Wildlife Refuge, South Bay Unit	\$0	\$0
CA 55J	Tijuana Estuary and Beach	\$0	\$0
California Subtotal		\$278,000	\$18,700
GRAND TOTAL		\$288,000	\$19,400
Note: Estimates are rounded to three significant digits and may not sum due to rounding.			

EXHIBIT B-2. ESTIMATED INCREMENTAL IMPACTS TO DEVELOPMENT BY SUBUNIT (2012-2031, \$2011, DISCOUNTED AT THREE PERCENT)

ACTIVITY	PRESENT VALUE	ANNUALIZED
Development	\$58,600	\$3,940
Mining	\$14,900	\$999
Military	\$197,000	\$13,300
Habitat and Species Management	\$17,600	\$1,180

APPENDIX C | UNDISCOUNTED IMPACTS BY ECONOMIC ACTIVITY

197. This appendix summarizes undiscounted impacts by year for each economic activity. These details are provided in accordance with OMB guidelines for developing benefit and cost estimates. OMB directs the analysis to: “include separate schedules of the monetized benefits and costs that show the type and timing of benefits and costs, and express the estimates in this table in constant, undiscounted dollars.”¹⁸⁹ Exhibit C-1 summarizes potential undiscounted incremental impacts to development, mining, military, and habitat and species management activities (as described in Chapter 4).

¹⁸⁹ Office of Management and Budget, Circular A-4, September 17, 2003, p. 18. The reference to “constant” dollars indicates that the effects of general price level inflation (the tendency of all prices to increase over time) should be removed through the use of an inflation adjustment index.

**EXHIBIT C-1 UNDISCOUNTED INCREMENTAL IMPACTS BY UNIT, YEAR, AND IMPACT SOURCE
(2012-2040, 2011 DOLLARS)**

UNIT	YEAR(S)	COST	DESCRIPTION
DEVELOPMENT			
OR 1	2012	\$3,780	Jetty rehabilitation admin costs
OR 10	2012	\$1,890	Jetty rehabilitation admin costs
CA 20	2012, 2024	\$2,380	Pajaro River breaching admin costs
CA 22	2012	\$10,000	Salinas River lagoon breaching admin costs
CA 22	2017, 2027	\$2,380	Salinas River lagoon breaching admin costs
CA 29	2016	\$5,660	Beach nourishment admin costs
CA 29	2023, 2030	\$428	Beach nourishment admin costs
CA 35	2012	\$5,660	Dredging/beach nourishment admin costs
CA 35	Twice per year	\$428	Dredging/beach nourishment admin costs
CA 39	2012	\$5,660	Beach nourishment admin costs
CA 39	Biannually starting in 2014	\$428	Beach nourishment admin costs
CA 55B	2012	\$5,000	Construction of bike trail and walking path
MINING			
CA 6	2014, 2019, 2024, 2029	\$5,000	Eel River gravel bar mining
MILITARY			
OR 4	2019, 2029	\$2,380	Military Training Operations
CA 32, CA 33	2012	\$48,900	VAFB Installation Restoration Program
CA 32, CA 33	2012	\$48,900	VAFB Military Munitions Response Program
CA 32, CA 33	2012	\$1,250	VAFB Update INRMP
CA 32, CA 33	2014, 2019, 2024, 2029	\$944	VAFB Beach Management Plan
HABITAT AND SPECIES MANAGEMENT			
WA 3B	2012	\$1,890	Army Corps dune restoration project
CA 22	2013	\$4,130	Fort Ord Dunes HCP
CA 22	2013	\$2,000	Fort Ord Dunes HCP
CA 31	2012	\$4,130	Oceano Dunes HCP
CA 31	2012	\$2,000	Oceano Dunes HCP
CA 31	2012	\$4,125	Rancho Guadalupe Dunes County Park HCP

APPENDIX D | INCREMENTAL EFFECTS MEMORANDUM

To IEC from U.S. Fish and Wildlife Service, Pacific Southwest Region:

**Comments on how the Draft Economic Analysis Should Estimate Incremental Costs
for the Pacific Coast Population of the Western Snowy Plover Proposed Revised
Critical Habitat Designation**

April 11, 2011

The purpose of this document is to describe the effect the designation of critical habitat may have on conservation measures for the Pacific Coast Population of the Western Snowy Plover (*Charadrius alexandrinus nivosus*; Pacific Coast WSP) with regard to consultation under section 7 of the Endangered Species Act (the Act). This document provides an analysis of expected incremental costs related to this designation that should be analyzed in the Draft Economic Analysis (DEA) for the Pacific Coast WSP proposed revised critical habitat designation.

We anticipate that designation of revised critical habitat for the Pacific Coast WSP will have the following effects to the consultation process under section 7 of the Act. First, the number of consultations is not expected to change significantly as a result of designation of critical habitat. Second, we believe that designation of critical habitat will create additional workload associated with adverse modification analysis for proposed projects occurring within Pacific Coast WSP critical habitat and thus result in increased administrative costs. In this case, administrative costs refer to the difference in the cost to the U.S. Fish and Wildlife Service (Service) of conducting a jeopardy analysis, as opposed to conducting both jeopardy and adverse modification analyses, during consultation. Some activities which occur in areas where the species is not present or have long-term or permanent impacts may require additional adverse modification compensation. However, we do not anticipate that the adverse modification analysis will result in substantial increased costs over those that would be required to address effects to the species as these activities are either temporary in nature or occur infrequently. A more detailed analysis is provided below.

Types and Magnitude of Activities

Provided that the habitat is not destroyed permanently, most habitat-related impacts are temporary as the Pacific Coast WSP's habitat is dynamic, and usually becomes re-established over time. If impacts to a critical habitat unit are proportionally small, or are temporary in nature, they may not significantly reduce the habitat's ability to support essential behaviors. As such, the loss of a small or de minimus portion of the critical habitat unit may not result in a determination of adverse modification. The majority of types of activities that may take place are associated with beach habitat restoration efforts such as removal of European beachgrass or other restoration projects. These types of activities are temporary in nature and consultations would direct activities to when the species is not likely present. Additional activities may include dredging of shipping channels (e.g. Humboldt Bay) or gravel mining (e.g. Eel River) where again impacts are temporary and habitat restored prior to the next breeding season. Some activities such as beach raking or military operations may result in longer term or permanent adverse modification of habitat as discussed below.

The designation of revised critical habitat is not likely to result in an increased number of consultations.

Where there is a Federal nexus,¹⁹⁰ the Federal action agency is required to consult with the Service if the project may affect Pacific Coast WSP or its critical habitat. The proposed revised critical habitat units for the Pacific Coast WSP represent habitat-based population distributions associated with known occurrence records for this species. The distribution of critical habitat units is an attempt to include areas representing the geographic distribution of the species across its range. A jeopardy analysis for this species would look at the magnitude of the project's impacts relevant to the populations across the species' entire range. Furthermore, the jeopardy analysis would focus on effects to the species' reproduction, numbers, or distribution. An adverse modification analysis would focus on a project's impacts to the elements of physical or biological features, or other habitat characteristics in areas determined by the Secretary to be essential to or for the conservation of the species, and analyze impacts to the capability of the critical habitat unit to maintain its conservation role and function for the listed Pacific Coast WSP.

Critical habitat was first designated for the Pacific Coast WSP in 1999 when approximately 20,000 acres in 28 units were finalized (64 FR 68507; December 7, 1999). The 1999 critical habitat was revised to approximately 12,145 acres in 32 units in 2005 (70FR56969; September 29, 2005). Approximately 7,548 acres were exempted or excluded in the final 2005 revised designation. The 2011 proposed revised critical habitat contains approximately 28,261 acres in 68 units based partly on the Service's 2007 Final Recovery Plan for the Pacific Coast Population of the Western Snowy Plover. With the lengthy history of the designation and relative similarity of location and amount of area between revisions as well as information put out in the 2007 recovery plan, we believe that the public is well informed of which areas we consider to be critical habitat. As a result, they would most likely understand our process and needs for consultation both for jeopardy analysis and adverse modification determination. Also, as the consultation history demonstrates, the number of consultations (both informal and formal) has been minimal. We believe the low number of consultations is an accurate estimate of the number which we may likely see in the future. Also the type of consultations have mostly been for activities that are temporary in nature (e.g. beach restoration, channel dredging) and we believe that the majority of activities that will occur in the future would also fall within this category.

The unit areas in the 2011 proposed revised designation include geographic areas occupied at the time of listing that contain the physical or biological features essential to the conservation of the species and which may require special management considerations or protection, and specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species. Coastal beaches, salt ponds and their levees, and river gravel bars that contain the primary constituent elements of physical or biological features have been proposed. Portions of

¹⁹⁰ A Federal nexus may exist because a project involves Federal funding or requires a Federal permit, such as a Clean Water Act permit or an incidental take permit for another listed species that co-occurs with Pacific Coast WSP. Where there is a Federal nexus, project proponents (whether Federal agencies or non-Federal applicants seeking Federal funding or approval) may make modifications to their project to avoid adverse modification or jeopardy findings.

some units may be degraded with the occurrence of European beachgrass (*Ammophila arenaria*), a nonnative plant species. European beachgrass stabilizes otherwise dynamic sand dunes, creating dense, homogeneous stands of vegetation that are void of open space needed by Pacific Coast WSPs for nesting, and prevents Pacific Coast WSPs from detecting predators. These areas of formerly suitable habitat are included in the proposed revised designation to offset the anticipated effects of sea-level rise associated with climate change. Beachgrass removal and control is required to restore these formally suitable areas to functional nesting and wintering habitat.

When consulting under section 7 of the Act in designated critical habitat, independent analyses are separately made for jeopardy and adverse modification. As noted above, the jeopardy analysis looks at the magnitude of the project's impacts relevant to the populations across the species' entire range; the jeopardy analysis would not discuss primary constituent elements or critical habitat in any manner or reach a conclusion regarding adverse modification. A jeopardy analysis addresses impacts to the survival and recovery of the species and a determination is made as to whether or not a project would appreciably reduce the likelihood of the survival and recovery of the species in the wild. An adverse modification analysis addresses a project's impacts to the primary constituent elements of physical or biological features or other habitat characteristics in areas determined to be essential to the conservation of the species and includes an analysis of impacts to the capability of the critical habitat to maintain its conservation role and function for the species. Therefore, the adverse modification determination is based on the degree to which a project would affect the function and conservation role of critical habitat.

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for Pacific Coast WSP. The role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Temporary Activities: In the case of Pacific Coast WSP, we believe the added analysis for adverse modification for the temporary activities will result in minimal incremental impacts for the following reasons:

The proposed revised critical habitat designation contains units that are currently occupied and unoccupied. However, even though Pacific Coast WSPs may not be present or detected every year at a given location within the critical habitat area, the Pacific Coast WSP may use these unoccupied areas on an intermittent basis for dispersal or foraging. Thus, even if the Pacific Coast WSP is not present within a project footprint at the time that surveys occur, the Service may still assume presence based on the species' history in that area, and analyze any effects both to members of the species and to elements of physical or biological features within designated critical habitat. In such situations, the resulting consultation may result in minimal incremental impacts because the measures to address impacts to individuals and to features of the critical habitat would most likely be the same. As a result, potential economic impacts from conservation efforts that may be implemented to avoid adverse modification of critical habitat are considered parallel with efforts to avoid impacts to jeopardize Pacific Coast WSPs and, for the purposes of the economic analysis, should be considered to be baseline costs.

Therefore, the incremental costs in these consultations will likely be limited to administrative costs.

An exception to this result may occur with short-term projects that allow an action to take place while Pacific Coast WSPs are absent; in such cases, the Service may analyze for effects to critical habitat without analyzing effects to members of the species. An example could be habitat restoration (e.g., removal or control of European beachgrass) during wintering periods or other times when Pacific Coast WSPs are not likely present. Avoidance of impacts, rather than some form of compensation, is strongly encouraged in consultations for projects in suitable Pacific Coast WSP habitat, especially in areas where Pacific Coast WSP have been reported. In general, impacts to coastal and riparian/wetland features are avoided whenever possible both as a result of consultations with the Service and through other agencies (Coastal Zone Management Act, Sec. 10 of Rivers and Harbors Act, Clean Water Act). If avoidance of incidental take is not possible, we look to minimize habitat impacts. Beyond suggesting modifications to project designs, we may allow project proponents to offset project effects through the dedication of in-kind habitat to be preserved and protected at another location, preferably within the same critical habitat unit. The availability of in-kind habitat is scarce, so we may also allow for a combination of habitat preservation and habitat restoration or creation to offset project effects. The economic analysis should measure costs for these types of activities, but we anticipate that these activities would be exceptions.

Permanent or Long-term Activities: Actions that result in permanent loss of habitat or those that result in long-term habitat degradation may result in adverse modification of habitat.

An action may be likely to result in adverse modification if the impacts affect the ability of the critical habitat to continue to maintain its conservation role and function. Actions that may adversely modify critical habitat are those that result in permanent loss of habitat (e.g., construction of a parking area within habitat), or those that result in long-term habitat degradation (e.g., beach raking). These actions may require concurrent jeopardy and adverse modification analyses depending on the nature and timing of the projects or activities.

If we determine that an adverse modification finding may be likely, we are required to suggest changes to the project or suggest reasonable and prudent alternatives to eliminate or reduce the impacts. These measures or alternatives may include modifying the project such that (1) a lower level of land use would occur (i.e., minimize project disturbance footprint); and (2) project proponent would be required to implement Best Management Practices to protect critical habitat features. However, we may also suggest these changes to reduce impacts to Pacific Coast WSPs during our jeopardy analysis. As a result, the economic analysis should identify costs for activities that may cause permanent habitat loss or long-term habitat degradation.

Summary

In summary, critical habitat units have been designated based on the presence of Pacific Coast WSP occurrence and species conservation needs. Therefore, for any project proposed within a critical habitat unit, the Service will be assuming that the Pacific Coast WSP is present, or may be present, regardless of individual survey results. For the most part, measures taken to avoid impacts to individual Pacific Coast WSPs are also expected

to minimize impacts to critical habitat. Therefore, in most cases, we do not expect that designation of critical habitat will greatly affect the outcome of section 7 consultations. Nor do we expect that incremental costs will significantly increase costs over expected baseline costs. Our input in this Incremental Memorandum is based on our experience with managing and monitoring Pacific Coast WSP populations and habitat. Most economic impacts are expected to be associated with the presence of the Pacific Coast WSP on military lands and areas having high human visitation.

APPENDIX E | DETAILED SUMMARY OF DATA COLLECTION EFFORT

198. Chapter 4 of this analysis present the incremental impacts associated with the proposed critical habitat designation for the plover. To estimate these impacts we first identified projects or other activities that may be affected by the designation. Due to the broad geographical range of the proposed critical habitat and the number of stakeholders involved, we identified projects and activities in a number of ways. Specifically, we:
- 1) Reviewed public comments submitted in response to the 2011 proposed rule as well as the 2005 rule;
 - 2) Contacted the relevant local offices of likely Federal action agencies such as the Corps and other major stakeholders in the study area;
 - 3) Interviewed Service field office staff;
 - 4) Spoke with State and local government officials; and
 - 5) Reviewed the 2005 Economic Analysis.

This appendix describes our data collection effort and findings in greater detail. Projects or activities potentially resulting in incremental costs are discussed in Chapter 4.

E.1 PUBLIC COMMENTS

199. The Service received 332 comments that provided information relevant to proposed critical habitat designation during the public comment period for the 2011 Proposed Rule. Of these comments, seven provided information on specific projects and activities that could be affected by the proposed critical habitat designation. Exhibit E-1 summarizes the findings from the 2011 public comment period.

EXHIBIT E-1. PROJECTS AND ACTIVITIES IDENTIFIED DURING 2011 PUBLIC COMMENT PERIOD ON PROPOSED RULE AND DURING 2012 PUBLIC COMMENT PERIOD ON DRAFT ECONOMIC ANALYSIS

COMMENTER	PROJECT/ACTIVITY	UNIT	SOURCE
RECREATION			
Bureau of Land Management	Recreation - dog walking, horse riding, OHV use	CA 5A	Public Comment submitted by the Bureau of Land Management, Comments on Revised Critical Habitat for Pacific Coast Population of Western Snowy Plover, May 23, 2011.
Humboldt County	Recreation on land managed by CDFG	CA 5B	Public Comment submitted by the County of Humboldt, Proposed Rule for Revised Critical habitat for the Pacific Coast Population of the Western Snowy Plover, FWS-R8-ES-2010-0070-0320, May 17, 2011.
Friends of Oceano Dunes	OHV recreation at Oceano Dunes SVRA	CA 31	Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Friends of Oceano Dunes, ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, FWS-R8-ES-2010-0070-0328, May 20, 2011.
DEVELOPMENT			
CDPR	Dune restoration	CA 20	Public Comment submitted by California Department of Parks and Recreation, Proposed Critical Habitat Designation for Western Snowy Plover, FWS-R8-ES-2010-0070-0181, May 23, 2011.
Monterey Dunes Colony	Construction of a sea wall	CA 22	Public Comment submitted by Monterey Dunes Colony, Comments on Revised Critical Habitat for the Pacific Coast Population of the Western Snowy Plover, FWS-R8-ES-2010-0070-0184, May 23, 2011.
Sand City	Sterling/McDonald development	CA 22	Public Comment submitted by City of Sand City and the Sand City Redevelopment Agency, Section 4(b)(2) Petition of the City of Sand City, California and the Sand City Redevelopment Agency to Exclude Certain Lands from Proposed Critical Habitat for the Western Snowy Plover, FWS-R8-ES-2010-0070-0186.
	SNG development	CA 22	
City of Monterey	Beach nourishment	CA 22	Public Comment submitted by the City of Monterey, Revised Critical Habitat for the Pacific Coast Population of the Western Snowy Plover, FWS-R8-ES-2010-0070-0017, May 4, 2011.
	Utility - sewer and storm drain lines	CA 22	
Army Corps - LA District	Beach nourishment	CA 29	Public Comment on Proposed Rule submitted by the Department of the Army, Los Angeles District Corps of Engineers, FWS-R8-ES-2010-0070-0322, May 20, 2011.
	Dredging	CA 38	
	Beach nourishment	CA 39	
	Oil and gas operations	CA 46	
	Preparation of management plan	CA 46	

COMMENTS	PROJECT/ACTIVITY	UNIT	SOURCE
City of Coronado	Construction of bike trail and walking path	CA 55B	Public Comment submitted by the City of Coronado on the Proposed Critical Habitat for the Western Snowy Plover and the associated Draft Economic Analysis, FWS-R8-ES-2010-0070-0361, February 13, 2012.
Note: Some projects were mentioned in multiple public comments. In this exhibit projects are only associated with one comment letter, generally the letter providing the most detailed, substantive information, for simplicity.			

200. A number of the projects identified in Exhibit E-1 were not ultimately included in the economic analysis. In general, recreation activities do not have a Federal nexus and therefore consultation with the Service under section 7 of the Act is not required. In the case of recreation activities managed by BLM in Subunit CA 5A, a Federal nexus exists as the land is managed by a Federal agency. In 2002, BLM consulted with the Service on their interim management plan for South Spit. This consultation was reinitiated upon designation of critical habitat in 2005 and the Service concluded that implementation of the plan may affect, but is not likely to adversely affect designated plover habitat.¹⁹¹ The management plan is described in more detail in Chapter 3 of this analysis. BLM has expressed concern that the proposed westward expansion of the critical habitat unit into the waveslope may require the consultation to be reinitiated and recreation activities to be affected.¹⁹² The Service believes that because the westward expansion of the unit is a result of the change in beach formation from 2005 and access to better mapping and aerial photography, no reinitiation of consultation for or change to the management plan should result from the designation.¹⁹³ Therefore, we do not include reinitiation of this consultation in our analysis.
201. In its public comment, CDFG expresses concern that recreation activities within the Eel River Wildlife Area in Unit CA 5B could be affected by the designation of critical habitat. At times, CDFG receives Federal funding, which would provide a Federal nexus. Because the nature and timing of Federal funding is uncertain, the analysis does not estimate any incremental impacts associated with consultation.
202. A number of the development projects mentioned in the public comments were deemed too uncertain to be considered reasonably foreseeable and thus were not included in the economic analysis. These projects include the construction of a sea wall for the Monterey Dunes Colony and beach nourishment and work on sewer and storm drain lines conducted by the City of Monterey. Construction of a sea wall for the Monterey Dunes Colony would be permitted by the Corps, but no plans for construction currently exist and it is uncertain if or when construction would begin. The City of Monterey is currently

¹⁹¹ U.S. Fish and Wildlife Service, Amended Biological Opinion on the Final Management Plan for Lands Managed by the Bureau of Land Management on the South Spit of Humboldt County, California (81331-2009-F-0004).

¹⁹² Public Comment submitted by U.S. Bureau of Land Management, Comments on Revised Critical Habitat for Pacific Coast Population of Western Snowy Plover, May 23, 2011.

¹⁹³ Email Communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, August 17, 2011.

exploring the possibility of beach nourishment in Unit CA 22. If beach nourishment does occur it will likely be permitted by the Corps and thus require consultation with the Service, but no plans currently exist. City of Monterey sewer lines are positioned under the beach in Unit CA 22 and storm drain lines daylight along the coast. If work on these lines is necessary and permitted by the Corps, a consultation with the Service would occur. As no plans for construction or maintenance exist, future consultation is not considered reasonably foreseeable.

203. In its public comment, the Corps Los Angeles District indicates that CDFG is in the process of preparing a management plan for the Bolsa Chica Reserve (Units CA 46B – F). Subsequent discussion with Bolsa Chica Reserve staff revealed that while preparing a management plan is a goal of the Reserve, no plan is currently under development due to staff and funding limitations. Currently staff at the Reserve does not know when a management plan will be developed and thus development of a plan is not considered reasonably foreseeable.¹⁹⁴
204. In their public comment the Corps Los Angeles District also indicates that dredging activities in Unit 38 would be impacted by the proposed designation of critical habitat for the plover. A sand trap located adjacent to the southern end of Unit CA 38 is dredged biannually to maintain the Federal navigation channel into Channel Islands Harbor. This dredged material is used to nourish the beach at the northern end of Unit CA 39.¹⁹⁵ The Service has stated that due to the sand trap’s location outside of the proposed critical habitat unit, dredging activities will not affect the proposed critical habitat and section 7 consultation with the Service will not be necessary.¹⁹⁶ Therefore, we do not estimate any impacts associated with consultation for this activity.
205. In addition to reviewing public comments on the 2011 Proposed Rule, we reviewed the public comments received during the 2005 public comment period for the draft economic analysis. No new projects were identified during this review process that had not been previously identified elsewhere.

E.2 FEDERAL ACTION AGENCIES AND OTHER STAKEHOLDERS

206. Review of the consultation history for the plover indicates that the Corps is the major Federal action agency. In addition, we contacted BLM, Vandenberg Air Force Base, OPRD, the California Department of Transportation (CALTRANS), CDPR, CDFG, Santa Barbara County Parks Department, and the Shoalwater Bay Tribe as these entities are major landholders or managers in the study area and conduct activities that may have a Federal nexus (i.e., receive Federal funding or require a Federal permit). Exhibit E-2 lists the agencies contacted and the units within their jurisdiction. Exhibit E-3

¹⁹⁴ Personal Communication with K. O’Reilly, California Department of Fish and Game, Bolsa Chica Reserve, August 3, 2011.

¹⁹⁵ Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.

¹⁹⁶ Email Communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, August 23, 2011.

summarizes the projects and activities identified through personal communication with Federal action agencies and other stakeholders.

EXHIBIT E-2. LIST OF FEDERAL ACTION AGENCIES AND STAKEHOLDERS CONTACTED

AGENCY	UNITS WITHIN JURISDICTION
Army Corps, Seattle District	All WA Units
Army Corps, Portland District	All OR Units
Army Corps, Los Angeles District	CA Units south of Morro Bay (CA 28 - CA 55j)
BLM, Arcata Field Office	CA Units south of CA 1 to CA 7
Vandenberg Air Force Base	CA 32 and CA 33
NSA Monterey	CA 22
OPRD	All OR Units
CALTRANS, District 5	CA Units south of CA 20 to CA 34
CALTRANS, District 7	CA 43, CA 44, and CA 45
CDPR	All CA Units
CDPR - Oceano Dunes SVRA	CA 31
CDPR - Fort Ord Dunes State Park	CA 22
CDFG - Bolsa Chica Reserve	CA 46B-F
Santa Barbara County Parks Department	CA 31
Shoalwater Bay Tribe	WA 3B

EXHIBIT E-3. PROJECTS AND ACTIVITIES IDENTIFIED THROUGH PERSONAL COMMUNICATION WITH FEDERAL ACTION AGENCIES AND OTHER STAKEHOLDERS

AGENCY	PROJECT/ACTIVITY	UNIT	SOURCE
DEVELOPMENT			
Army Corps - Portland District	Jetty rehabilitation at Columbia River Mouth	OR 1	Personal Communication with G. Smith, U.S. Army Corps of Engineers, Portland District, Environmental Branch, June 9, 2011.
	Dredging/beach nourishment	OR 5	
	Coos Bay North Spit, North Jetty rehabilitation	OR 10	
	Port of Coos Bay development	OR 10	
Army Corps - LA District	Dredging	CA 35	Personal Communication with U.S. Army Corps of Engineers, Los Angeles District, June 16, 2011.
SPECIES AND HABITAT MANAGEMENT			
Shoalwater Bay Tribe	Dune restoration undertaken by Corps	WA 3B	Personal Communication with S. Spencer, Shoalwater Bay Tribe, June 27, 2011.
CDPR - Fort Ord Dunes State Park	Fort Ord Dunes HCP	CA 22	Personal Communication with A. Palkovic, Fort Ord Dunes State Park, July 13, 2011.

AGENCY	PROJECT/ACTIVITY	UNIT	SOURCE
Santa Barbara County Parks Department	Rancho Guadalupe Dunes County Park HCP	CA 31	Personal Communication with C. Garciacelay, Santa Barbara County Parks Department, September 2, 2011.
MILITARY			
Vandenberg Air Force Base	VAFB INRMP under development	CA 32; CA 33	Personal Communication with T. Devenoge and D. York, Vandenberg Air Force Base, June 3, 2011.
	VAFB activities carried out under their Installation Restoration Program, Military Munitions Response Program, and beach management plan		
Note: Personal communication also confirmed many of the projects identified in Exhibit E-1; these have not been repeated here for simplicity.			

207. Some of the projects identified in Exhibit E-3 were not ultimately included in the economic analysis. Development projects that lacked details on the likelihood and timing of implementation were considered not reasonably foreseeable. These projects include the Port of Coos Bay development project that is in the very early stages of planning and dredging and/or beach nourishment in Unit OR 5, which is not ongoing or planned, but may need to occur in the future.

E.3 SERVICE FIELD OFFICES

208. Conversations with Service field office staff provided additional information about ongoing projects where reinitiation of consultation would be necessary and potential future projects. We communicated with field office staff in Washington, Oregon, and California. Exhibit E-4 lists the Field Offices contacted and the units within their jurisdiction. Exhibit E-5 summarizes the projects and activities identified through personal communication with Field Office staff.

EXHIBIT E-4. LIST OF SERVICE FIELD OFFICES CONTACTED

SERVICE FIELD OFFICES	UNITS WITHIN JURISDICTION
Lacey, WA Field Office	All WA Units
Newport, OR Field Office	All OR Units
Arcata, CA Field Office	CA Units south of CA 1 to CA 8
Sacramento, CA Field Office	CA Units south of CA 9 to CA 16
Ventura, CA Field Office	CA Units south of CA 17 to CA 44
Carlsbad, CA Field Office	CA Units south of CA 45 to CA 55

EXHIBIT E-5. PROJECTS AND ACTIVITIES IDENTIFIED THROUGH PERSONAL COMMUNICATION WITH SERVICE FIELD OFFICES

FIELD OFFICE	PROJECT/ACTIVITY	UNIT	SOURCE
DEVELOPMENT			
Ventura	Manual breaching of Pajaro River	CA 20	Personal communication with U.S. Fish and Wildlife Service, Ventura Field Office biologist, July 8, 2011.
	Manual breaching of Salinas River	CA 22	
MINING			
Arcata	Gravel extraction	CA 6	Personal communication with U.S. Fish and Wildlife Service, Arcata Field Office biologist, May 31, 2011.
Note: Personal communication also confirmed many of the projects identified in Exhibits E-1 and E-3; these have not been repeated here for simplicity.			

E.4 STATE AND LOCAL GOVERNMENTS

209. In addition to contacting Federal action agencies, relevant stakeholders, and Service field office biologists, we identified several county and municipal governments in which impacts may occur. First, we contacted counties that were listed as having a high potential for development in the 2005 Economic Analysis.¹⁹⁷ In cases where cities and other incorporated areas fell within critical habitat, we also contacted the appropriate municipal governments, as county planning offices did not have access to information related to planned or ongoing projects in these areas. Exhibit E-6 lists the county and municipal governments contacted and the units within or adjacent to their planning boundaries. Exhibit E-7 summarizes the projects and activities identified through personal communication with county and municipal governments.

EXHIBIT E-6. LIST OF STATE AND LOCAL GOVERNMENTS CONTACTED

AGENCY	UNITS WITHIN JURISDICTION
Del Norte County	CA 1
Humboldt County	CA 2, CA 3, CA 4, and CA 5
Marin County	CA 9 and CA 10
Santa Cruz County	CA 17, CA 18, and CA 19
Monterey County	CA 20, CA 21, CA 22, and CA 23
San Luis Obispo County	CA Units south of CA 24 to CA 31
Santa Barbara County	CA 32, CA 33, CA 34, and CA 35
Ventura County	CA 37, CA 38, and CA 39

¹⁹⁷ Industrial Economics, Inc., "Economic Analysis of Critical Habitat Designation for the Western Snowy Plover," prepared for the U.S. Fish and Wildlife Service, July 20, 2005.

AGENCY	UNITS WITHIN JURISDICTION
City of Marina	CA 22
City of Sand City	CA 22
City of Oxnard	CA 38 and CA 39
City of Port Heuneme	CA 39

EXHIBIT E-7. PROJECTS AND ACTIVITIES IDENTIFIED THROUGH PERSONAL COMMUNICATION WITH STATE AND LOCAL GOVERNMENTS

AGENCY	PROJECT/ACTIVITY	UNIT	SOURCE
DEVELOPMENT			
Del Norte County	Development project planned near critical habitat.	CA 1	Personal Communication with H. Kunstal, Deputy Director of Planning, Del Norte County, on June 2, 2011.
Marin County Planning	Lawson's Landing RV and camp site.	CA 9	Personal Communication with T. Taylor, Marin County Planning, July 19, 2011.
Santa Barbara County Planning	Excavation of an old movie set outside City of Guadalupe.	CA 31	Personal Communication with county planners, Santa Barbara, June 6, 2011.
	"Surf beach" tidal energy project.	CA 33	
Note: Personal communication also confirmed some projects identified in Exhibit E-1; these have not been repeated here for simplicity.			

210. Some of the projects identified in Exhibit E-7 were not ultimately included in the economic analysis due to lack of specific information related to the nature and timing of the project. These include the development project near Unit 1, excavation of a movie set near Unit CA 31, and the "Surf Beach" tidal energy project near Unit 33. Lawson's Landing is an RV and camp site located along the coast. The campground has been in operation since 1957. Recently, CCC has questioned whether the campground is operating without the necessary coastal permits and is undergoing a review of operations at the site. It does not appear that the activities at the campground have a Federal nexus or that the designation of critical habitat would impact the ongoing CCC review. Therefore, we do not expect that the campground will be affected by the designation of critical habitat for the plover.

E.5 2005 ECONOMIC ANALYSIS

211. Finally, we referred to the 2005 Economic Analysis to determine if any of the projects analyzed in that report were ongoing might be affected by the new designation. Due to their relative significance in the 2005 analysis, we made further inquiries into recreation at Oceano Dunes SVRA and Sand City development projects. We spoke to Oceano Dunes SVRA staff as well as the attorney for and president of Friends of Oceano Dunes,

Inc., an advocacy group for public access and use of the park.^{198,199} These conversations helped us understand how Oceano Dunes SVRA is currently used, what the park is doing to protect the plover, and how the park expects to be affected by the revised rule. To learn more about Sand City development plans, we spoke to the Attorney for Sand City and Director of Community Planning and Development.²⁰⁰ This conversation supplemented a detailed public comment submitted by the attorney for the SNG development.²⁰¹ This conversation and public comment provided information on the current status of these projects as well as possible impacts that may result from the revised designation.

¹⁹⁸ Personal Communication with R. Glick and A. Zilke, California Department of Parks and Recreation, Oceano Dunes District, May 10, 2011.

¹⁹⁹ Personal Communication with T. Roth, Law Offices of Thomas D. Roth and J. Suty, Friends of Oceano Dunes, July 22, 2011.

²⁰⁰ Personal Communication with J. Heisinger, City Attorney for Sand City and S. Matarrazo, Director of Community Planning and Development for Sand City, July 18, 2011.

²⁰¹ Public Comment Submitted by the Law Offices of Thomas D. Roth on behalf of Security National Guaranty, Inc., ESA Section 4(b)(2) Petition to Exclude Acreage From Proposed Critical Habitat for the Western Snowy Plover, Comments to Proposed Rule for Revised Critical Habitat, and Supporting Documentation, May 20, 2011.